

Vancouver, BC, Canada

June 3-8

ISSRM 2006

12th International Symposium on Society and Resource Management



Social Sciences in Resource Management:

**Global Challenges &
Local Responses**



BOOK OF ABSTRACTS



SIMON FRASER
UNIVERSITY

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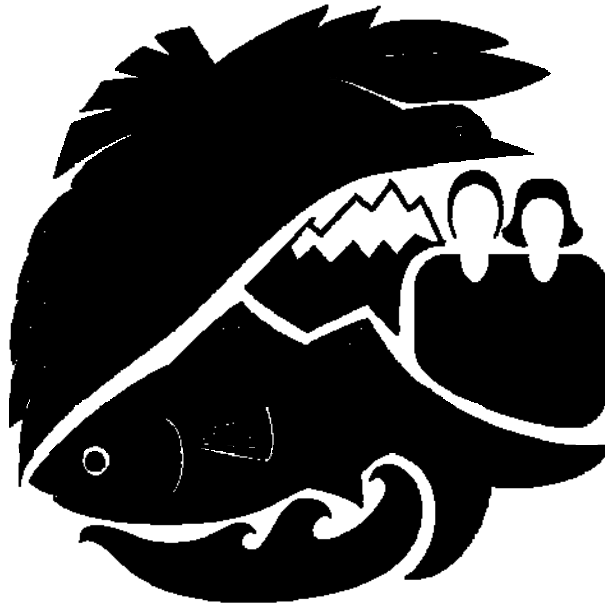
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School of Resource and Environmental Management
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BOOK OF ABSTRACTS

The 12th International Symposium on Society and Resource Management

Wolfgang Haider (Chair), Alex Clapp (Co-Chair), Stephen RJ Sheppard (Co-Chair)
Organizing Committee



June 3 – 8, 2006

Vancouver, British Columbia, Canada

**Compiled by
Ben Beardmore, Krista Englund and Wolfgang Haider**

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Organizing Committee

Wolfgang Haider (Chair)

School of Resource & Environmental
Management
Simon Fraser University
Email: whaider@sfu.ca
Phone: 604-291-3066

Alex Clapp (Co-chair)

Department of Geography
Simon Fraser University
Email: aclapp@sfu.ca

Stephen Sheppard (Co-chair)

Landscape Architecture & Forest
Resources Management
University of British Columbia
Email: shep@interchange.ubc.ca

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Welcome Message

The local organizing committee under the leadership of the School of Resource and Environmental Management (REM) at Simon Fraser University (SFU), supported by other Departments at SFU and the Faculty of Forestry at UBC, is pleased to welcome you to the 12th International Symposium of Society and Natural Resources.

Vancouver is a vibrant and multicultural city – itself a product of globalization. Yet Vancouver is also the metropolitan area of a large resource dependent hinterland, where forestry, fishing, mining and resource based tourism provide the main staples for economic activity. Even though we meet in the city, simply out of convenience and to accommodate a large number of participants, we should remind ourselves that the predominant focus of this meeting is on the resources of the hinterland and its communities. When enjoying the scenery from the many superb vantage points in this city, you may want to remind yourself that the silhouette of the nearby Northshore Mountains demarcates the edge of wilderness.

Given this dichotomy, we have chosen “**Global Challenges – Local Responses**” as the theme of the Symposium, because it reflects the fundamental British Columbia situation, and summarizes these inherent contradictions which can be observed worldwide. The wave of people who come to live and play in B.C., the extraordinary mix of cultures they bring and the threats of global resource consumption and climate change, will drastically affect B.C., as a microcosm for the rest of Canada and the world. These challenges and responses are reflected in most of the ISSRM presentations and discussions, whether on sense of place, community resilience, economic progress, or sustainability. It is in that spirit that we are proud to have attracted the largest [[and most international]] crowd ever to come to an ISSRM meeting, for the 1st time in Canada. We hope that it will also be a successful and memorable professional and personal experience for each of you. We also hope that you have an opportunity to enjoy some of British Columbia’s outdoors before or after the meeting (but not too much during!).

Such meetings only work with the assistance of many individuals and organizations. In particular we would like to acknowledge the support of our generous sponsors, IASNR “elders”, and the numerous session organizers who make the programming of such an event possible.

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On behalf of the people of Canada, we protect and present nationally significant examples of Canada's natural and cultural heritage and foster public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations.

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Ontario Ministry of Natural Resources

The Ontario Ministry of Natural Resources (OMNR) is the government agency responsible for natural resources in the province of Ontario, including forests, fish, wildlife, waters, lands, parks and the Great Lakes. The OMNR is committed to protecting and managing the province's natural resources, or its "natural capital", and making the interest from that capital available for individuals, communities and economies that depend on it. In doing so, the Ministry contributes to the environmental, social and economic well-being of the people of Ontario, meeting not only today's needs, but also ensuring these resources are available for future generations.



BC Ministry of Forests & Range

The British Columbia Ministry of Forests, also known as the Forest Service, is the main agency responsible for the stewardship of 47 million hectares of provincial forest land and fire protection services for 84 million hectares. The ministry's role also includes maintaining a policy and regulatory framework that creates a competitive forest industry. More than 90 per cent of British Columbia's forestlands are publicly owned, which means that the provincial government, on behalf of the public, plays a much more prominent role in the forest sector than its counterparts in other forestry jurisdictions. The ministry pursues its goals for sustainable forest and range resources and benefits in a consultative manner with the public, industry, and other Crown agencies, while recognizing the unique interests of aboriginal people.



Canfor

Canfor Corporation is a leading Canadian integrated forest products company based in Vancouver, British Columbia. The Company has 33 extensive woodlands operations and manufacturing facilities in British Columbia, Alberta, Quebec, Washington State and North and South Carolina. Canfor is a major producer and supplier of SPF and SYP lumber, bleached kraft pulp, specialty kraft paper, plywood and oriented strand board (OSB) for markets around the world. Customers of forest products increasingly require assurances that products purchased are derived from well-managed forests. Canfor has implemented a comprehensive third-party sustainable forest management (SFM) certification strategy to verify that its forest operations are well managed. Canfor retains an International Organization for Standardization ("ISO") 14001 certification of its environmental management system for its forest operations, first obtained in 1999 and re-certified as required for subsequent 3-year terms.



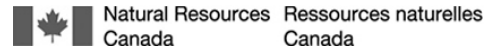
Environment Canada



Environment Canada Environnement Canada

Environment Canada's mandate is to preserve and enhance the quality of the natural environment, including water, air and soil quality; conserve Canada's renewable resources, including migratory birds and other non-domestic flora and fauna; conserve and protect Canada's water resources; carry out meteorology; enforce the rules made by the Canada - United States International Joint Commission relating to boundary waters; and coordinate environmental policies and programs for the federal government. Environment Canada's mission is to make sustainable development a reality in Canada by helping Canadians live and prosper in an environment that needs to be respected, protected and conserved.

Natural Resources Canada



Natural Resources Canada (NRCan) is a federal government department specializing in the sustainable development and use of natural resources, energy, minerals and metals, forests and earth sciences. NRCan deals with natural resource issues that are important to Canadians. They look at these issues from both a national and international perspective, using their expertise in science and technology, policy and programs. NRCan conducts leading-edge science and technology to provide Canadians with ideas, knowledge and technologies; builds and maintains a national knowledge infrastructure on Canada's land and resources; ensures that federal policies and regulations on issues such as the environment, trade, the economy, Canadian land and science and technology enhance the natural resources sector's contribution to the economy while protecting the environment and the health and safety of Canadians; and promotes Canada's international interests together with international agencies and other nations.

Sponsors

School of Resource and Environmental Management, Simon Fraser University

The school of Resource and Environmental Management (REM) is one of the first multidisciplinary programs in resource management to have been developed in Canada. The program is distinguished from many other programs by having internationally recognized research teams in both the social sciences and the natural sciences.

Faculty of Applied Science, Simon Fraser University

The Faculty of Applied Sciences houses six unique and diverse Schools of academic study integrated through shared pedagogic aims and objectives and interdisciplinary research. These include Communication, Computing Science, Engineering Science, Interactive Arts & Technology, Kinesiology, and Resource and Environmental Management. The Faculty offers full-time and part-time undergraduate and graduate degree programs and graduates of the applied science programs enjoy excellent employment prospects in relevant professions.

Department of Forest Resource Management, University of British Columbia

The mission of the Forest Resources Management Department is to provide an outstanding education in forestry and conservation that is integrated, international, and experiential. The department undertakes significant, innovative research, and promotes an interdisciplinary environment that attracts world-class scholars and graduate students. It engages indigenous peoples, in Canada and abroad, in their stewardship of forest lands. It fosters public understanding of, and actively promotes sustainable approaches to, regional and global natural resource and conservation challenges.

United States Forest Service, Department of Agriculture

- USDA stewards the nation's 192 million acres of national forest and rangelands.
- USDA is the country's largest conservation agency, encouraging voluntary efforts to protect soil, water, and wildlife on the 70% of America's lands that are in private hands.
- USDA is responsible for the safety of meat, poultry, and egg products.
- USDA is a research leader in everything from human nutrition to new crop technologies that allow us to grow more food and fiber using less water and pesticides.
- USDA helps ensure open markets for US agricultural products and provides food aid to needy people overseas.
- USDA brings housing, modern telecommunications and safe drinking water to rural America.
- USDA leads the Federal anti-hunger effort with the Food Stamp, School Lunch, School Breakfast, and the WIC programs.

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ABSTRACTS

Improving wildland fire communication programs by examining the perceived effectiveness of defensible space choices

Absher, James D
Pacific Southwest Research Station
USDA - Forest Service
Riverside CA USA 92507

Jerry J Vaske
Department of Nat. Resource Recreation & Tourism
Colorado State University

Alan D Bright
Department of Nat. Resource Recreation & Tourism
Colorado State University

Email: jabsher@fs.fed.us

Keywords: wildland fire, defensible space, communication, trust, beliefs

Abstract: Agency supported communication programs designed to mitigate or reduce structure losses in the wildland urban interface during wildland fire events (such as Firewise) are rarely evaluated directly. In general, social science predicts that if a homeowner feels that an action is effective he or she will be more likely to comply. As a first step to incorporating this relationship into an evaluation protocol, we present an analysis based on cognitive hierarchy to probe the underlying mechanisms that lead to homeowner perceptions of effectiveness. A model is tested to reveal the influences that precursor variables have on a homeowner's perception of effectiveness in a defensible space program. Specifically, we reveal the separable effects of two sets of variables previously suggested as important to this process: basic beliefs and trust issues. Data come from a survey of homeowners (n=531) who live in front range counties of Colorado. Regression analyses of homeowners' perceived effectiveness of six different possible defensible space actions were conducted, ranging from easy (e.g., clean roof) to more difficult or costly (e.g., fire resistant building materials). Results show that the explanatory variables are different across the defensible

space actions studied. Overall, homeowner responsibility and trust in the management agency or shared values, explained the most variance. Following from the regression analysis, specific communication program recommendations are made, and the results are discussed in the context of building better communication programs—ones that will more effectively encourage homeowner behaviors that should lead to reduced property losses and improved firefighting efficiency.

Factors contributing to the visitors' choice of trailheads and routes in Daisetsuzan National Park, Japan

Aikoh, Tetsuya
Graduate School of Agriculture
Hokkaido University
Sapporo Hokkaido Japan 060-8589

Keisuke Kawaguchi
Graduate School of Agriculture
Hokkaido University

Email: tetsu@res.agr.hokudai.ac.jp

Keywords: trail management; access change; mode of travel; crowding;

Abstract: Visitors' choice behavior are known as the composition of several attributes such as personal factors, information sources and site attributes, etc. The information about visitors' choice of the sites for hiking is useful to manage trails in recreational areas. Increasing number of visitors and the change of access has caused the concentration of visitors on some popular routes, therefore natural resource impacts and the change of wilderness experience has been reported in Daisetsuzan National Park. Managers and stakeholders are seeking some management strategy to modify such situation.

Hikers were asked to rate the importance of 21 attributes about the routes, the trailheads and the camp sites. We also asked the information sources, the motivation, their experience and their willingness to next visit. The result of factor analysis showed that visitors considered the convenience of camp site, the walkability of route, the convenience of trailhead, the condition of natural resource and the less visitors. Those factors had relationships with their motivation, information sources and their experience of hiking and Daisetsuzan National Park. We found the significant relationships among visitors' personalities and site attributes which they had considered. Those information will be helpful for managers to control visitor flows and to choose the information they offer.

Expanding the benefits-based management framework to provide for diverse wildland recreation opportunities in Florida's multiple-use landscapes.

Albritton, Rachel R
School of Forest Resources and Conservation
University of Florida
Gainesville USA 32611

Taylor V Stein
School of Forest Resources and Conservation
University of Florida

Email: rachelalbritton@yahoo.com

Keywords: Benefits-Based Management, Place Dependence, Place Attachment, Multiple-Use Recreation

Abstract: With Florida's rapidly growing population and urbanization into rural areas, natural resource managers struggle with providing quality wildland recreation opportunities for visitors who range from foreign tourists to local families. Benefits-based management (BBM) provides a framework to help managers identify, measure, and manage for the diverse recreation motivations people have for recreating in Florida's natural areas. However, BBM research has not been applied to intense recreation use in the wildland-urban interface nor to motorized recreation on public lands. This paper will present the results of a study that focused on these diverse settings, activities, and visitors. It also attempts to bridge the gap between community and visitor benefits through the investigation of place attachment and dependence.

Researchers identified and surveyed visitors to diverse sites throughout Florida – ranging from motorized areas to wilderness. All areas were within two hours of large cities. Results show a diverse public uses these resources and although similarities exist, managers must work with subtle and dramatic differences among visitors. For example, the majority of all users rated “nature appreciation” important; however, their preferred settings ranged from primitive to highly developed. When examined within the bundle of their other desired benefits, connections were made between activities, settings, and desired benefits. Finally, results show respondents' desired benefits related to their feelings of place dependence, which interacted with residence and experience in the area. Implications show that the BBM framework can be expanded to include diverse situations, but managers must better understand visitors' dependence on the area.

Green entrepreneurship: A method for managing natural resources?

Allen, John C
Western Rural Development Center
Utah State University
Logan UT USA 84322-8335

Stephanie Malin
Dept. of Sociology, Social work and Anthropology
Utah State University

Email: Johna@ext.usu.edu

Keywords: green entrepreneurship; sustainable development; environment; economy; quality of life; case studies

Abstract: Economic development is often seen as the antithesis of natural resource management, maintenance of ecological integrity and local rural quality of life. An emerging phenomenon that some are calling "green entrepreneurship" may provide models that support the three legs of sustainability: Environment, Economy and Quality of Life. Drawing upon literature and case studies this paper highlights the factors that influence the development of Green Entrepreneurship. Case studies are used to categorize the types of green entrepreneurs and evaluate the impacts these new and emerging entrepreneurs have on the three legs of sustainability. The findings suggest that green entrepreneurs have significant impacts on these three legs of sustainability: Environment, Economy and Quality of Life.

Career challenges for Canadian foresters: Implications for training and workplace culture

Allen, Trena N
Rural Economy
University of Alberta
Edmonton AB Canada T6G 2H1

Naomi T Krogman
Rural Economy
University of Alberta

Email: tnallen@ualberta.ca

Keywords: university education; forestry training; professional development; organization culture; values

Abstract: The work environment for practicing Canadian foresters has changed significantly in recent years. A shift from a focus on timber values to multiple values and a corresponding set of changes in forest policy has created a dynamic environment for foresters. Yet relatively little data exists on the career challenges Canadian professional foresters face. This study presents the result of 965 forester responses to an open-ended question, as answered on a 2004 Web-based survey, that asked registered professional foresters to describe the 'single most important challenge they face, or have faced in their forestry career'. The findings reveal that changing government policy, the lack of economic security, and value clashes within work cultures and with various sectors of the public are some of the most significant challenges faced by professional foresters in Canada. Foresters find themselves in an environment where rapid change at the forest policy level, economic uncertainties of the forest sector, and a lack of compatibility between their ethics, certain sectors of the public, and at times, employers, create stress in many foresters' lives. These results present a strong direction for new and relevant professional forester curriculum and continuing forester education to address a shifting policy and political environment where foresters feel accountable to many parties and need support to clarify their own professional ethics and roles to make critical decisions around forest management. Canadian forestry curriculum does not currently appear adequate to prepare foresters for the challenges they face on the job.

**Communicating risks and benefits:
Representations of farmed salmon in U.S.
newsprint coverage**

Amberg, Shannon M
Conservation Social Sciences
University of Idaho
Moscow ID USA 83844

Troy E Hall
Conservation Social Sciences
University of Idaho

Edwin E Krumpe
Conservation Social Sciences
University of Idaho

Email: ambe5250@uidaho.edu

Keywords: fish farming; media trend analysis;
risk/benefit tradeoffs; media framing; food risks

Abstract: Mass media play an important role in setting the public agenda and influencing public perceptions about risk issues, for example, hazards concerning food. Perceptions of food hazards and food technology are frequently characterized as some of the worst types of dreaded and unknown risks (Slovic, 1987). Two recent studies concerning contaminants in farmed salmon (EWG, 2003; Hites et al., 2004) stimulated widespread media attention of risks and benefits and ignited substantial controversy and public concern. This research compares and contrasts how media stories in the U.S. have represented human health and environmental risks and benefits regarding farmed salmon. All articles featuring farmed salmon and/or salmon aquaculture published in newspapers across the U.S. from January 2000 through December 2005 were collected (n=8776;200). Content analysis was performed and inter-rater reliability was above 90%. This study describes 1) the types of risks and benefits that are represented in media coverage, 2) which risks and benefits are emphasized most frequently in media stories and how this emphasis has shifted over time, and 3) how the volume of media coverage has changed over the five-year period. Discussion of risks dominated discussion of benefits and media closely followed the two trigger studies. The findings of this research have implications for the purchase and consumption of farmed salmon, public understanding of magnitude and likelihood of health and environmental risks, and the design of communication messages concerning the relative risks of consuming salmon as compared to its healthful benefits.

**The evolution of devolution: the community
forest agreement in British Columbia**

Ambus, Lisa M
Forest Resources Management
University of British Columbia
Vancouver BC Canada V6K 1C8

Email: lisa.ambus@shaw.ca

Keywords: policy analysis; sustainable forest management

Abstract: Community forest tenure in British Columbia was introduced as a mechanism to enable more local control, to diversify the economic base of resource dependent communities, and to create space for innovative approaches in forest management. This paper chronicles the evolution of the Community Forest Agreement (CFA) through two successive policy cycles – from pilot project to established program. A set of performance indicators (social, ecological and economic) measured for individual community forests provide a basis with which to evaluate the provincial program as a whole. This article seeks to explain these policy outcomes by examining the role and interaction between different actors, institutions and ideas against a background of unpredictable socio-economic conditions, political climate, and forest health concerns. Detailed analysis of the design and implementation of the CFA program suggests that while it remains a small experimental tenure reform, community forestry has had significant positive impact at the local level. BC's experience with community forest tenure stands as an important empirical case study of devolution policies in forest management.

Photographic methods as a tool for assessing sense of place and risk perception

Amsden, Ben
Ag Economics and Rural Sociology
Penn State Univ.
University Park PA USA 16802

Richard Stedman
Ag Economics and Rural Sociology
Penn State University

Email: amsden02@yahoo.com

Keywords: sense of place, risk assessment, photographic methods

Abstract: Seward, Alaska, is a town of roughly 4,500 people located at the base of the Chugach National Forest in the southern Kenai Peninsula. The natural amenities of 'gateway communities' like Seward are important not only to tourists, but also the people who have lived, worked, and played in those communities for generations. Research was recently conducted in Seward that made use of a photo-based qualitative methodology to elucidate how local residents in these communities interact with natural places such as the Chugach.

This examination of the creation and communication of place attachment provided some surprising and unexpected results. In addition to conveying attachments predicated solely upon previously understood elements of sense of place, participants used their photographs and interview responses to express a variety of perceived ecological, environmental, economic and political risks.

The nature of these risks, embedded within residents sense of place, suggests that for nearly every important construction of place attachment, there is an equally important perception of risk. Furthermore, these risks are viewed not just on an individual level, but seen also in terms of their impact on the local community. This paper, then, identifies the multiple contexts in which these perceived risks are located and proposes a model linking risk and sense of place via interactional community theory. This new approach to risk analysis may be a salient way of assessing how residents see the risk around them and its connection to the landscapes that are an important part of their daily lives.

From waste to resource: The potential for desalination of oil field produced water

Anderson, Brooklynn J
Recreation, Parks, and Tourism Sciences
Texas A&M University
College Station TX USA 77843-2261

Email: brooklynnj@yahoo.com

Keywords: barriers; rights; purity; EPA; guidelines

Abstract: In Texas and in other major oil producing states, oil producers have an opportunity to partner with local communities in combating water shortages in their areas of operation. Mature wells in these areas produce substantially more brine water than they do oil. This presents the challenge of identifying the most cost-effective, resourceful, and environmentally sound method for disposal of excess brine water. Desalination, a process whereby dissolved solids and contaminants are removed from produced water, makes it suitable for a variety of potable and non-potable uses.

The potential for adoption and diffusion of this technology depends on several factors, among which is the willingness of oil and gas producers to employ such treatment methods. Producers' attitudes are influenced by considerations such as the cost of the technology, operator liability, and public acceptance. This paper will explore these factors in detail, addressing the validity of the concerns, and presenting possible recommendations and incentives that may make desalination a more feasible alternative to current management and disposal practices.

Managing landscapes for sustainable recreation: What do we know? What do we need to know?

Anderson, Dorothy H
Forest Resources
University of Minnesota
St. Paul MN USA 55108

Taylor V Stein
School of Forest Resources and Conservation
University of Florida

Mae A Davenport
Forestry
Southern Illinois University, Carbondale

Jessica E Leahy
Forest Management
University of Maine

Delene C Weber
School of Natural and Built Environments
University of South Australia

David C Fulton
Fisheries, Wildlife and Conservation Biology
USGS BRD Coop Unit, University of Minnesota

Email: dha@umn.edu

Keywords: visitor benefits, community benefits, social capital, trust, place attachment

Abstract: This paper reports on the growth and refinement of the benefits approach to managing public lands for visitor and community benefits. The benefits approach to managing outdoor recreation settings expands the experience based management model to include the types of benefits visitor believe are important to their on-site recreation engagement as well as their ability to attain those benefits while recreating on-site. Over the past 10 years the benefits approach has been expanded to include benefits, their importance, and their attainment by individuals living in communities near-by or adjacent to outdoor recreation areas. Although visitors and community members have no trouble in identifying the kinds of benefit opportunities land managing agencies should provide for them and land managing agencies have no trouble in describing the kinds of benefit opportunities they believe their management provides, often times benefit attainment does not occur, especially for people living in near-by communities. Benefit attainment is apparently linked to other concepts important to land management. Understanding visitor and community place attachment

and community-agency trust relationships is key to benefits based management that will result in sustainable recreation opportunities for visitors recreating on and community members living near-by public lands. The benefits based management framework is being expanded to include these key concepts. The meanings of these concepts and how they relate to benefits is being explored through a number of qualitative studies. Study results have led to the development of new scales and new ways of thinking about managing public lands for the benefit of people and society. Currently these scales are being tested on public lands managed by a number of different land managing agencies. The papers in this session and in the session "Moving from Place Attachment to Place Dependence in Community Research" illustrate the expanded benefits framework.

Overcoming human obstacles to conservation of recreational fishery resources, with emphasis on central Europe

Arlinghaus, Robert
Biology and Ecology of Fishes
Leibniz-Institute of Freshwater Ecology and Inland
Berlin Berlin Germany 12587

Email: arlinghaus@igb-berlin.de

Keywords: Angling, environmental concern, fisheries, sustainability, property rights

Abstract: Privately governed European recreational fisheries systems offer suitable conditions to reconcile resource use with resource conservation. Beneficial traits include possibility to restrict access, simple decision-making structures and small management scales. This increases the hope that the “race for fish phenomena” may be less pronounced in recreational fisheries as compared to open-access or quasi open-access commercial fisheries. However, to achieve harmony between use and conservation values with respect to recreationally exploited fish stocks, a thorough understanding of the human dimension is paramount. Unfortunately, this type of approach is underrepresented in contemporary recreational fisheries science and management. This paper presents key human obstacles to the reconciliation of recreational fishery resource use and resource conservation, with emphasis on private fishing rights regimes of central Europe. The nine identified obstacles are: (1) lack of social priority; (2) lack of integrated approaches; (3) lack of cooperative institutional linkages; (4) lack of systems thinking; (5) lack of research and monitoring; (6) lack of shared values and dominance of stereotyped perceptions; (7) lack of consideration for regional fish-angler dynamics; (8) lack of objective communication of scientific findings; and (9) lack of critical self-reflection among individual anglers. It is an utopian view to assume that reconciliation of recreational fisheries and conservation will progress quickly and immediately. The prospect will be enhanced by increasing research and management efforts related to the social component of recreational fisheries. It is a matter of societal values whether it is judged necessary to do so on a broader scale.

Crowding, behavioural, managerial and aesthetic preferences of urban park users: An image-based choice experiment

Arnberger, Arne
Institute of Landscape Development
University of Natural Resources and Applied Life S
Vienna Austria 1190

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University, Burnaby

Email: arne.arnberger@boku.ac.at

Keywords: Safety concerns; Trail design; User composition; Vienna; Visitor conflicts

Abstract: One main function of urban recreation areas is to provide counter-spaces to the many types of over-stimulation so characteristic of urban life, and as such to offer recreation opportunities for urban residents. However, high-use levels, visitor conflicts, unwanted visitor behaviour, poor trail design, low levels of area maintenance and safety concerns diminish the recreation experience.

The goal of the study was to model trail use preferences of urban park users, depending on crowding, behavioural, managerial, design and aesthetic aspects using an image-based stated choice method. Trail images were generated in Adobe Photoshop, following a statistical design plan containing 11 attributes. Factors potentially influencing trail use preferences included number of visitors, number and size of dogs, whether dogs are on or not on a leash, user types, amount of litter seen on the image, signs of vandalism, and environmental attributes such as the amount and closeness of trees and bushes to the trail, width of trails etc.

Visitors to selected urban parks of Vienna were interviewed on site. Trail preferences were assessed by asking the visitors to choose the most and the least preferred scenario of each choice set of four trails. A multinomial logit analysis identified the influence of each factor on the respondent's choice of a trail scenario. Based on visitor choices the combinations of attributes were modelled to identify the optimal trail scenarios, assisting park planners and managers in increasing the societal benefits accruing from urban greenway trails.

Research was supported by the Austrian Science Fund (FWF)

Protection and equity: Local and indigenous encounters with the grand scheme of area protection in Norway.

Arnesen, Tor
(not relevant)
Eastern Norway Research Institute
Lillehammer Norway 2626

Jan-Aage Riseth
Social Science Research
NORUT

Terje Skjeggedal
Eastern Norway Research Insitutue

Email: torw@ostforsk.no

Keywords: national parks; ecosystem management; collaboration

Abstract: The plan for a significant increase of national parks and large nature protection areas was accepted by the Norwegian Parliament in 1993. Most land subdued is crown land and commons – land with an intricate system and time-honored traditions of split property rights – some “forged” into formal agreements and juridical arrangements others “floating” as locally accepted and transferred “ways of doing things” and practices of tolerated use. Together they reflect local and indigenous communities’ life forms. The grand scheme assumes a transfer of jurisdiction from being basically under local domain control to central domain formalized control. This transfer of jurisdiction is not efficient in translating “floating and informal” systems of rights and use, resulting in local and indigenous powerlessness within their traditional territories. Increased attention is required for better understanding the social processes involved. It is not uncommon, we claim, for the nature protection bureaucracy to underestimate democratic aspects of domain control transfers. But altered approaches to protected area management are called for on ecological premises too. Ecosystem management is concerned with how discretion should be designed in order to come to grips with ecological challenges. A shift towards ecosystem management acknowledges that management regimes have to adapt in iterative cycles to situations and demands. This basically requires shifts in areal protection management styles found operative in Norway today, from a dominant hierarchical ideology to a collaborative approach.

When should an estuary be opened? An estuary entrance management support system to inform manager’s decisions

Arundel, Helen P
School of Ecology and Environment
Deakin University
Warrnambool Victoria Australia 3280

John Sherwood
School of Ecology and Environment
Deakin University

Julie Mondon
School of Ecology and Environment
Deakin University

Email: harundel@deakin.edu.au

Keywords: Decision support system; decision tools

Abstract: Many estuaries in southern Australia intermittently close following the formation of a sand bar at the mouth of the estuary. The resultant increase in water level within the estuary has an environmental benefit as adjoining wetlands and littoral fringes are inundated, however, there are also economic costs associated with flooding of infrastructure and agricultural land.

A history of unlicensed river mouth openings and community concern about the lack of clear, consistent guidelines were the impetus for the development of the Estuary Entrance Management Support System (EEMSS). Community input via a series of workshops was an integral stage in the development of EEMSS. The workshops identified the range of socioeconomic, cultural and environmental assets to be considered when deciding whether or not to open an estuary.

The EEMSS is a database, which has the capacity to store physicochemical data, biological information and digital images and run impact assessments. The impact assessment, based on an assets-threats model, compares opening with not opening an estuary at a range of water levels and conditions. Technical advisory groups were established to provide expert input into describing the impact of various water regimes on environmental values, particularly birds, fish and plants. Community members, associated with specific estuaries, were involved in scoring assets and threats for their estuary. The EEMSS also provides a platform for ongoing monitoring of key estuarine physicochemical characteristics and identifies assets, most at risk from artificial mouth openings, to target in monitoring programs.

The power of images in sustainable development: The case of the Swiss 'UNESCO Biosphere Entlebuch' and the 'Jungfrau-Aletsch-Bietschhorn World Heritage Site'

Backhaus, Norman
Dept. of Geography
University of Zurich, Winterthurerstr. 190
Zurich Switzerland 8057

Email: backhaus@geo.unizh.ch

Keywords: Sustainable Development; Image analysis; Conservation; Participation; Representation of space

Abstract: The establishment of a nature reserve usually means a change of access to the area and its resources. Therefore, anticipated constraints for the use of resources often lead to opposition against nature conservation projects. Hence, bottom up initiated and broadly accepted conservation areas are rare, because different actors have different mental images about what their region should look like. Such images are expressed in written texts and visual publications (i.e. information brochures, newspaper articles). Visual images as well as “images in the head” play an important role for the structuration of landscape and the potential of appropriation of space. In two Swiss case studies – the newly established Entlebuch Biosphere and World Heritage Site Jungfrau-Aletsch-Bietschhorn – the following questions are addressed: “What role did printed images play in their decision-making?” and “How did the project leaders present the concept of sustainability to the public?”

The focus of the presentation lies on the role of visual images in the information process before the crucial polls. Applying a social geographical approach we analyse pictures in order to deconstruct the depicted relationship between actors and space. The pictures illustrate the abstract concepts of ‘Biosphere Reserve’, ‘World Heritage Site’ and ‘Sustainable Development’ and fill them with content. Thereby, mental representations of the concepts are produced: The visualisations present ideas of what a Biosphere Reserve is (or could be) like and how people can appropriate it. Despite the actual hype about “visual culture”, the “iconic turn” and similar headwords, there are only few studies that tackle a large number of pictures such as more than 500 like we did.

Results show that the representations of the conservation areas are different depending on the “view” adopted in the publications (inside-outside, before the poll and after etc.) as well as on the context in which they are produced and looked at. An important basis for a

successful participation process regarding sustainable development and nature conservation is a multifaceted presentation that includes different viewpoints and that also shows problematic issues. Based on the findings we make recommendations for the use of pictures in projects regarding sustainable development.

A longitudinal analysis of Grand Canyon National Park overnight backcountry visitors.

Backlund, Erik
Recreation, Sports & Tourism
University of Illinois
Champaign IL USA 61820

Email: backlund@uiuc.edu

Keywords: Longitudinal Analysis, Visitor behavior, Experience Quality

Abstract: Backcountry recreation policy-making has been informed largely by cross-sectional research. This is problematic because cross-sectional studies are insensitive to the dynamic nature of social systems. Furthermore, the effectiveness of management and policy prescriptions cannot be assessed without longitudinal analysis of visitors and their behavior. Over the past twenty years at Grand Canyon National Park, policies have been implemented to maintain or improve the quality of overnight backcountry experiences, especially in regards to visitor density evaluations and aircraft overflight impacts. The purposes of this research are related to examining longitudinal changes to Grand Canyon overnight backcountry hikers, their experience preferences, as well as their evaluations of visitor density and aircraft overflights. Data come from baseline data collected in 1984 (n = 2400) and a survey of the same population collected in 2004 (n = 1400). Results indicate that the demographic characteristics of trip leaders have shifted to an older population composed of more family groups. Experience preferences have remained fairly stable with “Being close to nature” and “seeking solitude” the most two most important. The visitor proportions indicating that the backcountry was used by too many people decreased 33% from 15% to 10%. Finally, the visitor proportion indicating that “Too many aircraft fly over the backcountry” remained at 43%. In conclusion, while there have been changes to the overnight backcountry visitor population, the experiences sought have remained stable. Furthermore, these findings provide evidence to suggest that the management practices implemented at Grand Canyon have maintained experience quality over the past twenty years.

Integrating recreation ecology and social science in Yosemite National Park

Bacon, Jim
Resources Management and Science
US National Park Service
Yosemite CA USA 95389

Yu-Fai Leung
North Carolina State University

Peter Newman
Colorado State University

Email: Jim_Bacon@nps.gov

Keywords:

Abstract: How many is too many? The question of how much human use is too much is as pertinent today as when it was first posed decades ago. The Visitor Experience and Resource Protection (VERP) framework was developed by the US National Park Service to address this concern. VERP is defined as a planning and management framework that focuses on human use impacts to park resources and the quality of visitor experiences. It was originally piloted in the mid-1990's and has gained increasing support since that time. However, though the framework has garnered support conceptually, questions remain on how to effectively put it into practice.

In 2000 legal action was taken against Yosemite National Park claiming that it had not adequately addressed carrying capacity in its Merced Wild and Scenic River Plan. As a result, the park developed the User Capacity Management Program in 2004. Implementation of the VERP framework is the cornerstone of this program. For the past two years park personnel and professors from Cooperative Ecosystem Studies Units at two universities have worked collaboratively to develop and implement the program. This effort has relied on the integration of natural, cultural and social resource information, and has led to the development of an on-going adaptive management program that addresses human use issues in the park. This paper presents major findings from scientific research and field monitoring conducted as part of this work. Management implications, lessons learned, and future considerations are also discussed.

Performance based planning and natural resources: Desired environmental outcomes in Queensland

Baker, Douglas C
School of Urban Development
Queensland University of Technology
Brisbane Queensland Australia 4001

Neil G Sipe
School of Environmental Planning
Griffith University

Email: d2.baker@qut.edu.au

Keywords: performance-based
planning;evaluation;Queensland

Abstract: Performance-based planning is becoming increasingly applied to the public sector around the world as a means to increase the efficiency and effectiveness of decision-making. Performance-based (also termed “effects” or “results based”) approaches have been used in North America, New Zealand and Australia to improve decisions for land use and natural resource planning. Performance-based planning is built upon the assumption that the impacts of land use are a function of intensity rather than specific use. Thus, performance-based approaches set standards that describe the desired end-result and acceptable limits of impacts. This type of planning is supposed to be more flexible, require fewer regulations, speed up the approval process, and encourage a greater dialogue amongst stakeholders.

Performance-based planning means different things to different stakeholders. Land use developers and governments have embraced performance-based planning as a means to reduce “red tape” in the development application process. Environmentalists also applaud performance-based approaches as a means to improve environmental management and decision-making with respect to land development activity. There seems to be a diversity of interests accommodated by performance-based planning, yet there is very little literature that critically assesses its application.

The purpose of this paper is to evaluate of the application of performance-based planning to natural resource management under Queensland’s Integrated Planning Act (1997). As of 2005, all Local Councils in Queensland have prepared their planning schemes using performance-based standards. The plan’s goals are set out as Desired Environmental Outcomes which provide the framework for standards and acceptable solutions. The paper will provide an empirical evaluation of how

effective performance-based standards are in environmental and natural resource management.

Assessing a multi-dimensional model of place dependence at an Illinois state park

Baker, Melissa L
Department of Society and Conservation
University of Montana
Missoula MT USA 59801

Mae A Davenport
Department of Forestry
Southern Illinois University

Email: melissa.baker@umontana.edu

Keywords: Place Attachment; Structural Equation Modeling

Abstract: Research has shown that recreationists and community members depend on public lands to provide a multitude of on-site and off-site benefits. This study examined the value of an integrative place dependence scale in assessing the strength of recreation visitors' dependence on Giant City State Park in southern Illinois. One primary goal of this study was to assess the validity of a multi-dimensional place dependence scale including recreation experience, personal identity, family identity, community identity, nature and economic dependence. A second goal was to examine differences in place dependence among local and non-local visitors. Data were collected from a stratified random sample of park visitors in the fall 2006 using a self-administered mail survey. Confirmatory factor analysis of the dependence scale was performed using structural equation modeling of a single factor and a six-factor model. Results confirm the value of a multi-dimensional place dependence scale. Differences between local and non-local visitors emerged, especially with respect to economic dependence. This study provides a more holistic picture of what public lands mean to recreationists beyond the on-site experiences and benefits they achieve. Understanding how and why visitors depend on public lands will help managers better communicate with their constituents.

The case of mobile floral greens harvesters in the pacific northwest: challenges and strategies for community forestry in the United States

Ballard, Heidi L
Environmental Studies
Oberlin College
Oberlin OH USA 44074

Email: heidi.ballard@oberlin.edu

Keywords: non-timber forest products; forest management; local ecological knowledge; tenure

Abstract: Mobile forest workers are only recently included in discussions of community forestry, reflecting their significant yet undervalued role in forest management in the U.S. Floral greens harvesters in particular, who are primarily Latino and Southeast Asian mobile forest workers, face a variety of challenges to maintaining productive livelihoods while also sustaining healthy forests. An examination of the case of mobile floral greens harvesters reveals the unique challenges and strategies of a community often over-looked by more mainstream community forestry efforts. Specifically, effective organizations in Oregon and Washington seem to have three interconnected strategies in which harvesters: 1) organize around issues that concern them, 2) negotiate with landowners and managers around issues of access to the land, and 3) work to acquire and share both scientific data and local ecological knowledge of the species they harvest. These strategies may provide lessons for other community forestry efforts involving very disenfranchised communities, as well as insight into the relationship between local knowledge and participation, resource tenure, and forest management and science.

Compliance with rules and exercising punishment in producer groups in Poland

Banaszak, Ilona
Chair of Resource Economics
Humboldt University of Berlin
Berlin Germany 10099

Volker Beckmann
Chair of Resource Economics
Humboldt University of Berlin

Email: banaszai@rz.hu-berlin.de

Keywords: cooperation rules compliance sanctions
producer groups

Abstract: Ensuring compliance with a group's rules is a key factor for survival of any type of cooperation. Experimental economics emphasizes the role of having a credible sanctioning mechanism in achieving successful cooperation in prisoner's dilemma and public goods games.

The empirical evidence of relatively newly established voluntary cooperative organisations indicates, however, that at the beginning of cooperation communicating to potential members a credible sanctioning procedure was perceived as discouraging and was rarely applied. Substantial benefits first have to be obtained to make both costly monitoring and sanctioning actions worthwhile for cooperating actors.

This article investigates the role of different factors suggested by game theory and collective action theory in achieving compliance with group rules. It also analyses why some groups react to a deviation from the rules by exercising punishment and others do not. The empirical evidence collected from farmer marketing organisations in Poland called producer groups shows that a set of explanatory factors provided by game theory appears to be more successful in predicting the probability of deviation and of exercising punishment than the set of factors provided by the collective action literature.

Such factors as group size, having a long term contract, the price premium, monitoring, and history of previous interactions demonstrate the strongest significance in predicting the compliance of members with group rules. The first three factors also appear to be

significant in predicting the exercise of punishment towards group deviators.

Managing public access and recreation in the British countryside for biodiversity.

Barlow, Catherine J
Institution of Education
University of Warwick
United Kingdom

Email: CatherineB@moulton.ac.uk

Keywords: British countryside; recreation; trampling; interdisciplinary; questionnaire; stakeholders

Abstract: The British countryside faces many pressures from the growing human population, not least from the growing legions of people who wish to visit it to undertake formal and informal recreational activities. Yet can this growing influx of people, with their associated deleterious impacts, be managed to the satisfaction of the land-owners and managers, whilst maintaining the unique heritage, character and quality of the wider countryside?

This paper presents an interdisciplinary approach to tackle the complex issues by investigating the current opinions of landowners and countryside users, the disturbance impact on British farmland birds, and the impact of trampling activity on typical lowland farmland vegetation. Preliminary findings suggest that landowners and countryside users often have opposing views on the issues arising from public access and recreation. A strong suggestion that education and communication between stakeholders could be key in resolving this issue.

With regard to wildlife, it has been shown that at low levels, recreational disturbance is not a significant factor in shaping farmland bird populations. Multivariate analysis indicated that some species were more tolerant to human disturbance than others. In the third study, the relative impacts of different types of user were also investigated using an experimental trampling protocol. Initial impacts from walkers, horse-riders, mountain bikers and all-terrain vehicles on a typical MG6 grassland community (Rodwell 1992) were found to be similar, demystifying the assumption that identifying a sole 'culprit' will solve outdoor recreation issues.

Finally, this research provides an important platform for decision makers involved in wider recreational management in intensively managed landscapes. Management proposals are suggested that minimise the conflicts between farming, recreational use and conservation.

Rodwell, J.S. Ed. (1992). British Plant Communities. Vol 3. Grasslands and Montane Communities. Cambridge University Press

Authenticity is in the eye of the stakeholder: Using local perceptions to plan for natural heritage tourism in the Mississippi delta

Barton, Alan W
Division of Social Sciences
Delta State University
Cleveland MS USA 38733

Jolana R Gibbs
Division of Social Sciences
Delta State University

Email: abarton@deltastate.edu

Keywords: Heritage tourism, natural heritage,
authenticity, community, Mississippi Delta

Abstract: Heritage tourists seek authentic experiences, but finding an operational definition for authenticity is a vexing problem facing tourism planners, providers, promoters and researchers. We seek to establish a sense of authenticity that is rooted in community, using a mixed methods approach to examine the perceptions of local residents on authentic natural heritage in the Mississippi Delta. A survey of residents of 11 counties contextualizes focus groups with residents of one town on the Mississippi River, to define dimensions of authenticity in the stories of natural heritage (including the river itself and the area's agricultural history) and natural history tourism attractions (including a nearby protected area and local hunting sites).

Perception and assessment of landscape changes in selected communities in the Swiss alps

Bauer, Nicole
Landscape & Society
Swiss Federal Research Institute WSL
Birmensdorf Switzerland 8903

Patricia Felber
Landscape & Society
Swiss Federal Research Institute WSL

Felix Kienast
Landscape Dynamics and Spatial development
Swiss Federal Research Institute WSL

Email: bauer@wsl.ch

Keywords: natural resource; mountain regions; landscape
development; sustainable development;

Abstract: In the project "Transformation rates of Alpine landscapes and surrounding areas" we investigated landscape transformation and its potential impact on people and biota in a historical and a predictive sense. The presented paper focuses on the population's perception and assessment of landscape changes. Knowing about the assessment is a precondition for enhancing landscape development according to the wishes and visions of the society.

The reactions towards landscape changes have been studied in on-site qualitative interviews in four communities with different transformation rates. The interviewees - inhabitants or former inhabitants of the four communities - were selected according to the 'theoretical-sampling' strategy; important criteria for the selection have been e.g. participation in local committees or landscape-related professions. The collected interview-data have been recorded, transcribed and content-analysed.

The results of the study show that the rate of change is not decisive for a positive or a negative valuation. The valuation of changes is significantly influenced by function and use of the changing landscape elements. Some elements have a high emotional benefit and thus protection costs are accepted to be high. However for many characteristic elements the economical benefit is valued higher than the emotional benefit.

Based on the results we recommend that the historical heritage of landscapes should be given more weight in landscape planning. Taking into account the knowledge about landscape-historical aspects in a community

enhances identification of the population with the commune and is an important market factor.

But can I drink it? Water quality awareness and attitudes in an urban watershed

Baumer, Michele D
Rural Sociology
University of Missouri
Columbia MO USA 65203

Heather J Scroggins
Resource Science Division
Missouri Department of Conservation

Email: mdbnp6@mizzou.edu

Keywords: Conservation; human dimensions; qualitative research; and attitudes towards regulation

Abstract: Urban development fragments, isolates, and degrades natural habitats, simplifies and homogenizes species composition, disrupts hydrological systems, and modifies energy flow and nutrient cycling. In Missouri 70% of the population lives in or around an urban area, increasing the threat to already altered ecosystems, decreasing the amount of acreage devoted to agriculture, and compromising Missouri's water quality and water resources. At the same time, residents of increasingly urbanized landscapes can often be disconnected from the natural world, and unaware of what if any impacts they and their activities may have. Evidence suggests awareness and attitudes regarding issues such as water quality may vary significantly among urban, suburban, exurban, and rural populations. This phenomenon was explored in an impaired urban watershed in central Missouri. The watershed was stratified based on population density, and a total of eight focus groups were conducted, two each with urban, suburban, exurban and rural watershed residents. In total, 60 residents of the study area shared their views on watersheds, water quality, and what they felt were problems and ways to improve water quality in their area, as well as their attitudes on regulatory matters such as zoning. Results indicate a high level of concern across all four groups, with most participants suggesting large scale development as opposed to individual behavior is responsible for water quality issues in their watershed. Implications for policy setting, as well as educational and awareness programs, are discussed.

Whose poo is it anyway? Collaboratively tracking marine pollution trends and sources with a First Nations community

Beach, Katie A
Resource and Environmental Management (REM)
Simon Fraser University
Vancouver BC Canada

Email: kbeach1@sfu.ca

Keywords: Microbial Source Tracking; Local Ecological Knowledge; Canadian Shellfish Sanitation Program

Abstract: Governmental budget constraints linked with expanding point and non-point source pollution have left many remote communities in Canada with the task of monitoring and remediating hazardous contaminants, particularly if they wish to protect local health and resource-dependent livelihoods. Yet these communities do not always have the financial or technological means to support such tasks. In this paper I will outline a strategy for collaborative research which may help to overcome such obstacles, facilitate intensive investigations in remote areas, and simultaneously increase the capacity of the affected communities to participate in decision making about their options. This process allows local input into everything from preliminary framing of the issue and research design, through to collaborative field work, and on to seeking feedback and offering further support.

The research and resulting strategy for collaborative marine water quality monitoring, draws upon the expertise of a range of stakeholder groups to investigate non-point source fecal pollution in marine waters near Kyuquot, a remote First Nations community on the west coast of Vancouver Island, British Columbia. In 2003, high fecal coliform counts led to large-scale shellfish harvesting closures along the coast of Kyuquot Sound. Repercussions of the closures range from cultural losses and health risks for local residents, to economic impacts including local loss of jobs and income. Therefore the strategy I will present includes commonly overlooked social science aspects of natural science research, and is meant to have broad ranging applicability to other remote communities throughout Canada.

View from a canoe: Modelling wilderness canoeists' perceptions and preferences for northern Ontario's boreal landscape.

Beardmore, Ben
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A1S6

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Len Hunt
Centre for Northern Forestry Research
Ontario Ministry of Natural Resources

Email: abb@sfu.ca

Keywords:

Abstract: Canoe paddlers' campsite and route preferences as well as landscape perceptions of pristine and disturbed landscapes in northern Ontario were solicited using an internet survey. This instrument integrated elements of the scenic beauty estimation method into a hierarchical discrete choice experiment (DCE). This novel technique enhanced the scenic beauty estimates (SBEs) by establishing a context for evaluation while also benefiting the DCE by presenting the canoe route information in a visual manner. This intuitive interface allowed more complex trade-offs to be assessed that would otherwise been possible using traditional methods. The outcome was a preference model for features of the boreal landscape such as different forest classes, degrees of human and natural disturbance, and varying mixtures of land use. Scenic beauty ratings are affected by several biophysical and contextual factors, including forest class and landscape disturbance level. The route choices are influenced strongly by forest type, minimum SBE, and campsite quality.

Conservation of critical natural capital in southeastern Alaska: significance of wilderness, land use designations and disturbance

Beier, Colin M
Biology and Wildlife (NSF-IGERT)
University of Alaska Fairbanks
Fairbanks AK USA 99775

David Albert
The Nature Conservancy

Trista M Patterson
Human and Natural Resource Interactions Unit
PNW Research Station, USDA Forest Service

Email: ftcmb1@uaf.edu

Keywords: ecosystem services; resilience; Tongass National Forest; landscape ecology; protected areas

Abstract: Natural ecosystems generate goods and services essential for the biological, economic, and cultural dimensions of human societies. This natural capital provides benefits to humans at a range of spatial scales, from local (food) to global (climate regulation). Once damaged or depleted, natural capital cannot be easily restored through human means; thus human capital is generally not substitutable for most forms of natural capital. Conservation of natural capital through protected areas is a common management approach; yet the science of designating these areas to maximize ecological values is still in its infancy. Moreover, the policy process that creates most protected areas often compromises conservation priorities with economic development interests. Such is the case in the Tongass National Forest of southeastern Alaska (SE AK), where nearly one-third of the 18.1 million acre Forest has been designated Wilderness by federal legislation. Other land use designations (LUDs) are grouped into Natural Setting and Development areas. The region is particularly unique due to the complex island biogeography of the SE AK archipelago and the high reliance of the local population on subsistence resources. Little is known about the landscape ecology of SE AK in relation to Tongass LUDs with respect to conservation of critical natural capital and sustainable provision of ecosystem services. At first glance, much of these legislatively protected areas appear to encompass high elevation, montane non-forest ecosystems with relatively little ecological importance. This paper tests this observation with a spatially explicit analysis incorporating the impact of disturbance on key areas of natural capital.

What to do with the forests? Politics and place perceptions in a northern resource dependent community

Beland Lindahl, Karin M
Department of Urban and Rural Development
The Swedish University of Agricultural Sciences
Jokkmokk Sweden 962 23

Email: karin.lindahl@taiga.pp.se

Keywords: forestry; community; place; perceptions; frames; politics; negotiation; forest policy; governance

Abstract: Resource dependent communities in the Swedish north are challenged as the conditions for use of the surrounding natural resources change. Swedish “resource communities” typically evolved during the industrial brake through (1800-1920) and have shown an increasingly declining trend during the 20th century. Today, actors have diverging views on how to use the resources that are the traditional foundation of these communities. This poster focuses on actors’ negotiations about natural resource use in northern resource dependent communities. Resource communities are perceived as a special kind of places and the overarching question pertains to the relationships between place construction and politics of natural resources management. Theories relating to frames, place and governance are informing the inquiry.

An in depth case study has been carried out to follow one specific political process and its expressions in Jokkmokk municipality, northern Sweden. The process under study is a cabinet instruction, from June 2002, to survey all forest lands for high conservation values and “virgin like” forests in need of protection. Thirty key actors have been interviewed and different kinds of written documentation analysed. The relationships between place and politics are approached 1) by characterising the governance system 2) by looking at actors’ perceptions of place and their ways of framing the issues at stake and 3) by studying the relationships between actors’ frames, their activities and the policy process. In the poster, this conceptual framework is further developed and illustrated on a subset of the empirical material generated.

Invasive forest pests and public land management: Seeing (and managing) the forest and its trees

Bell, Kathleen P
Resource Economics and Policy
University of Maine
Orono ME USA 04469

Thomas P Holmes
Southern Research Station
US Forest Service

Email: kpbell@maine.edu

Keywords: invasive species; forest management; willingness to pay; collaborative management; public goods

Abstract: Throughout the globe, invasive species have resulted in myriad changes to ecosystems. The repercussions of these changes, both social and natural, are significant and complex, extending across multiple social, spatial, and temporal boundaries. In turn, invasive species management poses unique challenges for resource managers. We consider changes to forest ecosystems resulting from an invasive forest pest, the hemlock woolly adelgid (HWA), and examine public opinion of management options to control this pest on public lands. The HWA is an exotic insect pest that can result in the mortality of eastern and Carolina hemlocks. As the HWA spreads across forested landscapes, resource managers are faced with difficult management decisions, such as: what level of resources should be devoted to the control of HWA; which hemlock trees should be protected; and what control methods (e.g., chemical insecticides versus biological controls) should be used.

We employ contingent valuation/contingent behavior methods to assess public opinion of and willingness to pay for various HWA management options on public lands, including the Great Smoky Mountains National Park and the Pisgah and Nantahala National Forests. Our survey respondents include a random sample of North Carolina and Tennessee households. A web-based survey is used to provide the data for the analysis. Responses include information on public awareness of HWA, opinions of HWA management options, visits to and use of these public lands, demographics, recreation participation, and attitudes regarding natural resource issues and management programs. Relationships among these responses reveal just how residents see the forest and its trees.

Innovation in conservation education: The example of rare pride

Belton, Lorien
Sociology, Social Work, and Anthropology
Utah State University
Logan UT USA 84322-0730

Sandy T Marquart-Pyatt
Sociology, Social Work and Anthropology
Utah State University

Email: tecova@gmail.com

Keywords: conservation education, species pride, community pride

Abstract: Numerous conservation education efforts are presently in process around the globe. This paper describes two case studies of conservation education programs conducted under the auspices of Rare, an international non-governmental organization based in the United States. In both Mexico and the western Pacific islands of Palau, local conservation leaders have used the same method of generating community pride to improve conservation efforts. Descriptions of cases in Mexico and Palau, drawn primarily from campaign summaries and locally-conducted surveys, shed light on important similarities and differences between these programs. In Palau, gathering of new sea turtle-shells for jewelry, an important local cultural tradition, has been voluntarily banned, and local consensus-based government backed a ten-year moratorium on all commercial turtle taking, in the interest of long-term turtle survival. In Mexico, a similar environmental pride-generating campaign resulted in community members gathering more than a million plastic bottles out of the local biosphere reserve over the course of a year. The success of these endeavors can be linked to a variety of factors, including the institutional commitment of the local agency, the nationality of the primary organizer, and the extent of media saturation for the campaign. Preliminary data analyses allow for an initial understanding of some of the factors critical to success in conducting locally-run, internationally-financed conservation efforts designed with relevant, appropriate goals and specific target populations. Opinion surveys conducted in each community demonstrate measures of success of conservation initiatives undertaken. Implications of this study for ongoing and future conservation education programs are discussed.

Hmong Americans and public lands: An analysis of focus groups in Minnesota and Wisconsin

Bengston, David N
North Central Research Station
USDA Forest Service
St. Paul MN USA 55108

Michele Schermann
Biosystems and Agricultural Engineering
University of Minnesota

MaiKia Moua
Focus group contractor
University of Minnesota

Tou Thai Lee
Focus group contractor
University of Minnesota

Email: dbengston@fs.fed.us

Keywords: environmental justice; environmental racism

Abstract: The Hmong are an Asian ethnic group who first arrived in the United States in 1975, fleeing persecution from the communist Pathet Lao regime. Very little research has examined the human-environment interactions of Hmong Americans despite the importance of natural resources in Hmong culture. The objective of this study was to gain an understanding of the outdoor recreation and natural resource needs, concerns, and preferences of Hmong Americans so that public land managers can be more responsive to and better serve this group. Focus groups were conducted in the Hmong language by experienced Hmong moderators. Interview transcripts were translated into English and analyzed using qualitative text analysis software. Our focus groups revealed unique perspectives and concerns of Hmong Americans. For example, one of the themes that emerged was the exclusionary effect of recreation fees on public lands. Participants recognized that fees are sometimes necessary, but felt that fees are often too high and that they discourage visitation by some Hmong. Another dominant theme was racism. Virtually all of our participants had experienced racism while recreating on public lands, including racism from public land managers. Participants suggested the need for training land managers to help them deal appropriately with minority visitors, and discussed the need for more Hmong employees of land management agencies. Another theme was the need for a land ethic for everyone who uses public lands. Participants were concerned about overuse of natural resources,

deteriorating quality of public lands, and the ability of future generations to enjoy public lands.

Comparing forest management preferences of different interest groups across a gradient of management intensity

Berninger, Kati
Department of Biology
Université du Québec à Montréal
Montreal QC Canada H3C 3P8

Daniel Kneeshaw
Department of Biology
Université du Québec à Montréal

Christian Messier
Department of Biology
Université du Québec à Montréal

Email: kati_berninger@yahoo.ca

Keywords: SFM; three pillars of sustainability; preferences; stakeholders

Abstract: The way local and regional interest groups define sustainable forest management was evaluated in three regions with differing intensity and history of forest management. The areas were Southeastern Finland, the Mauricie in Quebec and Central Labrador. The interest groups included environmentalists, forestry professionals and multiple users of the forest. Private forest owners were included in Finland while the Innu and Metis were included in Labrador.

The participants were asked to list the most important indicators of sustainable forestry amongst ecological, economic and social components, in order of priority. Quantitative results from the survey were complemented with qualitative analysis of group discussions.

In Finland, the most intensively managed area, the views of different groups were polarized along the environment-economy axis, whereas in Labrador, the least intensively managed area, all interest groups were environmentally oriented. The social dimension was low everywhere and among all groups, except the Metis and the Innu in Labrador. Only environmental groups were similar in all the regions, while the largest differences between areas were found among the forestry professionals. More homogeneous values related to forests were detected in the two Canadian regions than in Finland. As forest management intensity increased we found a greater importance of economic issues whereas the opposite trend was observed for the valuing of nature. There was also an increasing divergence of views among interest groups with increasing intensity and history of forest management.

We see forest management and forest use as one of the factors strongly influencing the culture and the way people feel about forests.

Stakeholder processes in modelling climate change futures for the Wittenham Clumps Future Landscapes Project

Berry, Pam
Biodiversity Group
Environmental Change Institut
Oxford UK OX1 3Q

Email: pberry@ouce.ox.ac.uk

Keywords:

Abstract: The Northmoor Trust's Landscape Evolution Centre is a new education facility which aims to show people how the Wittenham landscape has changed through time and how it might change in the future. The purpose of the work reported here is to devise 'future landscape scenarios' over three future time periods, which will be presented to local stakeholders and the public in order to increase awareness of the possible implications of life-style choices and climate change upon the future landscape.

To create the future landscape scenarios, climate change and socio-economic change scenarios currently used in climate change impacts work were localised to the Wittenham study area, using the results of other research projects and local stakeholders. Various groups of stakeholders, representing the main land-use sectors within the project area (urban, agriculture, forestry, protected areas, water) and additional experts were consulted for their views on sectors such as energy and transport. These expert opinions were used to derive site-selection criteria for conversion to a new land use at the landscape scale, and consider the driving forces of the different scenarios presented. GIS was used to characterise the landscape and to encapsulate the site-selection criteria in sets of rules, which were then applied to a land-use map of the project area. The resulting maps can be used to generate three-dimensional visualisations for the Wittenham area of possible future landscape scenarios.

Nature-based tourism in Morne Trois Pitons National Park, Dominica

Best, Mechelle N
Tourism, Recreation & Sport Management
University of Florida
Gainesville FL USA 32611

Brijesh Thapa
Tourism, Recreation & Sport Management
University of Florida

Email: mechbest@ufl.edu

Keywords: cruise, Emerald Pool

Abstract: Tourism in the Commonwealth of Dominica is highly dependent on both its terrestrial and marine protected areas. However, the majority of the visitors are attracted to nature-based activities largely within and adjacent to Morne Trois Pitons National Park which is also a World Heritage Site. The Park encompasses almost 7,000 ha and is a luxuriant natural tropical forest centered on the 1,342-m-high volcano known as Morne Trois Pitons. The Park boasts of scenic volcanic features, numerous hot springs, three freshwater lakes, and the richest biodiversity in the Lesser Antilles. Numerous communities including prominent gateway communities such as Trafalgar Falls and Laudat are scattered along the borders of the park. Tourism infrastructure is minimal but site and visitor management is administered by the Forestry, Wildlife & National Parks Division. Dominica has promoted itself as the Nature Isle of the Caribbean and the recent Green Globe destination certification has propelled it as the next major ecotourism destination. While the influx of visitors is evident in the country limited research exists with respect to data about visitors to the park. The purpose of this paper is to present data about current visitors, demographic profile, travel patterns, activity participation, satisfaction, and associated behavioral issues based on data collected during the winter season of 2005-06. Such data would assist Dominica to maximize tourism opportunities while at the same time sustain the integrity of the host communities. In addition, with the increased growth in visitation at the site greater opportunities exist for additional local involvement in conservation and tourism.

Assessing spatial attributes of forest landscape values: an internet-based participatory mapping approach

Beverly, Jennifer L
Canadian Forest Service
Natural Resources Canada
Edmonton AB Canada T6H 3S5

Kinga Uto
Canadian Forest Service
Natural Resources Canada

Pete Bothwell
Canadian Forest Service
Natural Resources Canada

Ana Espinoza
Canadian Forest Service
Natural Resources Canada

Email: jbeverly@nrcan.gc.ca

Keywords: visualization; public participation; internet survey; participatory GIS; participatory mapping

Abstract: We designed an internet mapping application to collect data on the spatial attributes of landscape values across a 4 million ha study area in the province of Alberta, Canada. Four sub-populations in the study area were surveyed and over 8000 point-values were mapped in 10 different values categories (wilderness, economic, biological diversity, educational, historic or cultural, spiritual, aesthetic, subsistence, recreational, and intrinsic). We also used the mapping application to survey a group of experts, which included representatives from industry, government, academia, and recreation groups. Importance weights of landscape values were determined from a ranking exercise. Preliminary results indicate considerable variation in the densities of landscape values across the study area with distinct high-density zones around the 4 study-area communities. The categories of values that were most frequently mapped were recreation, wilderness, aesthetic and economic values. These 4 categories were also consistently identified as the most important or second most important values. We investigated the spatial patterns of landscape values in relation to natural and human landscape features and discuss the implications of the analysis for land management. An application of the results for mapping wildfire risk is presented.

Deer hunting on 's public and private lands

Bhandari, Prem B
Agricultural Economics and Rural Sociology
The Pennsylvania State University
University Park PA USA 16802

Human Dimensions Unit
School of Forest Resources
The Pennsylvania State University

Email: pbb115@psu.edu

Keywords: antlered, antlerless, harvest success, public, private, Pennsylvania

Abstract: Despite access to private land, many Pennsylvanians use it in their hunting experiences. The characteristics of those who hunt private, as opposed to public lands, remain unknown. This study addressed this issue and also whether hunter success was greater on private than public lands. We found that private land hunters were relatively younger, from rural areas, more typically hunted in groups, and spent more days afield during early and late seasons than those who primarily hunted public lands. Private land hunters were more concerned about issues related to hunting as a deer management tool and maintaining access to hunting land than public land hunters. Moreover, there was lower harvest success on public lands than private lands. However, this difference was conditioned by hunters' motivations/perceptions about a range of hunting issues and type of deer killed. Implications of these findings are advanced.

Knowledge and adherence to minimal-impact techniques on the Cape Split Trail

Bissix, Glyn C
School of Recreation Management & Kinesiology
Acadia University
Wolfville NS Canada B4P 2R6

Kate Rive
School of Recreation Management & Kinesiology
Acadia University

Darren Kruisselbrink
School of Recreation Management & Kinesiology
Acadia University

Email: glyn.bissix@acadiau.ca

Keywords: Leave No Trace; Recreation Impact; Indirect Environmental Management

Abstract: This paper examines the potential effectiveness of an educational strategy in protecting natural recreation spaces from ecological degradation. As human use of the back country continues to rise, the need for cost effective management to minimize recreation impact becomes increasingly apparent. The use of an educational approach is appealing, as research indicates that most actions that damage outdoor recreation spaces result from limited ecological impact knowledge. The organization Leave No Trace is at the forefront of promoting and distributing such education materials to backcountry wilderness users in North America so as to encourage more environmentally sensitive recreation behavior. This study identifies the present level of Leave No Trace type knowledge among wilderness users and potential users, and assesses their environmental ethic and corresponding self reported, outdoor recreation behavior. A sample of both current and potential users of the Cape Split Trail in Nova Scotia, Canada served to identify the various minimal impact knowledge levels of selected user, community and educational groups. The results indicated a difference in how these various groups responded to certain questions on Leave No Trace knowledge and self-reported behaviors; nevertheless, many similar response patterns indicated areas needing particular educational emphasis and program re-strategizing. The conclusions and recommendations derived from this study serve to redirect future educational efforts to better protect environmentally fragile outdoor recreation areas such as Cape Split.

Exploring carbon sequestration potentials in transition countries

Bizikova, Livia
Adaptation & Impacts Research Division (AIRD) , IR
University of British Columbia
Vancouver BC Canada V6T 1V6

Setwart Cohen
Adaptation & Impacts Research Division (AIRD) , IR
University of British Columbia

Sarah Burch
Institute for Resources Environment & Sustainability
University of British Columbia

Email: lbizikova@ires.ubc.ca

Keywords: Climate change adaptation and mitigation, sustainable development, local case studies

Abstract: Carbon sequestration projects can offer lot of benefits for transition countries. They could offer opportunities to mitigate climate change and to pursue rural development (especially in areas with marginal agricultural land). The paper provides an overview of carbon sequestration policies in comparison to carbon sequestration potential of transition countries. The policy framework adopted by analyzed countries is compared with regard to the impacts of the Kyoto Protocol, EU regulations, national priorities and regional approaches in defining climate change mitigation goals. The analyzed cases show that carbon sequestration potentials are far beyond being fully-explored, which is probably because of the strong focus on economic development, still on-going agricultural transformation and also because of the impact of “hot air” on climate change policies. The paper concludes that carbon sequestration policies are mostly targeted to regions affected by regional disparities or to provide support for land-use change on marginal land, but to propose effective policies more attention should be paid to agricultural and environmental linkages and climate-change related measures and to the inclusion of these policies to rural and regional development priorities.

Opportunities for local development initiatives from linking climate change and sustainable development

Bizikova, Livia
Adaptation & Impacts Research Division (AIRD) , IR
University of British Columbia
Vancouver BC Canada V6T 1V6

Setwart Cohen
Adaptation & Impacts Research Division (AIRD) , IR
University of British Columbia

Sarah Burch
Institute for Resources Environment & Sustainability
University of British Columbia

Email: lbizikova@ires.ubc.ca

Keywords: Climate change adaptation and mitigation, sustainable development, local case studies

Abstract: This paper discusses the opportunities of linking climate change measures and sustainable development to a particular local context. The presented local case study approach is initiated with a scoping process to investigate the extent to how practitioners could be engaged at the outset. The scoping process serves as a tool for development of a research agenda that could link theoretical approaches to practical aspects of linkages between climate change and sustainable development at the local/regional scale. The proposed research agenda grasp these opportunities and develops them further in the context of local needs and development opportunities, which mainstream climate change.

Sustaining watershed council organizations: A study of coordinators and governing boards

Bodane, Kate
Planning, Public Policy and Management
University of Oregon
Eugene OR USA 97403

Richard D Margerum
PPPM
University of Oregon

Email: rdm@uoregon.edu

Keywords: Watershed Councils
Coordinators
Community Based Collaboration

Abstract: The literature suggests that one of the central factors affecting a council's capacity is the council coordinator. William D. Leach and Neil W. Pelkey (2001) analyzed the results from thirty seven reviewed articles about watershed partnerships and found that second most commonly cited element of success is the existence of an effective coordinator or facilitator. However despite the importance of coordinators for collaborative watershed management, there have been few systematic studies of their roles and approaches. In Oregon, the problem is a concern because of the importance of watershed councils to natural resource management, and the high turnover of coordinators.

This study, which is being supported by two long-serving watershed coordinators, examines the satisfaction of coordinators and their roles relative to their boards. More specifically, the goal is to determine whether job satisfaction can be improved with a clearer articulation of roles and responsibilities. A written survey is being sent to approximately sixty coordinators will explore: (1) council characteristics, (2) coordinator background, (3) the role of boards versus coordinators, and (4) coordinator job satisfaction. A set of 5-10 coordinators will be selected for additional interviews to explore the issues that arose from the survey. The findings for individual councils (which will remain confidential) will help coordinators compare their board relationship relative to other councils. The findings will also help identify the general factors contributing to job dissatisfaction and the steps that organizations like the newly formed Network of Oregon Watershed Councils can take to reduce coordinator turnover.

How the suitability of available technologies influences responses to government policies for improving waterway quality

Botha, Neels
Socila Research
AgResearch
Hamilton Waikato New Zealand 2001

Terry Parminter
Social Research
AgResearch

Email: neels.botha@agresearch.co.nz

Keywords: Adoption; behaviour change; waterway quality; innovation; policy instrument

Abstract: Lakes Taupo and Rotorua attract thousands of local and overseas visitors annually. Lake Taupo has low nutrients and high oxygen levels and is the largest lake in New Zealand. Farmers in its catchment are said to be responsible for degrading the Lake's water quality and are responsible for 37% of the nitrogen entering the Lake through ground water and streams. Lakes around Rotorua, particularly Lake Rotorua, also suffer from deteriorating water quality.

The paper discusses the results of ongoing social research in the Lakes' catchments. Data gathering was through interviews, underpinned by literature reviews of theories considered important to study the uptake of 'environment friendly' farming practices, and responses to policy interventions addressing water quality issues.

The current social and industry situation for farmers is discussed, because it provides insights into how to effectively farmers can be assisted towards reaching regional sustainable environmental goals, e.g. water quality. Agricultural extension is an example of an approach for encouraging voluntary changes in farming practices. In agricultural extension the adoptability of technologies, practices or systems is important. If the technologies being extended lack adoptability, then extension may confirm farmers' decisions not to adopt as well as degrade the social standing of the field agents promoting such a technology. If the technologies are suitable for adoption then policy implementation can become self-expanding for little ongoing cost to the policy organisation. We conclude that, given farmers' current situation and if the particular technologies, practices and systems available to farmers are adoptable, a policy approach using extension may be useful to protect the water quality of the lakes.

Assessing collaborative processes in water supply management: A conceptual framework for the West Africa water initiative

Bothi, Kimberly L
Education (International Extension)
Cornell University
Ithaca NY USA 14853

Margaret M Kroma
Education (International Extension)
Cornell University

Email: klb57@cornell.edu

Keywords: Collaboration, development, participation, sustainability, water

Abstract: Water is an essential element of human lives that is increasingly becoming a scarce resource. For many communities with limited resources and complex social structures, the task of improving the management of critical natural resources such as water has landed in the hands of international development agencies and governments. Unfortunately, much collaboration employed for local water supply management in developing countries have had mixed results, and relatively few empirical assessments have been done to highlight critical factors and indicators of effective collaborations. In 2002, the West Africa Water Initiative (WAWI) was formalized by a group of international collaborators to focus on the link between water, human health and sustainable livelihoods in semi-arid areas of Sub-Saharan Africa. The WAWI is a research and development partnership that works on fostering collaborations for improving community capacities to access and manage safe drinking water, promoting hygiene and sanitation, and adapting sustainable resource management practices. This paper presents results of a crucial desk study review of the process and outcomes of participatory water supply management collaborations in semi-arid regions worldwide, as a basis for establishing a conceptual and analytical framework for a study of the WAWI in Mali, West Africa. A participation protocol was created to identify who participated in the management of water supply and how; the degree of participation by multiple stakeholders; outcomes and outputs of participation. Based on the review, a framework for assessing the effectiveness and sustainability of community based water supply management in semi-arid regions is presented.

Mapping social data: Place meanings in the Broughton Archipelago

Bowes, Matthew T
MES-Outdoor Recreation, Parks & Tourism
Lakehead University
Thunder Bay Canada P7B 1P1

Email: matthewbowes71@yahoo.ca

Keywords: place, meanings, participatory GIS, ecosystem management, narratives, qualitative

Abstract: The Broughton Archipelago is a confluence of contested meanings among industrial, recreational, environmental, political and cultural interests set against a backdrop of socioeconomic transition on northern Vancouver Island. Consequently, public lands and parks and protected areas pose interesting problems for appropriate and sensitive definitions of places which are difficult to express and represent in the technical milieu of planning.

Computer mapping (GIS) of 'special places' or 'hard to define' concepts such as community, place attachment, symbolic meanings and spiritual values which are related to 'sense of place' can provide a way forward in incorporating place meanings in natural resource management. Linking spatial data with a phenomenological interview technique called a map biography created by locating places on maps during the interview process enables narrative data to spatially represent landscape meanings and values. Incorporating this concept into computer mapping (GIS) to spatially represent multiple layers of meaning and use, can provide a technical tool commonly used in natural resource planning and management.

Research will be valuable in facilitating the inclusion of people's 'sense of place' in park planning and management, and improve understanding of the relationships among site characteristics, landscape values and meanings. It will also inform and develop creative methods for understanding social ecological systems by integrating social and biophysical data that help to effectively define the parameters of 'sense of place.' Findings will be important in other rural contexts such forests/forestry and urban planning.

Social and economic effects of conservation features in residential subdivisions

Bowman, Troy A
Natural Resource Ecology and Management
Iowa State University
Ames IA USA 50011-3221

Jan R Thompson
Natural Resource Ecology and Management
Iowa State University

Joe P Colletti
Natural Resource Ecology and Management
Iowa State University

Email: forester@iastate.edu

Keywords: contingent valuation; urban design; development; land use planning

Abstract: Recent growth of residential areas ("suburbanization") as cities expand has placed growing pressure on the surrounding environment. Efforts to mediate the negative effects of residential development by changing traditional subdivision designs and development practices have been underway for several years. However, there appear to be barriers impeding use of alternative subdivision designs (e.g. low impact and conservation subdivision approaches). This study explored the social and economic aspects of conservation development in the Midwest by examining consumer and developer perspectives, as well as non-market externalities. Residents of three conservation subdivisions and three traditional subdivisions in Cedar Rapids, Iowa were surveyed to assess their willingness to pay for conservation features, their desire for these features, and their attitudes toward new approaches to residential development. Local developers were surveyed to determine their willingness to accept costs of alternative development, and their attitudes and knowledge of alternative approaches. Consumers and developers both expressed higher value for alternative subdivision designs that include conservation features. This was supported by transactional sales data. However, developers perceived a lack of consumer interest, were less knowledgeable about alternative designs, and expressed frustration with limitations imposed by inflexible ordinances. Survey data were combined with biophysical data to generate an economic model which indicated greater incremental value for homes in subdivisions with conservation features.

Visual Preference Surveys as a Guide to Land Use Planning and Natural Resources Management: Forest Harvest Practices

Bradley, Gordon
College of Forest Resources
University of Washington
Seattle WA USA 98195

Anne Kearney
College of Forest Resources
University of Washington

Email: gbradley@u.washington.edu

Keywords:

Abstract: Numerous studies have explored people's forest preferences, yet few have done so in a controlled manner. This study assesses preference for forest stands that have been systematically modified according to a range of treatments, including: clearcutting, two-age cut, patch cut, group selection, commercial thin, and an unmodified control stand. Preferences were assessed and compared for six groups: forest professionals, urban public, rural public, recreationists, environmentalists, and educators. In addition, the study explored the rationale behind people's preferences.

Results show that people's preferences tend to follow the same general trend, with higher preference for less intense harvests. Foresters tended to show significantly greater preference than most other groups for treatments where tree removal left moderate to large openings; this difference was most striking with respect to clearcuts. Analysis of people's stated rationale behind the preference ratings suggest that differences in preference are a function of differences in what people see in the scene. Foresters were more likely to see the management depicted in a scene and to interpret these signs of management in a favorable light; other groups were more likely to respond purely to the aesthetics of the scene. Implications for these differences in preference and perception are discussed. In particular, attention is paid to the implications of this work to the objectives of the Sustainable Forestry Initiative; the programmatic basis for certifying forest lands throughout the United States and Canada.

Resilience of a subsistence hunter system in a rapidly changing social and ecological environment

Brinkman, Todd J
Department of Biology and Wildlife
University of Alaska Fairbanks
Fairbanks AK USA 99775

Gary P Kofinas
Department of Resource Management
University of Alaska Fairbanks

F S Chapin, III
Department of Biology and Wildlife
University of Alaska Fairbanks

David K Person
Division of Wildlife Conservation
Alaska Department of Fish and Game

Email: fttjb2@uaf.edu

Keywords: Alaska; deer; forest management; hunting; local knowledge; sustainability; wildlife

Abstract: Subsistence hunters in parts of Southeast Alaska have expressed concern that they are experiencing difficulty harvesting a sufficient number of deer. Our objectives were to evaluate the extent of this problem, determine why hunters are experiencing difficulty, and suggest potential solutions to help sustain this subsistence hunter system. We used local knowledge, deer harvest statistics from wildlife agencies, and geospatial data on landscape change to evaluate the linkages between deer hunter patterns, population dynamics of deer, and the rapidly changing social and ecological environment. We determined that social-ecological changes resulting from a boom-and-bust commercial logging industry have indirectly challenged the resilience of the subsistence hunter lifestyle by reducing efficiency of common hunting strategies. Sustainability of the current subsistence hunting system will depend on hunters' capacity to adapt to irreversible landscape changes by adopting a less desirable strategy of hunting.

Smart growth and open space protection: The community preservation act in Massachusetts

Bristow, Robert S
Geography & Regional Planning
Westfield State College
Westfield MA USA 01086

Matthew T VanHeynigen
Public Administration
Westfield State College

Email: rbristow@wsc.ma.edu

Keywords: Urban Sprawl; Recreation Plans; New England

Abstract: Threatening urban sprawl creates a need for protecting open space. This poster illustrates the findings of a survey administered in Southwick Massachusetts for the preparation of a Community Open Space and Recreation Plan. These data are then compared to other communities in the state in order to anticipate additional acceptance of a statewide initiative to protect open space.

Southwick is a “bedroom” community of nine thousand on the fringe between large metropolitan areas and expansive public lands. It is a gateway community for the fall foliage season and spring maple sugaring operations. Yet the rural character of Southwick is threatened by a growing population as citizens forego urban plight and move to pastoral environments to build “McMansions” on retired farmlands.

In 2002, Southwick’s citizens voted to accept the Massachusetts Community Preservation Act. This act helps communities plan for smart growth by providing funds for the preservation of open space, affordable housing and historic landmarks. To date, 103 of the 351 communities in Massachusetts have adopted the CPA.

This research has identified some of the characteristics that may define those communities more likely to support the CPA. Communities comprised of a higher median household income, a larger number in the household and a higher educational attainment appear have a greater likelihood to adopt the CPA. The data can be used to target the next communities that may have a favorable acceptance of the Community Preservation Act.

Trading sticks with the crown: Redistributing property rights to effect land use change in pastoral land reform in New Zealand

Brower, Ann L
Environment, Society, and Design
Lincoln University
Christchurch Canterbury New Zealand

Email: annbrower04@fulbrightweb.org

Keywords: sheep; regional land use; managerialism; politics-administration dichotomy; vested interests

Abstract: Like the US before it, New Zealand is using the distribution of property rights in natural resources as a policy tool to effect land use change. One-tenth of New Zealand is undergoing land reform which transfers title to productive land under pastoral (grazing) lease from the Crown to the pastoral leaseholders, and shifts the remaining land to the Department of Conservation. New Zealand has given up on the multiple use paradigm. Pastoral land tenure reform is the last step towards separating commercial production from conservation. In 1998, Parliament sanctioned an administrative initiative to redistribute property rights, reasoning that the Crown and the pastoralists could best pursue their separate conservation and production goals separately – unencumbered by reciprocal property rights claims.

This article examines the legal structures and administrative mechanisms of land tenure reform of the pastoral estate on the South Island. After unpacking the mechanics of the exchange and redistribution of property rights, it uses data from photographs, legislation, case law, government documents, and key informant interviews to address three questions: 1) Is the redistribution of property rights changing land use patterns? 2) At what cost? And 3) Are there other policy mechanisms that might achieve similar goals? In examining the results to date, it uncovers questions about the relative value of actual vs. potential property rights. In light of the lack of clarity in government policy, I suggest a greater role for the Court and some alternative policy mechanisms.

An overview of agency-managed bear viewing sites in Alaska: A diversity of agencies, opportunities, and visitor management strategies

Brown, Courtney E
Environment and Society, College of Natural Resources
Utah State University
Logan UT USA 84322

Email: cebrown@cc.usu.edu

Keywords: recreation resource-dependent management; wildlife viewing in Alaska; proactive planning

Abstract: Wildlife viewing is considered one of the fastest growing outdoor activities in the U.S. and the demand for bear viewing has increased throughout Alaska. Wildlife viewing programs have gained wide acceptance and during the past decade numerous agency-managed bear viewing sites in Alaska have experienced escalating visitation rates, some doubling each year. Many of the formal viewing areas limit guided wildlife viewing and restrict unguided viewing as well. With increasing visitor management pressures across the state, it is important to address management of bear viewing areas in a regional context. This broad-scale integration will help avoid inadvertently creating new problems in one area while attempting to solve problems in another. Ultimately natural resource managers seek to answer the same allocation and access questions on public lands throughout the state.

Bear viewing opportunities have been identified as a key planning issue for several Alaska land management agencies. Given the high interest in bear viewing and the complexity that surrounds provision of opportunities, it is timely for providers of Alaska bear viewing areas to discuss the current state of available opportunities and coordinate for future directions.

This presentation will provide an overview of ten agency-managed bear viewing sites in broader southcentral and southeast Alaska, including both formal and informal areas. It will focus on the types of bear viewing opportunities currently offered and the visitor management strategies implemented at these bear viewing sites. Management implications will be discussed relating to the regional considerations of existing opportunities, gaps, and barriers within an ecosystem management perspective.

Mapping landscape values: the future of resource planning

Brown, Greg G
Recreation and Outdoor Studies
Green Mountain College
Poultney VT USA 05764

Email: browng@greenmtn.edu

Keywords: values, resource planning, spatial analysis

Abstract: Modern barriers to effective natural resource planning are substantial and include lack of agreement on goals, rigidity in process design, procedural obligations, and lack of trust. Traditional resource planning processes based on rational-comprehensive (synoptic) planning have not performed well in a planning environment characterized by conflicting values and ambiguous or contested goals. But resource agencies are unlikely to abandon their predisposition toward expert-driven, synoptic planning processes nor would such abandonment serve the public well. Agencies must develop greater institutional capacity to manage the milieu of conflicting social values that surround natural resource issues. This presentation supports the thesis that a natural resource planning approach based on the mapping of public landscape values can bridge the chasm between expert-driven planning systems on the one hand, and public-driven, collaborative resource management processes on the other. The mapping of landscape values approach combines scientific survey research methods with geographic information systems technology to generate maps of publicly-perceived landscape values. This method has been used in planning applications at different scales and multiple locations in the U.S. and Australia. It is argued that natural resource planning agencies will inevitably embrace this method or something similar because it is the only method that satisfies demands for planning outcomes that are both rationally comprehensive and socially inclusive.

What are ecosystem services?

Brown, Thomas C
Rocky Mountain Research Station
U. S. Forest Service
Fort Collins CO USA 80526

John C Bergstrom
Department of Agricultural and Applied Economics
University of Georgia

John B Loomis
Department of Agricultural and Resource Economics
Colorado State University

Email: thomas.brown@colostate.edu

Keywords: valuation; provision; marketing

Abstract: “Ecosystem service” is the latest environmental buzzword. We explain the concept within an economic context. An ecosystem service is a good or service of direct value to humans that emanates from a functioning ecosystem. Ecosystem services are shown as entering the utility function in two ways. First, they may enter the utility function without any other inputs. Examples include naturally cleansed air that we breathe and natural UV protection. Second, ecosystem services enter along with labor, capital, and other produced goods as inputs in a production process resulting in consumable goods. Such goods may range from those that require little in the way of other inputs (wild mushrooms ready for picking) to those that require large amounts of other inputs (timber which becomes lumber).

Most ecosystem services have produced substitutes. For example, mushrooms may be cultivated, and wooden studs may be replaced with metal ones. Or, considering service flows, the waste assimilation properties of natural watersheds can be replaced with a waste treatment plant. It is the nature of economic and population growth that some ecosystem goods and services become depleted and that humans use their technological prowess along with inputs including more plentiful ecosystem goods and services to produce new capital and goods that compensate for such depletion. Of particular interest is whether the substitutes for ecosystem services cost society more to produce than the opportunity cost of protecting the original ecosystem service.

What's in a region for natural resources planning and management?

Brunckhorst, David J
Institute for Rural Futures
University of New England
Armidale New South Australia 2351

Ian Reeve
Institute for Rural Futures
University of New England

Karl Bock
Institute for Rural Futures
University of New England

Phillip Coop
Institute for Rural Futures
University of New England

Email: dbrunckh@une.edu.au

Keywords: resource governance; ecoregions; civic geography; nesting; eco-civic regionalisation.

Abstract: An important institution for regional resource governance is civic engagement in local affairs, including resource use issues. Local civic engagement has traditionally been structured around local government and, more recently, to catchment based decision-making bodies. If citizens are to participate in regional resource management in ways that are meaningful to them, it is important that both the landscape units being discussed and the jurisdictional boundaries are meaningful. We have been examining how boundaries for resource management regions might be identified. Three considerations are believed to be important if regional resource management is to be meaningful to the citizens involved. Firstly, that the regional boundaries maximise the areal proportion of the region that residents consider to be part of their ‘community’, which should lead to greater commitment to civic engagement in resource management. Secondly, that the character of the landscape units within the region possess a high degree of homogeneity, reflecting greater coincidence of interest among the inhabitants of the region. The third consideration is a hierarchical multi-scaling capacity to deal with externalities of resource use. The approach was tested by mapping social survey data and bio-physical attributes to optimise the identification of a series of nested ‘ecocivic’ resource management regions for north-eastern New South Wales in Australia. The results delineate resource governance regions that nest at local to regional scales for integrated natural resource management. Such ‘eco-civic’ regions demonstrate a better spatial representation of social and ecological

characteristics than existing regional frameworks. A modelling approach was devised for application at State and National scales.

The influence of angler value orientations on angling norms

Bruskotter, Jeremy T
Fisheries, Wildlife, and Conservation Biology
University of Minnesota
Minneapolis MN USA 55108

David C Fulton
Minnesota Cooperative Fish & Wildlife Research Uni
U.S. Geological Survey

Email: brus0105@umn.edu

Keywords: stewardship; scale development; structural equation modeling; confirmatory factor analysis

Abstract: The number of anglers and frequency of their participation steadily increased over the past 4 decades. At the same time the technology available to anglers became dramatically more sophisticated. Some fisheries managers fear increased angling pressure, fueled by ever-expanding technological sophistication, may portend an impending “stewardship crisis”. In 2003, we conducted a study of Minnesota anglers (n=400) to identify which behaviors and activities anglers defined as ethical or normative. Anglers rated the acceptability of various behaviors and technological aids in regards to angling stewardship. A clear consensus emerged concerning the appropriateness of some behaviors, while other behaviors, such as catch-and-release fishing and the use of more recent technological innovations, elicited more of a mixed response. To help understand the differences in what behaviors anglers perceived to be ethical, we examined the influence of angler’s value orientations on their perceptions as to the appropriateness of angling behaviors and technologies. Although previous studies suggested people’s value orientations regarding natural resources could be arrayed along an anthropocentric to biocentric continuum, exploratory factor analysis suggested three underlying components. Confirmatory factor analysis was used on a second sample of Minnesota anglers (n=922) in order to examine the fit of the three factor solution, and compare this solution with alternative models. Structural Equation Modeling was then used to determine the influence of angler’s value orientations on their norms regarding angling and support for the use of technological angling aids.

Locals' and tourists' objectives regarding the future landscape development in the Alps: The role of authenticity and participation

Buchecker, Matthias N
Section "Landscape and Society"
Swiss Federal Institute WSL
Birmensdorf Switzerland CH-8903

Susanne Kianicka
Section
Swiss Federal Institute WSL

Kathrin Gehring
Section
Swiss Federal Institute WSL

Marcel Hunziker
Section
Swiss Federal Institute WSL

Email: matthias.buchecker@wsl.ch

Keywords: Landscape development, conflicts, objectives, participation, interviews, evaluation

Abstract: Alpine landscapes keep changing, and as landscapes are a main economic resource of Alpine regions, these changes need to be steered. There is, however, the difficulty that the main stakeholder groups affected of Alpine landscape development, the local residents and the tourists, stand in a very different contextual relation to specific Alpine landscapes and thus might have conflicting objectives in this regard. In our study we wanted to find out to which extent tourists' and local residents' expectations regarding future Alpine landscape development differ and whether these differences can be mitigated by consensus building procedures. Therefore we investigated the landscape preferences of locals and tourists of two valleys in the Swiss Alps using qualitative interviews and standardised questionnaires and evaluated the effect of two consensus-building workshops conducted in these valleys.

We found that there were only slight, though measurable differences between locals' and tourists' preferences of (visualised) landscape developments. The qualitative interviews, however, revealed considerable latent landscape conflicts between these two groups: the tourists favour a landscape development corresponding with their wishes for nostalgia and individual appropriation, whereas for the locals a sufficient scope for innovation is their main concern.

The consensus-building workshops proved to have measurable effects on the local participants' landscape objectives. So, the locals' resistance against restrictions in landscape development increased, whereas innovative ways of development became more popular. Therefore, a consensual Alpine landscape development experienced as authentic by residents and tourists might be one in which innovations can take place, but in a locus-specific innovative way.

Integrating recreation ecology and social science: contrasting cases in Australia's subtropical rainforests world heritage areas

Buckley, Ralf C
International Centre for Ecotourism Research
Griffith University
Gold Coast Australia QLD 4213

Email: r.buckley@griffith.edu.au

Keywords: surveys visitors impacts indicators birds parks management

Abstract: Two recent projects with ecological and social components produced contrasting outcomes, perhaps reflecting project structure.

The first was a joint project on ecological and social impacts of visitors in 8 national parks in 3 major ecosystems (coastal, granite, rainforest) in northern NSW. It was run with separate subprojects carried out from different universities. It produced largely separate outcomes, despite good contacts between managers and researchers during the project. Because visitor surveys are relatively inexpensive and a single snapshot is still valuable for management, the social component (Wearing et al.) was relatively comprehensive. It demonstrated why people visit, what they do, and what keeps them happy or otherwise.

Because ecological studies are relatively expensive, commonly need an extended time period, and must be replicated for different ecosystems, the ecological component (Buckley et al.) was much more restricted. It yielded a set of indicators for tourist impacts in parks, customized to each of the 8 parks; and a detailed investigation (Oost et al.) of one such impact and indicator, related to visitors supplementing food supplies for predatory birds, and consequent indirect effects on smaller rare bird species.

The second study (Littlefair et al.) tested whether best-practice interpretation in commercial walking tours reduces their ecological impacts in a rainforest park in southern Qld. Interpretation patterns were modified and replicated experimentally; actual visitor behaviours and impacts were observed and measured directly during the walks; and reported visitor impacts and behaviours were recorded though surveys and interviews carried out by the same observer, on the same tourists, immediately at the end of each walk.

There were two principal results. First, that interpretation can reduce impacts, but only if it includes particular combinations of techniques, and different

techniques or combinations work better for different impacts. Secondly, reported behaviours did not match well with observed behaviours, even though the interviewees knew that they had been observed. Basically, people lied. This casts doubt on results from surveys of self-reported behaviour in many circumstances, including recreation ecology and visitor management.

Does Ontario's environmental assessment policy contribute to the sustainable development of aggregate resources?

Budney, Heather D
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A 1S6

Murray B Rutherford
School of Resource and Environmental Management
Simon Fraser University

Email: hbudney@sfu.ca

Keywords: Canada; sustainability; impact assessment; mining; minerals

Abstract: This study evaluates Ontario's environmental assessment (EA) policy to determine its contribution to the sustainable development of aggregate resources (sand and gravel, and crushed stone). Ontario benefits from the buildings, roads, and other infrastructure constructed from aggregates. Negative impacts of aggregate development include the loss of primary mineral aggregates, land use conflicts, and decreased health and safety of the public and environment. These impacts affect the generations of today and tomorrow. The Brundtland Report, Rio Declaration, and others identify EA as a tool for addressing environmental impacts and achieving sustainable development. In general, EA is a systematic process of predicting significant environmental impacts of proposed activities (projects, policies, plans, and programs) and devising mitigation strategies for those impacts. Over fifty percent of aggregate produced in Ontario is consumed by public projects that are subject to the provincial Environmental Assessment Act. The objectives of this study are to 1) evaluate Ontario's EA process as it is applied to aggregate development, using criteria drawn from the impact assessment literature and the policy sciences, and 2) make recommendations to improve EAs for aggregate development in Ontario and elsewhere. The evaluation is based on case studies, interviews with key stakeholders in the aggregate industry, provincial government, and ENGOs, and a review of policy documents and published literature.

Place attachment dimensions and crowding: An exploratory study among water-based recreationists

Budruk, Megha S
School of Community Resources & Development
Arizona State University
Tempe AZ USA 85287

Ingrid Schneider
Department of Forest Resources
University of Minnesota

Sonja Wilhelm
Department of Forest Resources
University of Minnesota

Jennifer J Heisey
Virginia Department of Conservation and Recreation
Virginia State Parks

Email: Megha.Budruk@asu.edu

Keywords: crowding; experience use history; place attachment; recreation visitors

Abstract: Effective water-based recreation resource management relies on understanding visitor perceptions and behaviors. In the past decade, place attachment has been linked to numerous variables, but not explored in relation to visitor crowding. Given the increasing pressures on water resources, such relationships seem important to understand. This study explored the relationship between place attachment dimensions and visitor crowding perceptions at a U.S. Army Corps of Engineers site. Summer visitors across two years were contacted onsite and asked to respond to questions on experience use history, crowding perceptions, place attachment and activity. Among the two main recreation groups, anglers and boaters, moderate place attachment existed as did moderate crowding perceptions. Only among campers did any statistically significant relationship emerge between place attachment and crowding. Controlling for experience use history, correlation analyses revealed a significant negative relationship between place dependence and crowding evaluations but a significant positive relationship between place identity and crowding. Overall, findings indicate that crowding perceptions may vary by place attachment dimension, suggesting that place attachment is a relevant and useful visitor segmentation tool. In addition, visitor education and outreach programs may be enhanced through place-attachment based visitor segmentation.

An analysis of community forest implementation

Bullock, Ryan C
Geography and Environmental Studies
Wilfrid Laurier University
Waterloo ON Canada N2L 3C5

Kevin S Hanna
Geography and Environmental Studies
Wilfrid Laurier University

Email: bull2807@wlu.ca

Keywords: Local control; forest resources; community-based research.

Abstract: The “community forest” is increasingly seen as an alternative to industrial forestry for the perceived potential to mitigate conflict in forest resource management and planning. Theoretically, a community-based approach affords the chance to assert local values, provide local benefits, and manage resources differently than established top-down approaches. Yet practical examples of community forest initiatives in Canada reveal a host of constraints. This research uses a multiple case study design to investigate the motivations for and challenges to implementing community forests in British Columbia. Observations are drawn from four case studies. Site visits and semi-structured interviews with community forest stakeholders were conducted in June 2005. Based on a synthesis of the community-based resource management and implementation literature, the analysis uses a systems approach to identify challenges at multiple spatial and temporal scales to examine the complexity of cross-scale interactions. The study confirms and develops a sequence of process stages and associated challenges that are critical to developing community forests.

Examining the effects of management actions on visitor experiences and associated meanings at an icon site in Acadia National Park

Bullock, Steven D
Department of Forestry
Virginia Polytechnic and State University
Blacksburg VA USA 24060

Steven R Lawson
Department of Forestry
Virginia Polytechnic and State University

Email: bullocks@vt.edu

Keywords: qualitative; visitor experiences; Acadia National Park

Abstract: The summit of Cadillac Mountain, a park icon site, is a destination for most park visitors, is easily accessible, represents the very best of the “must see” features of the park, and is a symbol of Acadia National Park. At 1,532 feet, the summit and its magnificent vistas of the park’s glaciated coast and island landscape are easily accessible to all park visitors from the winding 3.5 mile summit road and the 0.3 mile summit loop trail. Current peak season visitation to the summit is estimated at 5,000 visitors per day (Jacobi, 2003). In this study, semi-structured interviews were used to explore the meanings and significance of visitors’ experiences on the summit of Cadillac Mountain. Visitors were asked to discuss why they chose to visit Cadillac Mountain, how their experiences on Cadillac Mountain differed from other areas in the park, and the importance of visiting Cadillac Mountain to their overall park visit. The interviews were also designed to explore visitors’ attitudes concerning the appropriateness of potential management actions and their potential effects on visitors’ experiences. This study adds to the body of research on visitor experiences, which have mostly focused on backcountry and wilderness areas, by examining the significance and meanings of visitors’ experiences of high use, “must see”, national park icon sites. Better understanding of visitor experiences and associated meanings may be useful in the identification of potential indicators of quality and judging the appropriateness of potential resource protection and visitor use management actions.

Benefits of social impact assessment for natural resource management

Burdge, Rabel J
Sociology and Environmental Studies
Consulting Sociologist
Bellingham WA USA 98227-4056

Email: burdge@comcast.net

Keywords: Social Impact Assessment, Mitigation, Monitoring, Public Involvement, Stakeholders

Abstract: This poster illustrates the use of social impact assessment at the community and project level to help natural resource managers, planners, change agents, elected officials and concerned citizens understand likely future change in their community as a result of an alteration in natural resources or a resulting project policy change.

After a brief definition of social impact assessment and its use in the planning process, the basic Social Assessment Model is laid out. Next the SIA scoping process is outlined as the way to identify likely social impacts (issues) and major stakeholders.

The content of the social assessment (analysis) is made up of 28 social impact assessment variables which I use to explain change in a variety of project/policy settings.

The poster concludes with an outline of how mitigation and monitoring have been used to enhance the benefits of natural resource development.

Attitudes concerning recreation fees in pacific northwest National Forests

Burns, Robert C
Recreation, Parks, and Tourism Resources
West Virginia University
Morgantown WV USA 26506

Alan R Graefe
Recreation, Park and Tourism Management
The Pennsylvania State University

Email: robert.burns@mail.wvu.edu

Keywords: recreation fees, outdoor recreation, attitudes

Abstract: In this study, a series of 39 questions examined opinions about a federal recreation fee program. The opinion questions fell under six categories: fee acceptance, fee equity, personal impact of fees, conditional acceptance of fees, corporate sponsorship, and values related to fees. Interesting findings were noted in comparing respondents with different income levels, across age groups, type of residence, and education level. As expected, people with lower income levels were more likely to agree with the statement "I can't afford to pay a fee to recreate on National Forests." However, it is notable that even the lowest income respondents were more likely to disagree than to agree with this statement. Respondents in the highest income group (above \$70,000) often stood out from the other groups, reporting the most agreement with the fee acceptance items. This group was least concerned with items related to fee equity, and did not agree that charging fees on the National Forests will make it so that only the affluent can use the best areas. In addition, racial/ethnically minorities reported significantly different opinions about the fee program. Overall, minority respondents' showed more support for the program than Caucasian respondents. Males and females showed interesting patterns of support or non-support, with females showing more overall support than males. Respondents from rural areas showed less support for the fee program, and were concerned that the fee program would result in the best recreation areas being accessible to only the affluent. In essence, many differences in opinions can be found in the different user groups that recreate on public lands. Understanding these differences may allow managers to implement a fee program that would be accepted by a larger share of potential recreationists.

A proposed approach for employing resident perceptions to help define and measure rural character.

Campbell, D. Cameron
Forest Resources Management - Faculty of Forestry
University of British Columbia
Vancouver BC Canada

Email: dccampbe@telus.net

Keywords: landscape character; place; sense of place; indicators

Abstract: As urban growth and resource development transform British Columbia's landscapes, issues of landscape character, community identity and sense of place are emerging to become important considerations for small towns and rural communities throughout the province. In this context, a central challenge facing landscape managers is how to design for and accommodate change without compromising rural character or other important place values. The task is particularly challenging given most communities do not have detailed knowledge about their local settings, do not know definitively what is valued in these, nor understand the cumulative impacts landscape change might have on character or place values. As well, character and place are frequently characterised as intangible qualities that are difficult to define and measure. This is problematic as design is an analytical / form giving activity concerned with creating and managing physical structures and systems. Until these values can be expressed in physical terms amenable to physical design, the extent to which they are integrated into landscape planning will remain limited.

It is hazarded that to meaningfully address these values in design-planning requires a deeper understanding for:

- i. The features and qualities of landscape perceived by residents as being fundamental to rural character and their sense of place, and;
- ii. Knowledge about how varying levels of change in these influences assessments of their quality.

This paper proposes an approach for exploring the above, and suggests how the results could inform the development of indicators or other metrics to address the sustainability of character and place.

Who's there? Monitoring backcountry trail use with technology

Campbell, Michael
Recreation Management
University of Manitoba
Winnipeg MB Canada R3T-2N2

Email: michael_campbell@umanitoba.ca

Keywords: wilderness; active infrared; multi-use;

Abstract: A number of trends have begun to alter management perspectives on managing backcountry. Among these, advances in technology (allowing rapid access to the backcountry) coupled with demographic shifts has led to the suggestion that many park visitors, particularly the aging baby boomers, will choose to use the backcountry as a day use area and return to town site amenities in the evening (Page et al., 1996). Information regarding day use of backcountry trails can be difficult to capture as registration is not typically mandatory, voluntary registration boxes have unknown reliability, and intercept surveys are labour intensive and costly. Infrared (IR) trail counters have been met with limited success as the counters do not differentiate between humans and wildlife, thus recording numerous false readings, and film cameras incur large development costs and have limited capacity. Digital cameras used in conjunction with IR sensors may be able to overcome some of these concerns but still remain a relatively untested technology in the arena. A backcountry monitoring study, employing digital cameras connected to a passive infrared sensor housed in waterproof cases, was implemented in Riding Mountain National Park, Manitoba in 2004 and 2005. Similar technology has proven to be quite effective in monitoring wildlife. (e.g. Dunkel, 2002, Siex, K. S. & Struhsaker, T. T. 1999). While there are challenges to using the technology, the monitoring program provides valuable insight into the type (hike, horse, bike), levels (#'s of visitors), and duration (day use vs overnight) of activity on backcountry trail in the park.

**Attitudes, perception and knowledge:
Understanding the human-cougar nexus on
the West Coast Trail**

Carrow, Geoff
Warden Service
Parks Canada
Victoria BC Canada V8S 3G9

Email: zenovia@telus.net

Keywords: social survey; conservation; parks; protected areas; human-wildlife conflict

Abstract: This paper examines the effect of independent variables on the attitudes, perceptions and knowledge of hikers in relation to cougar (*Felis concolor*) ecology and management. We compared responses from hikers who visited the West Coast Trail (WCT) in Pacific Rim National Park Reserve of Canada (PRNPR) in 2004. The independent variables included urban or rural residency, previous experience hiking the WCT, residence in cougar country, previous cougar encounters, hiker awareness of cougars, and preparation for traveling in cougar country. An intercept questionnaire was completed by participants before their trip (n=680, response rate = 80%). Results showed that for attitude and perception related issues, the independent variables did not generate statistically significant results with the exception of previous encounters with a cougar. Results for knowledge questions generated statistically significant results for the independent variables selected. The findings are discussed in terms of management implications and further research needs.

**Pict/oral representations of environment and
health risks from Huu-ay-aht first nation**

Castleden, Heather E
Earth and Atmospheric Sciences
University of Alberta
Edmonton BC Canada T6G 2E3

Lonnie Nookemus
Huu-ay-aht First Nation

William Dennis
Huu-ay-aht First Nation

Huu-ay-aht First Nation

Email: heather.castleden@ualberta.ca

Keywords: Indigenous people; qualitative research; human geography; risk research; health; forestry; fisheries

Abstract: Huu-ay-aht First Nation on the West Coast of Vancouver Island contains valuable forest and marine resources. Cedar and salmon are the cornerstones upon which Huu-ay-aht culture has been built, yet both are at risk in Huu-ay-aht territory. This paper reports on a preliminary analysis of a participatory research project that identifies, documents, and attempts to understand a First Nation's risk perspectives in relation to local resource development. This work draws attention to the continuance of neo-colonial relations in Canada between government, industry, and First Nations peoples, and how these relations influence risk perspectives. The fundamental question guiding this research is: How do Huu-ay-aht people perceive environment and health risks and how do these perspectives impact internal/external resource development decisions, particularly regarding the removal of cedar and disturbance of salmon habitat, on their traditional territory?

The research was conducted using Photovoice, a participant-employed photographic technique used to engage participants in the research process and create a sense of ownership. Photovoice was selected for this project to test its applicability and appropriateness as a methodological tool for conducting a collaborative inquiry regarding Indigenous environment and health risk perspectives. The premise of this research is that photography and the associated discourse as methodological tools complements the goals of a postcolonial theoretical approach: creating a platform upon which marginalized peoples can speak. The outcome, a photographic and written record, is intended to equip the First Nation's leadership with resources for

reinforcing their environment and health planning and decision-making processes with regard to resource development.

Invasive species and rangeland fires in Nevada: residents' willingness to pay to reduce risks

Castledine, Anita
Department of Resource Economics
University of Nevada, Reno
Reno NV USA 89557

Kimberly Rollins
Department of Resource Economics
University of Nevada, Reno

Email: acastledine@cabnr.unr.edu

Keywords: environmental valuation; wildfire, non-market valuation; rangeland management; economics;

Abstract: The introduction of cheatgrass (*Bromus tectorum*), a highly flammable non-native annual, has contributed to increases in frequency, intensity and size of rangeland fires in Nevada. The altered fire cycle has resulted in profound and possibly irreversible ecosystem changes with significant costs to society. This study employs standard econometric methods to elicit willingness to pay (WTP) for a rangeland vegetation and cheatgrass management program that would reduce fire risk. Over 2,000 surveys were mailed to a random sample of Nevadans. As of January 2006 the survey is still in progress; however, preliminary results (392 surveys returned) show that Nevadans' annual WTP per household for the vegetation management program is \$57.40. The survey uses an experimental design that allows a number of hypothesis tests. For example, providing additional information about the effects of cheatgrass and fire increased WTP by approximately 20 percent. The probability of supporting the management program increased with the number of years of residency in Nevada, as well as with household income. Males were less likely to support the program than females. WTP for residents of primarily urban counties is \$59.15 compared to \$36.29 for those who live in counties that are primarily rural. This study produces estimates of non-market social values associated with ecosystem changes. These estimates provide for more complete benefit-cost analyses of environmental management programs. Furthermore, results suggest that directing information to specific groups such as new residents, lower income families, and rural residents would likely increase support for vegetation management and rangeland fire risk programs in Nevada.

**Tourism development in southeast Alaska:
exploring the role of forest management
policy and implications for forest communities**

Cervený, Lee K
Rural Urban Wildlands Interactions Team
Pacific Northwest Research Station
Seattle WA USA 98103

Email: lcerveny@fs.fed.us

Keywords: Natural resource institutions; recreation and tourism; community forest interactions

Abstract: Tourism often is considered a potential source of economic growth in forest-based communities, particularly in areas where traditional industries have declined. In Southeast Alaska, where public lands encompass 80 percent of the total land base, tourism has been initiated by private developers in concert with local officials, without significant direct involvement from natural resource institutions. This paper examines the role of state and federal resource managers, alongside other stakeholders, in influencing the nature and pace of tourism growth. This paper relies on data collected in two cruise ship ports in coastal Alaska. Stakeholder analysis was used as a framework to understand the dynamic interplay between public land managers, global corporations, and local actors in shaping these destinations, with implications for communities and natural resources. The paper identifies ways that resource managers can influence tourism development and offers suggestions about potential roles for public agencies in tourism planning and management.

**The effects of surrounding landscape
character on an individual's community
preferences**

Chamberlain, Brent
Faculty of Forestry
University of British Columbia
Vancouver BC Canada

Dr. Mike Meitner
Faculty of Forestry
University of British Columbia

Dr. Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Email: chambs10@interchange.ubc.ca

Keywords: visual quality; stewardship; forest management; scenic beauty; development;

Abstract: With the increasing mechanization and modernization of the forest industry in Canada, traditionally resource dependent communities are often faced with redefining themselves to better fit within evolving economic and social trends. This change can lead to a decline in the population when individuals and families leave town to find work in urban centres. However, recent trends in the United States, in the development of the urban-wildland interface and intermix areas, suggest that a greater number of people might be leaving large cities for more peaceful, less-developed settings. These developments lead us to believe that there is potential for small towns to transition toward a new model where surrounding natural amenities may help to diversify local economies. To better understand what factors attract people to rural communities, we recently conducted a survey that explores individual preferences for communities in a rural setting, based on three criteria; surrounding landscape character, the remoteness of the community and perceived economic prosperity. This evaluation was structured as a traditional choice experiment which used several combinations of environmental visualizations, graphs and informational text to define hypothetical rural communities. The surveys were then administered to both urban and rural residents in British Columbia. Comparisons of these populations will be discussed as well as the outcomes of the survey in determining those factors that carried the most weight in people's community preferences.

Perspectives on grizzly bear management in the Banff-Bow Valley, Alberta, Canada

Chamberlain, Emily C
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A 1S6

Murray B Rutherford
School of Resource and Environmental Management
Simon Fraser University

Email: ecchambe@sfu.ca

Keywords: policy sciences; large carnivore conservation; parks; protected areas; conflict management

Abstract: We used Q methodology to examine the views of stakeholders concerning grizzly bear (*Ursus arctos*) management in the Banff-Bow Valley region of Alberta. In recent years, decision-making about bears in this region has been characterized by acrimonious disputes over scientific research and appropriate management responses. The study identifies four distinct views about the problems with grizzly bear management, and three views about possible solutions. We explore the differences between these perspectives, and also discuss areas of agreement, specifically about the need for greater stakeholder participation in decision-making, and about strategies for managing human use. These areas of consensus could guide future management efforts in the region. The Q method study set the stage for a series of three interdisciplinary problem-solving workshops on grizzly bear conservation and management with stakeholders in the Banff-Bow Valley. We discuss the design of these workshops and assess their effectiveness in fostering dialogue and finding common ground.

The effects of crowding and noise on visitors' interpretive experiences at the Castillo de San Marcos National Monument

Chandler, Linda A
Fort Matanzas National Monument
US National Park Service
East Palatka FL USA 32131

Theresa G Coble
Arthur Temple School of Forestry
Stephen F. Austin State University

Gary D Kronrad
Arthur Temple School of Forestry
Stephen F. Austin State University

Dean W Coble
Arthur Temple School of Forestry
Stephen F. Austin State University

Email: linda_chandler@nps.gov

Keywords: social carrying capacity; interpretive outcomes; meaning-making; intellectual/emotional connections

Abstract: The concept of visitor carrying capacity and knowledge regarding how crowding or perceived crowding affect the visitor experience has been used by park managers since the 1960s. In the 1980s and 1990s, with concerns about increased aerial overflights and impacts associated with the experience of natural sound in national parks, the element of noise was added to the visitor experience concept.

Tilden (1957) wrote about visitors finding personal meaning and/or making “connections” when they visit interpretive sites. Fishwick & Vining (1992) in outdoor park sites, and Falk & Dierking (1992, 2000) in indoor museum sites, studied how people seek to forge personal connections to meanings. This concept is also a central component of the National Park Service’s Interpretive Development Program (IDP), prompting research that explored visitor connections to resource meanings (e.g., Goldman et al.’s (2001) research at three national capital park memorials).

This study builds upon Manning’s research on crowding at national parks (Manning et al, 1996, 2001) to examine the influence of crowding and noise with respect to visitor interpretive outcomes. The study uses survey methodology and computer-generated photography to further our understanding of how visitors make personal connections to resource meanings while exploring factors that may impede their ability to

make interpretive connections. This information will assist park managers with decisions concerning the trade-offs associated with facilitating visitor access and managing visitor distribution within enclosed and semi-enclosed sites, such as the Castillo de San Marcos National Monument in St. Augustine, Florida, while maintaining high-quality onsite experiences.

Therapy well-being of natural based recreational areas

Chang, Chun-Yen
Horticulture
National Taiwan University
Taipei Taiwan Taiwan 10673

Hsing-Fen Tang
Leisure and Recreation Management
Asia University

Email: cycmail@ntu.edu.tw

Keywords: Landscape, Therapy, Natural Based Tourism, recreation, well-being

Abstract: This study tests the relationships between participants' activities, experiences, and psychological benefits in different nature-based recreational areas. Participants' psychological outcomes were evaluated based on outdoor experience theories to explore the influence of different landscapes on participants' experiences. Based on the psychophysiology theories, this study also evaluated participants' psychological and physiological benefits to understand the influences of different landscapes on those psychophysiological indexes.

The experience scale was used to assess participants' satisfaction. The score of State Anxiety Inventory was on behalf of the participants' psychological benefits. The right and left sphere Alpha Brain Waves (EEG-a, EEG-b) and the forehead Electromyography (EMG) recorded by biofeedback instruments was recording as the participants' physical benefits. In addition, the participants were asked to describe their feelings after watching the testing films. The answers were then recorded and analyzed by Atlas.ti V5.0.

For the relationship between environments and experience, participants generally thought that River landscape provided most experience satisfaction and Seashore landscape provided least. For the relationship between activity and experience, it is also found that different activities could induce different experiences and participants considered that taking Active activities induced most experience satisfaction. For the relationship between environments, activities, experiences, and benefits, the present study showed that there was significant correlation between psychological benefits, environments, activities, and experiences. On the physical part, the right brain waves showed significant influences.

The meanings of place attachment toward the residents in eco-park: An exploratory study in Fu-Bao Eco-park, Taiwan

Chao, Chih-Liang
Tourism Management
Providence University
Taichung Taiwan

Email: clchao@pu.edu.tw

Keywords: Natural Resources, Sustainable development, Public Participation, Ecotourism

Abstract: Ecotourism has raised increasing attention for academic and industry in recent years, not only as an alternative to mass tourism, but also as a means of economic development and environmental conservation. A growing number of Taiwan' communities are turning to ecotourism as an alternative to expanded commercial agriculture. However, a growing number of researchers agree that local control is key to avoiding many problems resulting from ecotourism development. The paper concerns the relationships between pro-environmental attitudes, local identity and place attachment for the eco-park and community level. A theoretical claim is made to frame traditional social psychological research on environmental concern into a 'place specific' perspective. In this study, local residents (N=209) were interviewed by questionnaire. The studies are presented in which pro-environmental attitudes, regional identity and place attachment are analyzed in two different geographical hierarchical location, eco-park level and community level. The results showed local groups with positive attitudes toward both general and specific natural protected areas and high degrees of local identity and place attachment. Also, various subgroups of local residents who differ in terms of their prevalent economic activities and specific interests were compared. Subjects more involved in local natural resources conservation activities showed more positive attitudes toward eco-park management and the subjects who have higher degrees of regional identity and place attachment toward both eco-park and community level showed more involved in ecological and pro-environmental activities. Both theoretical and community development implications of these results are discussed.

Managing for long-term sustainability in a directionally changing world: addressing climatic change in interior Alaska

Chapin, Stuart
Institute of Arctic Biology
University of Alaska Fairbanks
Fairbanks AK USA 99775

Email: terry.chapin@uaf.edu

Keywords: sustainability, resilience, climate change, Alaska, institutions, ecosystem services, well-being

Abstract: The world is undergoing rapid change in most of the factors that control the properties of ecosystems. How can we sustain the desirable attributes of the systems in which we live when the factors that govern their basic properties are directionally changing? Alaska is a particularly appropriate place to address this question because of rapid climatic and social change. We address this issue by extending to social-ecological systems the state-factor approach that describes ecosystem properties as a function of environmental controls. This approach can be integrated with resilience and vulnerability theory to address the dynamics of sustainability and adaptation. Application of this integrated framework to climate-change impacts in Alaska shows that climate warming has had particularly profound effects on factors that influence landscape interactions (climate regulation, disturbance spread, and disease regulation). Ecosystem goods, such as food, water, and wood that receive most management attention are only indirectly affected by warming. The cultural services provided by ecosystems are also sensitive to warming and have led to some of the few institutional responses that address causes of climate warming. Three mutually compatible categories of policy strategy have potential to enhance regional resilience in the face of directional global changes: (1) strengthening large-scale and cross-scale interactions that link the consequences of global changes to their causes, (2) introduction of policies that create time lags or reduce social-ecological sensitivity to global change, and (3) promotion of learning and innovation that allow effective adaptation.

The effects of forest management policy on community well-being in the pacific northwest

Charnley, Susan
Pacific Northwest Research Station
USDA Forest Service
Portland OR USA 97212

Ellen M Donoghue
Pacific Northwest Research Station
USDA Forest Service

Rebecca McLain
Institute for Culture and Ecology

Email: scharnley@fs.fed.us

Keywords: forest communities

Abstract: In the last fifteen years the volume of timber harvested on public lands in the western United States has dwindled substantially. How has this decline affected forest communities? Some researchers argue that the decline has been negative, citing social and economic effects on workers in the wood products industry and on well-being in forest communities. Other researchers acknowledge that negative effects have occurred in some places, but argue that overall the decline has been positive, because amenity migration has become a main driver of economic development in many forest communities. Public lands play an important role in this regard because of the natural amenities they provide, such as open space, scenery, outdoor recreation opportunities, and environmental quality. There is little evidence indicating how forest management policy in specific locations affects amenity migration at the community scale, however; or, on how the shift from intensive timber production to ecosystem management has affected regional or county-level population growth. This paper critically examines the debate over how changing federal forest management policy affects economic development and well-being in forest communities using the case of the Northwest Forest Plan in western Washington, western Oregon, and northwestern California. We focus on the links between timber production, amenity migration, and well-being in forest communities.

Law enforcement & accountability in the USDA

Chavez, Deborah J
Pacific Southwest Research Station
USDA Forest Service
Riverside CA USA 29507

Joanne F Tynon
Forest Resources
Oregon State University

Email: dchavez@fs.fed.us

Keywords: crime; successful law enforcement

Abstract: We evaluated the perceptions of law enforcement officers in the USDA Forest Service (USFS) as a follow-up to a previous qualitative study to learn more about crime and its impacts on recreation visitation and management of National Forests. We measured opinions about recreation visitor and public safety, evaluated impacts to natural resources, and tested perceived characteristics of success in law enforcement. The study also provided accountability data for USFS Law Enforcement & Investigations (LE&I). We administered an e-mail survey to 404 Law Enforcement Officers (LEOs) in the USFS. Of those, 294 were completed and returned, for a response rate of 73 percent. We analyzed the data using SPSS. LEOs are mostly male and predominantly white. Their knowledge, expertise, and experience represent the best available data we have about some of the challenges LEOs face on the job. We found that USFS LEOs are especially concerned about the perceptions that others have of them; good relationships, working together, and collaboration are ways they would measure success within the LE&I program. Most problematic is lack of resources, expressed in terms of funding, personnel, and equipment. Safety of forest users and Forest Service employees was a concern, as was the compromised quality of the natural resources. Urban-associated activities, drug activity, and motor vehicle violations were seen as problematic and on the rise. Current successes in law enforcement were attributed to successes in solving crimes and getting convictions, good cooperation, and proactive programs. We believe there are several ways to use the results of this study. The identification of issues, particularly issues that are regionally consistent, could be used to prioritize law enforcement efforts. The results could lead to priority focus areas for officers and administrators, there are implications for budgeting and staffing, and that could affect the current allocation of resources and lead to questions about congruence with issues identified by LEOs.

What restoration could bring: Recreation, responsibilities and the renewal of a city landfill to a metropolitan park

Chen, W. Jasmine
Environmental Planning and Design
MingDao University
Chenghua Taiwan 52345

Theresa G Coble
Forestry
Stephen F. Austin State University

Email: wjasminechen@mdu.edu.tw

Keywords: metropolitan park, brownfield, recreation opportunities, satisfication, restoration

Abstract: The redevelopment of the brownfield or derelict sites in the space-scarred urban areas has drawn significant attention. For conservation biologists, the rebuilt ecological structures offer habitat to much needed wildlife; for urban planners and city officials, the removal of contaminated pollutants merits social-economic opportunities; for geographers and sociologists, a restored waterfront may witness the transformation of the “placeless” to place-attached mindset; for park managers, redeveloped green space often create managerial challenges from mitigating threats to public health and increasing demand from the diverse urban clientele; for residents and perspective users, restored urban green space provides recreation opportunities to relax, escape, exercise, learn, or reflect. While most of the existing studies examine the planning processes of the redevelopment of brownfield sites including cost effectiveness and community collaborative efforts, few measure user satisfaction—an area with much research needs at the first landfill converted metropolitan park of the greater Kaohsiung area in Taiwan.

The objectives of the study are to: (1) assess whether the park is fulfilling the initial goals, (2) identify the perceived on-site benefits and problems that greening of brownfields brought to the current park users, (3) discover ways to enhance these benefits by gathering information on what users recommend for additional park facilities, recreation programs and greening projects and identifying any concerns or criticisms related to these projects for future management needs. Through on-site questionnaire, interview, and observation, the study discusses topics related to restoration landscape and community development, interpretation and environmental education, and on-site recreation experiences.

Community Planning and Community Forestry in Indigenous Tribes ─A Case Study of Lunpi in Taiwan

Cheng, Kai-Fang
Graduate Institute of Building and Planning
National Taiwan University
Taipei Taiwan

Email: r91544007@ntu.edu.tw

Keywords: Community Empowerment, Indigenous Tribes, Community Forestry, Community Planning, Lunpi

Abstract: This study uses Lunpi, an indigenous tribe, as a case study to explore the way for the tribe to apply and implement governmental community programs, and the role of community forestry program in its community development. Usually indigenous tribes are more difficult than common communities to get involved in governmental community program for limited human resources and remoteness in Taiwan. Lunpi is one of the exceptions. It successfully collected supports from different governmental agencies to build a local educational park and to conduct relevant training courses for tourism development. The strong competition of Lunpi is based on its excellent teamwork, planning, networking, organization and implementation. Actually, Lunpi reorganized its community development association and actively applied governmental community projects only since 2000. The story of Lunpi may show that it preferred a centralized community initiative which can effectively operate and use funding for governmental community programs, especially the community empowerment program. Also this study revealed that community forestry occupied only a small part of the funding Lunpi collected. Although keen to join the community forestry program, the rigidity of the law on land use of forests and bad communications with local forestry office stopped further action for the Lunpi.

Utilization of collaborative processes in National Forest planning in the U.S.

Cheng, Tony
Forest, Rangeland, & Watershed Stewardship
Colorado State University
Fort Collins CO USA 80523-1472

Sam Burns
Office of Community Services
Fort Lewis College

Email: antony.cheng@colostate.edu

Keywords: collaboration, forest planning, public participation, conflict management

Abstract: Collaboration in U.S. national forest planning has taken a front seat as the stakeholder and public participation approach. Using qualitative research methods such as semi-structured interviews and document analysis, we conducted case analyses of 6 national forests in Colorado, Utah, and Wyoming and synthesized key principles, contexts, capacity issues, expectations, and process design and adaptive management strategies. Our presentation will focus on the process design strategies.

Civil society and transborder conservation and cooperation in north America: Case studies of the international Sonoran desert alliance (ISDA) and the Yellowstone to Yukon conservation initiative (Y2Y)

Chester, Charles C
The Fletcher School
Tufts University
Cambridge MA USA 02138

Email: charles.chester@tufts.edu

Keywords: Transboundary natural resource management; international cooperation

Abstract: North America's two major borders hold markedly divergent claims to fame. To the north, the planet's "longest undefended border" between the U.S. and Canada lies in stark contrast to the U.S.-Mexico border separating one of the world's greatest discrepancies in per capita income. Despite such differences, the two borders share a characteristic that may surprise many experienced North American conservationists: across each border lie a significant number of transborder conservation initiatives. Some of these initiatives have been nearly entirely organized and implemented by government officials, although civil society has played a significant advocacy or partnership role in most of them. More recently, some of these initiatives have been organized and "implemented" by civil society alone. Two prominent examples include the International Sonoran Desert Alliance (ISDA) and the Yellowstone to Yukon Conservation Initiative (Y2Y). Both of these initiatives aim to remedy the problems brought on by straight-line borders that defy ecosystem processes. Individual examination of each of these initiatives indicates that such "third sector" cooperation has enhanced conservation efforts in complex ways. A comparative analysis between the two initiatives reveals several institutional factors that appear to have some relevant causative relationship to conservation effectiveness. These factors are mission breadth, constituency inclusion, communication systems, scientific participation and support, leadership dynamics, political backlash, and landscape vision. Identification and description of these factors contribute to the burgeoning field of "conservation effectiveness."

Exploring indicators of social resilience in the north: a review of the literature

Christensen, Lisa M
Rural Economy
University of Alberta
Edmonton AB Canada T6G 2H1

Naomi T Krogman
Rural Economy
University of Alberta

Email: lmc12@ualberta.ca

Keywords: Adaptation; economic development; resource management; sustainable development

Abstract: The concept of resiliency is becoming increasingly common in the rural sociology literature, specifically in the context of climate change and peoples of the circumpolar north. It has even become popularized, to some extent, by contemporary writers such as Jared Diamond. Other concepts related to social resiliency that have received similar attention in the sociology literature include vulnerability and adaptive capacity, which all generally refer to the ability of a system to cope with or adapt to stress. Considering resiliency and its related concepts, this paper is meant to be a review of what constitutes resiliency in social systems, especially those in the North American arctic, and the different levels and processes through which it may be manifested. We review key indicators of resilience at the individual, community and institutional level, with specific emphasis on resiliency at the institutional level (Adger, 2000). At the individual level, resilience indicators such as optimism and hope are important (Tiger, 1979, cited in Peterson, 2000, p. 46), at the community level, human capital and social learning (Varghese et al. 2006), and at the institutional level, equitable distribution of resources appears key to resilience (Adger and Kelly, 1999). We also review a few approaches to building resiliency at the institutional level, such as holistic management through means such as self-government (Berkes and Jolly, 2001, cited in Huntington et al., 2005), economic diversification regimes, and scenario building (Gallopín, 2002).

A political ecology of watershed restoration: insights from northern California

Christian-Smith, Juliet
Environmental Science, Policy and Management
University of California, Berkeley
Berkeley CA USA 94609

Email: julietchristiansmith@gmail.com

Keywords: political economy; water rights and access; beneficial water uses; participatory research

Abstract: Watershed restoration is increasing as a water resource management strategy, costing billions of dollars nationwide. Yet, the social and ecological implications of restoration remain relatively ambiguous. What does watershed restoration actually accomplish, and who or what does it benefit? I present a place-based analysis of the Russian River watershed in Northern California in order to illuminate the broader web of social relations within which the practice of restoration is embedded. Using interdisciplinary methods, I analyze narratives and practices associated with restoration, paying particular attention to which perspectives, issues and activities are absent from, or obscured by, the dominant discourse of restoration. I argue that dominant forms of restoration do not engage with the production of the watershed and, in so doing, focus on the symptoms rather than the causes of watershed degradation.

Stakeholder acceptance capacity for rattlesnakes: Applicability of a concept to unhuggables

Christoffel, Rebecca
Fisheries and Wildlife
Michigan State University
East Lansing MI USA 48824-1222

Shawn J Riley
Fisheries and Wildlife
Michigan State University

Email: chris317@msu.edu

Keywords: social carrying capacity, theory of planned behavior, minimum viable population

Abstract: As applied in wildlife management, concepts of stakeholder acceptance capacity such as wildlife acceptance capacity, stakeholder wildlife acceptance capacity, and cultural carrying capacity generally define stakeholder-expressed upper and lower tolerances for impacts from wildlife. Application of acceptance capacity has principally focused on species popularly classified as charismatic megafauna, particularly species considered overabundant. Research into applicability of acceptance capacity as an organizing framework for conservation of species such as rattlesnakes, without well-defined stakeholders, is lacking. Through a self-administered mail questionnaire (n=4,000), we tested two conceptual frameworks of acceptance capacity for non-venomous snakes and rattlesnakes in Michigan and Minnesota, USA. Factors affecting acceptance capacity included low knowledge and negative attitudes regarding snakes arising from little direct experience with snakes, sensationalized indirect experience with snakes, exaggerated risk perceptions, lack of perceived benefits from snakes, persistent fear of snakes, and deeply held cultural beliefs that demonize snakes. Because there are no well-defined stakeholder groups in rattlesnake conservation, we designated two stakeholder groups based on proximity to the potential hazard represented by rattlesnakes; people living in or near to known extant rattlesnake populations and people living in areas uninhabited by rattlesnakes. One ominous challenge in rattlesnake conservation is that the upper limits of acceptance capacity, in terms of population levels, may be below the minimum number of animals needed for a sustainable population. We propose actions to influence acceptance capacity for snakes, and provide recommendations for refinement to concepts of acceptance for other unhuggable species.

Yukon fish and wildlife management board community stewardship program: Helping Yukoners take responsibility

Cleghorn, Christine
Main
Yukon Fish and Wildlife Management Board
Whitehorse YT Canada Y1A 5P7

Jocelyn K McDowell
Stewardship
Yukon Fish and Wildlife Management Board

Email: ccleghorn@yknet.ca

Keywords: indigenous; aboriginal;

Abstract: The Yukon Fish and Wildlife Management Board (YFWMB) is established under the Umbrella Final Agreement (UFA, 1995) as “the primary instrument of fish and wildlife management in the Yukon”. Bringing First Nation and non-First Nation people together, the YFWMB focuses on territorial policy, legislation and coordination of cooperative initiatives that influence the management of fish, wildlife, and habitat. The YFWMB guides management decisions by making recommendations (based on public consultation) to Yukon, Federal and First Nation governments. (For more information on the YFWMB please go to www.yfwmb.yk.ca)

Co-management, as prescribed by the UFA, demands meaningful participation of Yukoners in stewardship and conservation of fish and wildlife. In 2003, the YFWMB created a community stewardship program with the overall goal to achieve conservation of salmon, freshwater fish, wildlife and habitat through community participation in locally driven projects.

Community stewards work toward the following objectives:

- assisting communities to identify local stewardship priorities and helping develop and implement relevant plans, programs and projects,
- ensuring the integration of scientific, local, and traditional knowledge as part of the design and implementation of stewardship initiatives,
- providing opportunities for education and capacity building,
- facilitating communication between community and government stakeholders,
- identifying and pursuing funding to support local stewardship initiatives,
- ensuring tangible and measurable results are achieved and apparent.

Through this program, First Nation and non-First Nation residents are able to participate in projects that

protect and enhance their own resources. It lays the foundation for a meaningful expression of co-management as envisioned in the land claim.

Values revisited

Clement, Jessica M
Forest, Rangeland and Watershed Stewardship
Colorado State University
Fort Collins USA 80461

Email: jclement@warnercnr.colostate.edu

Keywords: values; community; collaboration; forest values; natural resource values; collaborative learning.

Abstract: There is now a literature spanning approximately 40 years, arguably longer, related to human values and natural resources. It is a subject that continues to attract social scientists in natural resources and consequently, new methods continue to be designed and tested (Brown and Reed, 2000). In this researcher's experience however, one question keeps resurfacing: why study values related to natural resources? What does this research ultimately contribute to natural resource management? Is this research financially justifiable? What does values research provide that other analyses do not? These questions will be explored and arguments presented for a continuation of values research, in the context of recent developments in collaboration and community conservation.

Places people love and why: A multi-method exploration of values

Clement, Jessica M
Forest, Rangeland and Watershed Stewardship
Colorado State University
Fort Collins USA 80461

Email: jclement@warnercnr.colostate.edu

Keywords: values; community; collaboration; forest values; natural resource values; collaborative learning.

Abstract: In response to Brown and Reed's call for validation of their Chugach methodology (2000) which contained a forest values typology adapted from Rolston and Coufal (1991) as well as spatial values information, this researcher conducted a values study in collaboration with the Pike and San Isabel National Forests in Colorado. The study also investigated at a deeper level the attachment between one community in these Forests, Lake County, and its surrounding forests using Q-methodology and associated interviews. The quantitative and qualitative results of this method, although not part of the original Chugach method, were used to help clarify the results from the forest-wide values survey and provide a more complete profile of constituents' values, attitudes to local forest policies, demographics and explanatory background information.

Thus, this presentation will provide summarizing results of this validation effort on three levels:

1. Generally, to what extent the Chugach methodology provided valid and reliable results on a different landscape with different socio-economic circumstances.
2. Spatial information that connects the places on these forests to the people who live in and around them, and to their values.
3. Using the results of the nested Q-methodology study, provide additional information about the source of the values residents allocated spatially in the survey.

Forest conservation and sustainable development in rural Chile: The role of partnerships and public participation

Clohosey, Shannon
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada

Peter Duinker
School for Resource and Environmental Studies
Dalhousie University

Fay Cohen
School for Resource and Environmental Studies
Dalhousie University

Email: SClohosey@dal.ca

Keywords: Forest conservation; Collaboration; Partnerships

Abstract: This paper discusses how the Bosque Modelo Chiloé (BMCh), a Model Forest partnership in southern Chile, defines, adapts, and applies concepts of sustainability, resilience, and public participation to the unique social and cultural context of Chiloé. Insights into the Bosque Modelo's principles and methods were derived from a case study involving field work and interviews with a broad spectrum of the organization's community partners and staff.

Local populations of the Chiloé archipelago are heavily dependent on the forest for fuel wood, and the BMCh encourages the sustainable use of forest and other natural resources through projects that promote alternative methods for sustaining family and community livelihoods. The findings of this study indicate that the BMCh anchors its approaches to sustainability in a practical, livelihood-based method of development that focuses on individual and community potential, rather than need. Perceptions of the BMCh as a well-funded organization without roots in the local community, however, have led to the alienation of some stakeholders.

The organizational learning process faced by the BMCh hinges upon its ability to navigate multiple mandates. It acts as both a high-profile development body whose success is measured by the results it attains in applying global concepts of sustainability, and as a facilitator of practical change within a local cultural and social context. The BMCh's achievements and challenges to this end, outlined in this paper, bear significant relevance to the complexities posed by the transition to a sustainable global society.

Planning for future growth: The social dimension

Coakes, Sheridan J
Director
Coakes Consulting, Suite 8 62 Ord Street
West Perth Western Au Australia 6005

Richard G O'Connell
Community Relations
BHP Billiton Iron Ore

Email: scoakes@coakesconsulting.com

Keywords: Social Impact Assessment, Sustainable Development
Community Involvement, Strategy Development

Abstract: BHP Billiton Iron Ore has a prominent presence in the Pilbara region of Western Australia, with operations located in Port Hedland, Newman and at the company's various satellite ore bodies.

In order to meet projected iron ore market growth from China and other existing customers, the company commenced an extensive feasibility study in February 2004 to investigate the engineering, economic, social and environmental considerations associated with expanding capacity of the iron ore business. This paper provides an overview of the Social Impact Assessment program implemented as part of the Feasibility Study.

The paper explores the development of the social impact assessment program, the engagement of local, regional and state stakeholders and the integration of community issues in planning for growth at a corporate and operational level.

Specific strategies, developed to address salient issues identified by the community, e.g. dust management, service provision, township amenity, land use planning are also discussed in detail. The development of an appropriate governance structure i.e. a Community Partnerships Foundation/Trust, to institutionalise the learnings of the SIA program and to structure and direct the company's social investments and involvement with the local communities in which they operate is also outlined.

Visitor voices: Assessing interpretive outcomes at four National Parks in the intermountain region of the U.S.

Coble, Theresa G
Arthur Temple College of Forestry and Agriculture
Stephen F. Austin State University
Nacogdoches TX USA 75962-6109

Jamie L Hart
Arthur Temple College of Forestry and Agriculture
Stephen F. Austin State University

Pat Stephens Williams
Arthur Temple College of Forestry and Agriculture
Stephen F. Austin State University

Hui-nien S. Lin
Arthur Temple College of Forestry and Agriculture
Stephen F. Austin State University

Dean Coble
Arthur Temple College of Forestry and Agriculture
Stephen F. Austin State University

Kim Sikoryak
National Park Service

Email: tcoble@sfasu.edu

Keywords: Interpretive product assessment, visitor onsite interpretive outcomes, meaning-making

Abstract: By incorporating the training, development, and certification principles emphasized by the National Park Service, the U.S. Fish and Wildlife Service, and the National Association for Interpretation, onsite interpretive programs can demonstrate national certification standards. However, national park managers in particular have no data to assess whether certified interpretive products achieve desired interpretive outcomes on the ground.

Since it is costly to provide training, deliver programs, conduct program audits, and establish coaching relationships, it is important to ask, "Do visitors benefit from these efforts?" If so, can we measure visitor interpretive outcomes and determine whether significantly different outcomes occur with respect to key socio-demographic variables?

To answer these questions, researchers analyzed survey data collected at four National Park units during the summer 2005 season, including Carlsbad Caverns National Park, Lyndon B. Johnson National Historical

Park, Petrified Forest National Park, and Timpanogos Cave National Monument.

Results will enable managers to identify the meanings visitors attach to park resources, the connections to resource meanings that visitors articulate after exposure to interpretive programming, whether predicted “opportunities for connection” parallel “realized visitor outcomes,” and whether significant differences occur in meanings and/or connections based on key variables. Results were analyzed using hand-coding of visitor responses and the development of a model that identifies factors contributing to visitor outcomes using stepwise multiple logistic regression.

Place-based attitudes towards forest management: Shawnee National Forest, Illinois, USA

Cohen, Jonathan M
Department of Forestry
Southern Illinois University Carbondale
Carbondale IL USA 62901

Email: mountainsiu_10@sbcglobal.net

Keywords: management; forest planning,

Abstract: Over the past decade the U.S. Forest Service (USFS) has updated its framework for developing and revising Forest Management Plans to better integrate stakeholder attitudes into the planning process. The USFS Environmental Management System is designed to emphasize this renewed commitment to public involvement and collaboration. The Proposed Land and Resource Management Plan, issued by the Shawnee NF (SNF) in January 2005, follows this new framework. The objective of the present study is to develop a photo-elicitation survey protocol to better understand and measure the attitudes of the public related to management practices on the SNF. Participants were shown 9 photographs portraying 3 different applications of forest management practices: trails, fire, and harvesting. Each application was represented by 3 scenes depicting different phases of management treatments. Participants were asked to look at each photograph carefully and then respond on a semantic differential scale. An important feature of this study is the addition of a follow-up interview phase. Ten randomly selected respondents were asked to participate in an in-depth interview to discuss feelings and beliefs underlying the attitudes expressed on the semantic differential scale and to better understand the level of place attachment respondents assigned to the region. Attitudinal data were analyzed using SPSS and MANOVA. Interview transcripts were coded and analyzed with qualitative research techniques. Study findings address the potential of photo-elicitation techniques to assess the ability of various SNF user groups to discriminate among management treatments as well as the role of prior place attachment to treatment evaluation.

Linking climate change and sustainable development - theoretical approaches

Cohen, Stewart
Adaptation & Impacts Research Division (AIRD)
IRES, UBC
Vancouver BC Canada V6T 1Z4

Livia Bizikova
Adaptation and Impacts Research Group, Environment
IRES, UBC

Sarah Burch
IRES
University of British Columbia

Email: scohen@ires.ubc.ca

Keywords: Climate change adaptation and mitigation, sustainable development, local case studies

Abstract: This paper discusses the linkages between climate change and sustainable development and potentials for synergies and trade-offs with adaptation and mitigation measures in the local context. We seek an integrated view, in which climate change issues are included in the questions related to sustainable development and linkages between climate change adaptation and mitigation are assessed in light of current climate change policies and possible development pathways. Further, the potential for exploring linkages between climate change adaptation, mitigation and sustainable development is described in the examples of 'adaptive emissions' and 'new vulnerabilities' which could emerge if one of these climate change strategies is pursued without considering the possible side-effects.

Visitor compliance with fire restrictions: An observational study using verbal messages and symbolic signage

Cohn, Sara S
NRM/Recreation, Parks & Tourism Admin.
California Polytechnic State University
San Luis Obispo CA USA 93407-0259

William W Hendricks
NRM/Recreation, Parks & Tourism Admin.
California Polytechnic State University

Deborah J Chavez
Pacific Southwest Research Station
USDA Forest Service

Email: scohn@calpoly.edu

Keywords: persuasive communication, fire management, compliance, verbal messages, signage

Abstract: In 2000, 94% of American's reported enjoying some form of outdoor recreation (Reid, 2000). The resulting heavy use of wilderness, forest, and park areas has guided the focus of social science research towards persuasive messages as a method of changing attitudes, behavioral intentions, and ultimately, visitor behavior (Burgess, Clark & Hendee, 1971; Cole 1998; Martin, 1992; Manning, 1999; Manning 2003; Oliver, Roggenbuck & Berrier, 1982; Roggenbuck & Watson, 1985; Samdahl & Christensen, 1985). The purpose of this study was to examine the effects of message type and source on visitor compliance with fire restrictions at the Applewhite Picnic Area, Front Country Ranger District, San Bernardino National Forest, California. Six treatments were administered during the summer of 2005 involving verbal messages (awareness of consequences and altruistic messages) and signage for Latino recreation visitors. The six treatments included: a fear appeal, a moral appeal, a fear appeal with a "no fire" sign, a moral appeal with a "no fire" sign, a "no fire" sign, and a control treatment. Visitor behavior was recorded by independent observers using a Behavior Anchored Rating Scale (Cronbach, 1990) and grouped into three general compliance categories: superior compliance, marginal compliance, and poor compliance (n=276). The results, using a 2x3 ANOVA, indicated a significant interaction effect between signage and messages, a significant difference between message type with no message and a fear appeal having significant higher compliance scores than a moral appeal, and no significant difference between a sign and no sign. The results may assist land and recreation managers in developing effective informational programs related to

fire safety and regulations that successfully influence visitor behavior.

The adaptable human: Investigations of experiences in and opinions about management of heavily-used wilderness

Cole, David N
Aldo Leopold Wilderness Research Institute
Forest Service
Missoula MT USA 59801

Troy E Hall
Department of Conservation Social Sciences
University of Idaho

Email: dcole@fs.fed.us

Keywords: wilderness; crowding; displacement; visitor experience; use limits

Abstract: Managers are charged with the task of protecting high quality experiences in wilderness. How best to do this is often unclear, particularly in wildernesses that are close to large metropolitan areas. Should wilderness managers respond to increasing use levels, particularly of day hikers, by implementing use limits or other restrictions? Or is it more important that such places be managed with as few restrictions as possible, to provide urban users ready access to the benefits of wilderness?

To assist managers in making such decisions, we conducted a series of related studies in the wildernesses managed by the Forest Service in the states of Washington and Oregon. Varied populations were studied and different research methodologies were employed. In particular we attempted to better understand what wilderness visitors actually experience and how their experiences vary with how long they are in the wilderness (day vs. overnight) as well as with use level (high use vs. low use). We explored displacement and behaviors used to cope with high use densities. We were also interested in visitor evaluations of their experiences, visitor opinions about management, how visitors make trade-offs (e.g. between access and protection, between restrictions on access and behavioral restriction) and how opinions vary between day and overnight visitors and between visitors to high and low use places. For these purposes, visitors were observed, interviewed, given written questionnaires (inside the wilderness, as they exited the wilderness, at home and in stakeholder involvement workshops).

Collectively, study results suggest that most (but not all) wilderness visitors are adapting to increasing wilderness use by rationalizing the appropriateness of suboptimal conditions in urban-proximate wilderness. They recognize that conditions are crowded, avoid visiting on

holidays and weekends, if possible, and if not, alter their expectations such that their experience evaluations remain highly positive. Most would prefer to be allowed to decide for themselves whether or not to visit a crowded wilderness, rather than have that decision made for them (through use limits). The seemingly infinite ability of visitors to adapt to changing conditions raises questions about appropriate management of visitor experiences in such places, as well as about the relevance of visitor survey data in making decisions about appropriate management.

UKCIPnext: Moving towards probabilistic decision-making.

Colley, Michelle
UK Climate Impact Programme

Email:

Keywords:

Abstract: Many decisions about climate change adaptation rely on scenarios of climate change. The UKCIP02 climate change scenarios (published in 2002) have been used to inform decision-making across a broad range of stakeholder organisations. UKCIP02 users are now tackling increasingly complex problems and many of them have highlighted the need for new data products and formats. Standard probabilistic predictions carry substantial uncertainties, largely because different climate change models, with different representations of the climate system, provide different pictures of future climate. At the local level, for example, there is a wide spread of predictions over specific areas. Because the relative likelihood of each of these predictions over specific areas is not known, this range is of limited utility to the resource manager, policy maker, or community. Planning for the prediction that presents the lowest risk may put infrastructure, assets, and even lives in jeopardy, while planning for the highest risk might result in a waste of resources and time. UKCIP is now involved in the development of a “UKCIPnext” package of climate change information, due in 2008, which will present distributions of future projections of climate change for the UK. These distributions lend themselves to risk-based assessments aimed at determining the optimum adaptation strategy. This new package will mean a fundamental shift in the way UKCIP stakeholders use climate change information to make decisions, and this represents a significant challenge for the representation and dissemination of the dataset.

Boaters' attitudes and reported compliance with manatee speed zones

Confer, John J
Tourism, Recreation & Sport Mgmt.
University of Florida
Gainesville FL USA 32611

John Jett
Tourism, Recreation & Sport Mgmt.
University of Florida

Ting-Bing Wu
Tourism, Recreation & Sport Mgmt.
University of Florida

Email: jconfer@ufl.edu

Keywords: outdoor recreation; endangered species; wildlife impacts; visitor management

Abstract: The Florida manatee (*Trichechus manatus latirostris*) is listed as an endangered species under the both the federal and state Endangered Species Acts. The Federal Manatee Recovery Plan (FMRP) specifically addresses the need to reduce watercraft-related impacts as part of the recovery strategy. Although speed zones represent a tertiary strategy for ensuring manatee survivability, 40-50% of boaters fail to comply with mandated speed restrictions (e.g., Gorzelany, 2004). The high rate of noncompliance suggests a need to better understand the factors associated with the manifestation of this depreciative behavior. Signage as an environmental interpretation tool has been studied but there is little research discussing manatee signage design. The purpose of this paper was to examine boaters' attitudes towards manatee speed zones and signage, reported compliance, attitudes towards manatees and a number of equipment and personal factors. The study area was the Timucuan Preserve area located in northeast Florida. These lands and waters are a complex of federally, state and local public lands with some private lands intermixed. The findings suggest that boaters differ in their level of agreement with manatee zones and the opinions regarding these zones by levels of experience with both seeing manatees and boating, in general and at the study site. Additionally, there were significant differences based on equipment type (boat length, horsepower) and other personal factors. This research suggests that managers should consider the current signage design in terms of the layout and the format on the signage and also continue to work to educate boaters of their role in protecting manatees.

Using GIS to map recreational boaters' perceptions of crowding and safety on Lake George, New York

Connelly, Nancy A
Natural Resources
Cornell University
Ithaca NY USA 14853

Timothy Holmes
Holmes & Associates

Tommy L Brown
Natural Resources
Cornell University

Michael White
Lake George Park Commission

Email: nac4@cornell.edu

Keywords: Crowding; GIS; New York; Perceptions; Recreational boating

Abstract: The overall study was designed to provide the Lake George Park Commission with planning information to assist them in fulfilling their legislative mission of providing reasonable public access to Lake George without congestion, overcrowding, or safety hazards. As part of the study, respondents to a mail questionnaire were asked to mark on a map of Lake George where they boated, where they had a boating accident or "near miss", and areas they felt were congested. Mail questionnaires were sent out between June and September 2005 to three samples of 600 people each: (1) boaters who purchased temporary (1-day or 1-week) permits to boat on Lake George; (2) boaters who purchased annual permits to boat on Lake George, but did not own property along the lakeshore; and (3) boaters who owned a dock on the lake. Each of these types of recreational boaters may have different levels of investment and experience with the lake which may lead to potentially different perceptions regarding congestion and safety hazards on the lake. GIS and associated spatial statistics will be used to examine these potential differences as well as establish zones within the Lake with different levels of congestion or hazard based on respondents' perceptions. The implications of these findings for developing a management plan will be discussed.

**Evaluate the Human – as well as the Biological
– Objectives of Practitioner-Scientist
Partnerships in Natural Resource Related
Research**

Conway, Flaxen
Sociology / Oregon Sea Grant
Oregon State University
Corvallis OR USA 97331-3703

Caroline Pomeroy
California Sea Grant
UC Cooperative Extension, Watsonville, CA 95076

Email: flaxen.conway@oregonstate.edu

Keywords: fisheries; research; cooperation; collaboration;
user groups; ocean

Abstract: As the practice of research that deliberately connects and engages fishermen or other natural resource practitioners with scientists to work together to address information needs for natural resource management gains attention and currency, it's important to answer difficult questions like what is cooperative or collaborative research, what are the benefits of partnership in fisheries or other natural resource research, and what makes these efforts work? Labeled variously as cooperative or collaborative, these research partnerships can be a cost-effective means for collecting scientific data and natural resource practitioners' knowledge and insights about the natural environment, and a tool for fostering shared understanding and trust among study participants. Whereas these studies' "biological science" outcomes are routinely evaluated, their "human dimensions" achievements are not. Yet the latter is needed to inform and enhance the effectiveness of such projects. In this paper, we present the results of an evaluation of a joint near-shore fisheries project being carried out in Oregon and California. Using a simple mail survey, we elicited project participants' perceptions and opinions about their motivations, expectations and experiences in the project, and their attitudes about participating in future cooperative or collaborative research projects. Overall, participants were positive about their experience, although the need for better communication throughout the project, and fishermen's desire for more substantive input at most stages in the project, were noted. We discuss these findings, and their implications for the design, effectiveness and evaluation of future cooperative or collaborative natural resource related research projects.

**Linking protected areas to tourism: Role of a
sustainable tourism development strategy**

Cottrell, Stuart P
Natural Resource Recreation and Tourism
Colorado State University
Fort Collins CO USA 80525

Jana Raadik
Natural Resource Recreation and Tourism
Colorado State University

Email: cottrell@cnr.colostate.edu

Keywords: sustainable development, protected areas,
PAN Parks

Abstract: Protected areas play an important role in meeting increasing social demand for nature-oriented tourism. Good communication among stakeholders locally and regionally is essential to build collaborative partnerships to develop and implement sustainable tourism. This study examines a sustainable tourism development strategy's (STDS) influence on perceptions of tourism development in the Bieszczady National Park (BNP) Region, Poland. BNP was certified as a Protected Area Network park (PAN Park) in 2002. A local PAN Park advisory group established an STDS linking tourism and the park to sustainable development in the region. Eighteen semi-structured interviews were conducted among local stakeholders representing BNP staff, local authorities, PAN Park business partners, tourism businesses, and NGOs in the Bieszczady Park Region. Interviews explored tourism development, sustainability of tourism in the context of socio-cultural, economic, environmental and institutional capacity building and the role of PAN Parks on beliefs about sustainable tourism development. A partnership for sustainable development among stakeholders was evident supporting an overall vision of sustainable tourism development. PAN Park certification contributed most to environmental protection and an improved community attitude about nature conservation. Socio-cultural aspects for the community were noted as public outreach, environmental education, promotion of the arts, and sustainable development of the region. Open communication between the park and local communities received mixed reports indicating a need for further awareness building among local residents. PAN Parks with its STDS process is viewed as a driving force for sustainable development combining protected area concern for environmental protection with active involvement of tourism businesses.

Rethinking educational models for natural resource students

Coulter, Elizabeth D
College of Forestry and Conservation
The University of Montana
Missoula MT USA 59812

Michael E Patterson
Society and Conservation
College of Forestry and Conservation, The University of Montana

Email: elizabeth.coulter@cfc.umt.edu

Keywords: bachelors degree; masters degree; doctorate; curriculum; degree requirements; program structure

Abstract: In recent years there has been increasing debate about the nature and organization of future natural resource education in North America. Central questions include: How do we balance breadth versus depth of knowledge in our students? Are the knowledge and skills sets necessary for professional success in management versus research disparate and divergent, or congruent and complementary? Should separate educational tracks be developed for students interested in these different career paths? If differentiation should occur, should it begin at the undergraduate or graduate level? How do we achieve integration across disciplines in addressing management and research problems? Should we promote interdisciplinary students, interdisciplinary research teams, or continue to focus on disciplinary training and specialization? How do we facilitate integration of our students into the broader society they serve? In preparing students for success as researchers, how do we balance the growing social and political emphasis on research directed to problem solving with the institutional trajectory of specialization that traditionally has rewarded contributions to basic science and the scholarly knowledge base rather than contributions to society directly? These questions are not new, but the social and political context in which they occur has changed dramatically in recent decades. Educational institutions must correspondingly evolve and adapt if they are to continue to function successfully in society. This paper will discuss these underlying tensions and examine the nature and implications of alternative programmatic models on natural resource education.

Differences in constraint negotiation strategies employed by racial/ethnic minorities and Caucasians on the Mt. Baker-Snoqualmie National Forest

Covelli, Elizabeth A
Recreation, Parks, and Tourism Resources
West Virginia University
Morgantown WV USA 26506

Robert C Burns
Recreation, Parks, and Tourism Resources
West Virginia University

Alan R Graefe
Recreation, Park, and Tourism Management
The Pennsylvania State University

Erwei Dong
Recreation, Park, and Tourism Management
The Pennsylvania State University

Email: ecovelli@mix.wvu.edu

Keywords: outdoor recreation, negotiation, under-served populations, ethnic minority participation

Abstract: USDA Forest Service officials from the Mt. Baker- Snoqualmie National Forest, located near the Seattle, Washington metro area, identified a need to understand underserved populations who recreate on the forest, including racial/ethnic minorities. On-site interviews were completed with 230 forest visitors at six primary recreation areas that typically attract racial/ethnic minorities. The purpose of the study was to examine the different constraint negotiation strategies that the different users employed when trying to start, continue, or increase recreation participation on the national forest. Constraint negotiation strategies were examined by using a battery of 19 items modeled closely after scales used by Hubbard & Mannell (2001). Significant differences were noted for four of the 19 items between the negotiation strategies of Caucasian respondents and racial/ethnic minorities. Caucasian users were more likely to try to find people to recreate with in order to start, continue, or increase their participation. In addition, Caucasian users were also more likely to fit their recreation around other commitments and participate in recreation when facilities are less busy. Racial/ethnic minorities were more likely to recreate with someone who could read or speak English than traditional users. The findings in this paper demonstrate the similarities and minor differences in the negotiation strategies used by these groups. This study will be extended and replicated during the summer 2006 recreation season in Portland

Oregon, providing Pacific Northwest resource managers with a regional examination of the constraints faced by racial/ethnic minorities and the negotiation strategies employed.

Totem of sustainability: A Nuu-chah-nulth perspective on the integration of traditional ecological knowledge

Crookes, Nadine
Parks Canada
Pacific Rim National Park Reserve
Ucluelet BC Canada V0R 3A0

Email: nadine.crookes@pc.gc.ca

Keywords: first nations, cooperative management, indigenous peoples, parks

Abstract: In British Columbia, a modern day tri-partite treaty process is underway. This is changing the nature of our management regimes within parks and protected areas.

Once treaties are signed, Pacific Rim National Park Reserve will be cooperatively managed with the Nuu-chah-nulth nations. In anticipation of this new management model, the park is working concertedly to incorporate Nuu-chah-nulth traditional knowledge into all aspects of park management and operations.

The Totem of Sustainability is the conceptual model used by Pacific Rim to meet this objective.

The park is committed to utilizing the ancient wisdom of the Nuu-chah-nulth to better understand human dimensions and wildlife. Thereby learning to live with and value the creatures that co-inhabit our park.

This presentation is linked to "Pacific Rim National Park Reserve Integrated Social Ecological Research Model".

Achieving consensus in the Great Bear Rain Forest: A case study evaluation of Collaborative planning in British Columbia

Cullen, Andrea
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A1S6

Gordon McGee
School of Resource and Environmental Management
Simon Fraser University

Thomas Gunton
School of Resource and Environmental Management
Simon Fraser University

J C Day
School of Resource and Environmental Management
Simon Fraser University

Email: acullen@sfu.ca

Keywords:

Abstract: The Great Bear Rainforest (GBR) is a unique ecological region of over 6.4 millions hectares, twice the size of Belgium. Conflict over the management of GBR among First Nations, resource companies, local non-native communities, and environmentalists has been intense. After ten years of collaborative planning, a consensus agreement was reached on a resource plan for the GBR in 2006. Evaluation of the GBR process is a unique opportunity to assess the most recent innovations in collaborative planning including: involvement by First Nations through a two tier negotiation table, new approaches to implementation, and a unique model for data analysis. This paper reports on the evaluation of the GBR process based on a stakeholder participant survey using 25 process and outcome criteria. The paper assesses the strengths and weaknesses of the innovative process and identifies lessons for collaborative planning.

Talking about land use planning in rural communities: A discursive approach to resolving conflicts

Cumming, Gabriel B
Curriculum in Ecology
University of North Carolina at Chapel Hill
Chapel Hill NC USA 27516

Carla M Norwood
Curriculum in Ecology
UNC-Chapel Hill

Email: gcumming@email.unc.edu

Keywords: ethnography; landscape change; community-based; amenity migration

Abstract: Like so many rural communities near national forests or parks, Macon County, NC, is facing rapid growth from retirees or second home builders. While many of the characteristics that both long-time residents and newcomers value about the region—such as clean rivers, beautiful vistas, and rural character—become impaired by haphazard development, a heated and unproductive debate over land use planning and property rights has stalled conversations about the future.

I will explore the potential of discursively-informed participation strategies to overcome such environmental conflicts and articulate policy goals that enjoy broad local support. Community ecological discourses are the ways in which members of a community communicate about, and thereby socially construct, their local environments. Using results from an iterative and participatory engagement model in Macon County, I make the case that policy processes will garner more participation and support if they address local concerns through local discourses.

Through the Little Tennessee Perspective project, community partners and I employed documentary ethnography as a tool for transcending conflict and enabling community action. We conducted audio-recorded interviews with residents to find out how they valued the local landscape and envisioned its future. We also photographed community members and their favorite places. The interviews were analyzed for emergent narratives, and we then created an audio-visual documentary that became the starting point for a public conversation about values and land use. It was presented at public meetings, followed by facilitated discussion that enabled community members to critique and amend the narratives as well as develop shared policy goals based on common interests.

This methodology has resulted in markedly different outcomes from previous public processes. While previous planning meetings here have consistently encountered hostility, 95% of our meeting participants envisioned futures for the county that involved planning to protect the landscape. Initial results suggest this discursively-informed and community-based approach offers a non-threatening way to initiate a public planning process based in shared community values. I will also draw on work in several other communities to comment on transferability and adaptability of this approach.

Private business perceptions of transportation issues and the island explorer bus system at Acadia National Park

Daigle, John J
Department of Forest Management
University of Maine
Orono ME USA 04469-5755

Email: John_Daigle@umenfa.maine.edu

Keywords: benefits; park management; collaborative planning; local communities; tourism; quality of life

Abstract: Using a sample of Mount Desert Island businesses during the Fall of 2002 listed as members of the Bar Harbor of Commerce and the Southwest Harbor / Tremont Chamber of Commerce, this paper describes business managers' attitudes toward tourism and the environment of being located near Acadia National Park. This information is then used to examine concerns about summer travel conditions and how this may influence tourism business and the quality of life for Mount Desert Island communities. After a reminder and two additional inquiries to non-respondents a total of 257 usable questionnaires were returned, providing an overall response rate of 60 percent.

The survey of Mount Desert Island businesses confirmed the importance of tourism to the local economy. Businesses reported multiple benefits of being situated near Acadia National Park in terms of economic potential of attracting customers as well as other benefits to the community. Business managers are concerned about summer travel on Mount Desert Island and in Acadia National Park. The business manager concerns about travel issues are equally of concern for Park managers in terms of goals of protecting the natural environment and providing high quality experiences. The level of agreement on certain issues and in some cases disagreement or uncertainty expressed by some business managers suggests a growing need for the local communities and the National Park to work cooperatively in planning and discussing future management scenarios of tourism both inside and outside of the National Park.

Use of human dimensions information as a tool for selecting habitat restoration areas in Missouri farm lands for northern bobwhite

Dailey, Thomas V
Resource Science
Missouri Dept. Conservation
Columbia MO USA 65201

R A REITZ
RESOURCE SCIENCE
MISSOURI DEPT CONSERVATION

H J SCROGGINS
RESCOUCE SCIENCE
MISSOURI DEPT CONSERVATION

T B TREIMAN
RESOURCE SCIENCE
MISSOURI DEPT CONSERVATION

C D SCROGGINS
RESOURCE SCIENCE
MISSOURI DEPT CONSERVATION

R A PIERCE
TSNR
UNIVERSITY MISSOURI

W B KURTZ
TSNR
UNIVERSITY MISSOURI

Email: tom.dailey@mdc.mo.gov

Keywords: farmers; Midwest; quail; attitude maps; demographics; visualization; questionnaire; decision aids;

Abstract: In response to dwindling populations of northern bobwhite (*Colinus virginianus*), the Northern Bobwhite Conservation Initiative and the Missouri Department of Conservation's Strategic Guidance for Northern Bobwhite Restoration are guiding restoration efforts in Missouri. Success of these programs is dependent on restoration of habitat on large tracts of private land. Efficacious selection of restoration areas requires a foundation of ecological and sociological information. Although we know much about bobwhite ecology, our skill at engaging landowners in habitat restoration is meager, partly because we do not know how to motivate landowners in a cost-effective manner. Our objective is to develop a systematic approach for using sociological data to identify potential private land restoration areas.

We measured Missouri landowner willingness and ability to carry out habitat restoration in a cooperative setting, transformed these data to GIS format, and worked with local resource managers to identify areas with desirable landowner characteristics. We report survey responses/GIS data for 735 individuals in 5 28,000-ha study areas in northern Missouri. Although 82% of respondents indicated they were interested in quail, when asked if they would participate in a habitat restoration cooperative, 15% chose 'yes,' 24% chose 'maybe,' and 61% chose 'no.' We report the steps taken to select 2 5,000 ha restoration areas, and programs planned to increase landowner participation in the 2 cooperatives.

Assessing public preferences for future northern forests: how perceptual survey methods can contribute

Daniel, Terry C
Psychology
University of Arizona
Tucson AZ USA 85721

Brian Orland
Landscape Architecture
Pennsylvania State University

Dawn Hill
Psychology
University of Arizona

Cenk Ursavas
Landscape Architecture
Pennsylvania State University

Email: tdaniel@u.arizona.edu

Keywords: risk perception, risk-benefit tradeoffs, computer visualization, desired future forest conditions

Abstract: Perceptual survey methods were developed, tested and applied in the context of assessing public preferences for alternative management policies in northern forests. The motivation for management action in the Boundary Waters Canoe Area Wilderness and Gunflint Trail region of northern Minnesota was 1) a major wind disturbance that had flattened thousands of acres of forest (the "Blowdown" of 1999) and 2) the need to reduce hazardous fuels and restore forest ecosystems. Computer visualizations were developed for selected disturbed and undisturbed forest sites based on detailed biological inventories and intensive modeling of the expected effects of forest management prescriptions on regeneration and growth. Visualizations were incorporated into computer-implemented perceptual survey systems that were administered and tested in laboratory, field and internet formats. Preferences based on inspection of visualizations were highly consistent and robust across formats and across captive students and "wild" residents and visitors intercepted in the study area. Regression analyses revealed that perceptual preferences reflected tradeoffs among perceived aesthetic (scenic beauty), safety (fire hazard) and ecological (forest health) concerns. Parallel assessments of tradeoffs among these same concerns in a verbal format produced different coefficients. Implications for assessing and using public preferences in forest management decision and policy making are discussed.

Applying med-arb to natural resource disputes with entrenched parties

Daniels, Steven E
Sociology, Social Work, and Anthropology
Utah State University
Logan UT USA 84321

Email: steve.daniels@usu.edu

Keywords: mediation, final offer arbitration, negotiation, conflict, snowmobile, public lands

Abstract: Med-arb is a well known conflict management approach that begins with a mediation phase and concludes with an arbitration phase, if the mediation phase is unsuccessful at addressing the parties' needs. It is widely used in contract disputes, and a variant that uses final offer arbitration has been used to resolve public safety employee contract disputes. The final offer variation of med-arb (med-FOarb) has been shown to produce a high rate of voluntary agreements in the mediation phase, as well as more reasonable offers if the arbitration phase is necessary.

Med-FOarb was applied to a snowmobiler-crosscountry skier conflict on the Wasatch-Cache National Forest in northern Utah in the summer of 2005. Prior to this application, there is no evidence that med-FOarb has been used to manage natural resource/environmental conflict.

This paper discusses the particular advantages that med-FOarb can offer in the environmental conflict arena. It is particularly useful if the parties are entrenched in their positions, and if the collaborative potential appears low. The results of the conflict assessment that led to the decision to use med-FOarb in this particular dispute are presented, as well as the specifics of the project implementation. The complete results of the med-FOarb project are not yet appeared because insufficient time has passed since the project was conducted, and the parties are still pursuing some competitive options. Nevertheless, some evaluative results can be discussed.

Conserving the commons through stewardship: A Canadian approach to species at risk conservation

Dar, Saleem
Canadian Wildlife Service
Environment Canada
Vancouver BC Canada V4K 3N2

Email: Saleem.Dar@ec.gc.ca

Keywords: biodiversity, incentives, community-based initiatives, First Nations, multi-species recovery

Abstract: This paper examines the effectiveness of the Canadian government's Habitat Stewardship Program for Species at Risk (HSP), which was established three years prior to the enactment of the federal Species at Risk Act (SARA) to create incentives for conservation of at-risk species and their habitats by private landowners and other actors. In contrast to the United States' regulatory approach to endangered species conservation, voluntary stewardship has been identified as the "preferred approach" for species at risk conservation in Canada.

Drawing from the body of theory and literature on the management of common pool resources, this paper examines the experience of HSP during its first six years and the challenges facing the program in a changing legal and socio-political landscape. Using British Columbia as a case study, we explore under which conditions HSP is likely to succeed in conserving species at risk. We summarize program results to date, identify key lessons learned, and speculate on the value of these lessons for managers in other jurisdictions. We conclude that this evolving stewardship approach holds promise as a unique effort to conserve species at risk, while avoiding the pitfalls of a regulatory approach. However, this approach also introduces significant pitfalls of its own which if left unaddressed, have the potential to reduce or even undermine conservation efforts. Based on this analysis, we present policy recommendations which aim to enhance the success of this stewardship approach in conserving species at risk.

A conceptual overview of an integrative place dependence scale

Davenport, Mae A
Department of Forestry
Southern Illinois University Carbondale
Carbondale IL USA 62958

Email: mdaven@siu.edu

Keywords: natural resources management; outdoor recreation

Abstract: Understanding the human-environment connection long has been the focal point of social science research in natural resources management. Early studies emphasized participation rates and recreation activities, generating an activity approach to management. Theories in psychology inspired an experience approach, which maintains that recreation areas meet certain psychological needs beyond the pursuit of activities. A related vein of research has acknowledged the emotional bonds visitors have with public lands with which they personally identify. Recent research has expanded the notion of visitors' connections to public lands recognizing the litany of off-site benefits these places offer to communities and citizens, such as improved air quality, economic stability, and social cohesion. This benefits approach has shown promise in articulating the many and crucial roles public lands play.

Several psychometric scales have been introduced to measure the importance of recreation experiences or experience motivations and the strength of emotional bonds to places or place attachment. To date the scales' implicit conceptual underpinnings and explicit verbiage have been tailored to the recreation visitor as subject, but do not adequately address the non-visitor or associated off-site benefits.

The place dependence model presented here builds on previous motivation and place attachment research and offers an expanded conceptualization of this concept. Consistent with the benefits approach, it identifies six domains of place dependence appropriate to local communities and citizens, including recreation experience, personal, family, community, nature, and economic dependence. The integrative model was developed based on interviews conducted with community members living near a national scenic river.

Understanding public opinion and support for tree management initiatives in Knox county, Tennessee

Davis, Kimberly L
Energy, Environment and Resources Center
University of Tennessee
Knoxville TN USA 37996-4134

Robert E Jones
Sociology
University of Tennessee

Email: kdavis17@utk.edu

Keywords: sustainable development, tree ordinance, landscape

Abstract: Urban areas within Southern Appalachia such as Knoxville, Tennessee have experienced a significant loss of trees over the past 15 years. In response to this reduction of the tree canopy, local planners have proposed changes in existing zoning ordinances to protect and plant more trees. The purpose of this study was to determine public awareness of tree-related issues facing Knox County and the City of Knoxville and the level of public support/opposition for existing and proposed tree policies. Key informant interviews and a survey mailed to a random sample of 2,400 residents in Knox County were used to gather this information. The results suggest that most residents are knowledgeable about planting and maintaining trees, believe they provide many benefits, and support their protection but know very little about policies or efforts targeting tree canopy protection in Knox County. Most residents agreed that they have a personal responsibility to protect trees but are less likely to support regulations further restricting land developers or private homeowners from cutting down trees. The results will be used to make policy recommendations to city and county officials and to help design outreach programs to inform residents about issues related to urban forest management and protection.

Exploring the meaning of “forest management”: A survey of private forest landowners in east Tennessee

Davis, Miriam L.E. Steiner
Forestry, Wildlife, and Fisheries
University of Tennessee
Knoxville TN USA 37996-4563

J. Mark Fly
Forestry, Fisheries, and Wildlife
University of Tennessee

Sean Huss
Behavioral Sciences
Arkansas Tech University

Email: miriams@utk.edu

Keywords: Natural resource communication; discourse; linguistic; language; communication

Abstract: In the struggle to conserve America’s private forest land, it is critical that natural resource professionals, private forest landowners (PFLs), and policy makers understand each other. The specialized terms and jargon routinely used by natural resource professionals are increasingly seen as contributing to the difficulties they face in more significantly engaging PFLs in managing their forestland. One such term is “forest management”. While there have been many efforts to increase our understanding of these landowners, no known studies have examined what these landowners consider “forest management” to be. Preliminary qualitative research with East Tennessee PFLs who indicated they were not involved in traditionally defined forest management activities and opportunities revealed that they do partake in many activities which might be considered forest management depending on how it is defined. Furthermore, interviews revealed that these landowners do not consider themselves to be forest managers, nor their land to be managed. Based on these results, a survey of East TN PFLs was constructed including a 15 item Likert scale question measuring how PFLs define the term “forest management”. Landowners’ definitions of “forest management” will be presented including a comparison of definitions based on PFLs’ levels of participation in forest management activities. Landowner definitions will also be compared to traditional definitions used by natural resource professionals. Implications of these results for natural resource professionals’ successful engagement of PFLs in private forestland management and conservation will be discussed, as well as the potential barriers and opportunities for improved dialogue between these two groups.

Shifting the paradigm: Tools to move from public input to public involvement in the management of Oregon State Forest land

DeBruyckere, Lisa A
Oregon State Forests Program
Oregon Department of Forestry
Salem OR USA 97310

Robert L Williams
RESOLVE, Inc.

Email: LDEBRUYCKERE@ODF.STATE.OR.US

Keywords: public involvement, public input, forestry, management, stakeholders, facilitation,

Abstract: Forest management issues in the western United States have been controversial, pitting industry and harvest advocates that seek government lands to be managed primarily for economic interests against environmental and conservation groups that view these same lands as places to establish and maintain reserves. The Oregon Department of Forestry is responsible for managing 700,000 acres of Oregon State Forest Land for economic, social, and environmental values. Management for these values provides opportunities to break the paradigm of polarization that has dominated past public input efforts. Past agency efforts will be reviewed as the foundation for exploring current and future public involvement plans. Current plans to improve communication between stakeholders and shift the existing paradigm include public surveys of Oregonians' knowledge, attitudes and preferences, new computer models of forest management that span 150 years, a second party assessment of the agency's forest management plans, and the hiring of a non-for-profit facilitation/mediation company to create a rich discussion for the 7-member governing Board of Forestry relative to these matrix lands. The results of these initiatives and ideas for future efforts will be shared.

Sustaining watershed councils: The Oregon network of watershed councils

Dedrick, Jason
Crooked River Watershed Council
Crooked River Watershed Council
Prineville OR USA 97754

Dana Erickson
Long Tom Watershed Council
Long Tom Watershed Council

Email: jason.dedrick@oregonstate.edu

Keywords: watershed management
collaboration
collaborative natural resource management

Abstract: This presentation explores the steps and phases involved in the creation of a new organization called the Oregon Network of Watershed Councils. The primary authors, both of whom are coordinators, were involved in the development of the network and remain involved in its administration. The Network is dedicated to supporting the work of watershed councils throughout the state by focusing on three principles agreed to by watershed councils statewide.

1. Help Build Watershed Council Capacity: through training, information sharing, funding and internal communication
2. Work to improve key relationships with watershed council partners: such as Oregon Watershed Enhancement Board, Oregon Plan Liaisons, River Network, OSU Extension and other organizations in the state
3. Promote public awareness of watersheds and watershed councils
developing a watershed outreach program in partnership with the Oregon Plan Team, OSU Extension, OWEB and others;
--publishing a Statewide Atlas of Accomplishments
--establishing a Network website for both the public and watershed councils, and;
--coordinating communication and education for elected officials about the work of councils.

A paired-comparison choice model of the wilderness experience in Yosemite National Park

Dennis, Donald F
Northern Research Station
USDA Forest Service
Burlington VT USA 05402

Peter Newman
Colorado State University

Robert Manning
University of Vermont

Email: dondennis@fs.fed.us

Keywords: choice model, conjoint, public involvement

Abstract: Managers of wilderness areas must make decisions that balance the diverse desires and preferences of society while ensuring the long-run integrity and sustainability of complex ecological systems. Because desires differ widely across society and resources are limited conflicts may arise that require trade-offs when choosing a management strategy and the resulting mix of benefits and resource impacts. This study uses a paired-comparison choice (conjoint) model to solicit and analyze user preferences for and acceptable tradeoffs among 6 attributes of the wilderness experience within the Yosemite National Park. The attributes were number of groups encountered per day while hiking, opportunity to camp out of sight and sound of other groups, signs of human use at campsites, encountering stock or signs of stock use, regulation of camping, and probability of receiving an overnight back-country permit under different use levels. Respondents chose between scenarios comprised of varying levels of the 6 attributes listed above. The sample includes 6102 paired comparisons (678 park users, each rating 9 paired scenarios that were chosen using an orthogonal fractional design). A random utility model was estimated that describes the preference structures of respondents.

The rapid recreation assessment: A tool for assessing visitor use and related impacts in natural areas

Denny, Christine B
Recreation and Communications
Pandion Systems, Inc.
Gainesville FL USA 32609

Christian M Newman
Communications and Ecology
Pandion Systems, Inc.

Thomas E Fish
Human Dimensions
NOAA Coastal Services Center

David W Lime
Department of Forest Resources
University of Minnesota

Email: cdenny@pandionsystems.com

Keywords: visitor management; recreation impacts; nature based tourism; NOAA

Abstract: As more people discover coastal and coastal and marine protected areas (MPAs), the task of managing the resource while providing quality visitor experiences becomes a challenge for managers who may lack the time, training or interest to manage visitors. These managers must efficiently work using constrained resources to find a way to address visitor impacts in order to strike a balance between human and resource needs.

The Rapid Recreation Assessment (RRA) was designed to be an adaptable tool to help coastal resource managers to assess and prioritize biophysical and experiential impacts related to visitor use at their site. Although managers often generally know where visitor impacts are occurring, they may not know specifically where key resources (natural and cultural resources that are protected on site) and visitor use overlap. To implement any management actions, managers should show factual, scientific information to justify their response. The RRA is way to get an overall picture of visitor use and its current and potential resulting impacts. The RRA has four sections:

- 1: Site key resource inventory
- 2: Sensitivity analysis of key site resources
- 3: Visitor use and key resource maps
- 4: Visitor use impact tables

The RRA is designed to be a quick yet comprehensive way to address visitor use issues. Conducting an RRA

gives managers information to assess visitor use impacts at their site. This presentation will highlight these elements of the RRA and will give an example of its implementation at Rookery Bay National Estuarine Research Reserve in Florida.

Trust and sustainable forest management: The case of British Columbia

DesRoches, Tyler C
Industry, Trade and Economics
Canadian Forest Service
Victoria BC Canada V8Z 1M5

William L Wagner
Industry, Trade and Economics
Canadian Forest Service

Email: tdesroch@pfc.cfs.nrcan.gc.ca

Keywords: Trust; Sustainable Forest Management.

Abstract: Social trust, a key component of social capital, can often entail a willingness to rely on those with formal responsibility to develop public policies and make public decisions. This preliminary study examines the relationship between public perception and social trust in British Columbia (BC) forestry. The recent findings of surveys conducted by the Association of British Columbia Forest Professionals indicate that public trust is waning – for both how forestry is conducted in the province, and as it relates to forestry professionals. Beyond answering why trust is an important issue and what can be done to enhance the level of trust in BC forestry, this paper has two objectives. First, it explores the role of trust within the context of sustainable forest management (SFM). There are several “trend lines” in sustainable forest management that include forest practices being accountable and adopting an integrated approach to economic, environmental and social sustainability objectives. Specifically, trust has a vital role within the social sustainability branch of SFM – it can be earned through both public decision-making processes and the final product of public decisions. Second, following a discussion of social trust in SFM, this paper takes a practical turn and explores the role of trust in the management of environmental issues on major timber tenures in BC. In addition to suggesting that social trust is a significant predictor of approval of management practices, this paper argues that a high level of trust could facilitate the overall effective management of environmental issues on major timber tenures.

Socio-economic assessments in National Forest planning: A case study of the Coronado National Forest

DeSteiguer, Joseph E
School of Natural Resources
University of Arizona
Tucson USA 85718-0043

Thomas Spangler
School of Natural Resources
The University of Arizona

Sara Jensen
School of Natural Resources
The University of Arizona

Ian MacDonald
School of Natural Resources
The University of Arizona

J R Owens
School of Natural Resources
The University of Arizona

Denise Fisher
School of Natural Resources
The University of Arizona

Cori Carveth
School of Natural Resources
The University of Arizona

Julie Michael
School of Natural Resources
The University of Arizona

Email: jedes@ag.arizona.edu

Keywords: forest planning, community relations, demographics, land use, forest users, special areas

Abstract: A socio-economic assessment of the Coronado National Forest (Arizona, USA) was recently conducted by a team of researchers from the University of Arizona. The assessment profiled the social and economic environment surrounding the Coronado National Forest. The collection and analysis of quantitative and qualitative socioeconomic data will serve as a baseline by which the Coronado National Forest and the wider public can assess management alternatives developed through the process of forest plan revision. It will do so by facilitating a better understanding of the relationship between public lands and surrounding communities, aiding in the identification of specific forest plan elements capable of responding to socioeconomic

trends, and assembling a wide array of information needed to evaluate trade-offs between various forest management alternatives.

A multi-county area of assessment provided a framework for the compiling of social and economic data. The boundaries of the Coronado National Forest about the state of Sonora, Mexico and extend into five Arizona counties and one in the state of New Mexico. The methods of inquiry for this assessment were described in an initial work plan that was reviewed and approved by the Southwest Regional Office of the USDA Forest Service and by forest planners from each of the six national forests in Arizona. The plan identifies socioeconomic indicators, the geographic and temporal scale of analysis, and potential sources of information for each assessment topic. The assessment collected information pertaining to each of the following seven topics: 1) demographic patterns and trends; 2) economic characteristics and vitality; 3) access and travel patterns; 4) land use; 5) forest users and uses; 6) designated areas and special places; and 7) community relationships.

Findings from the analysis of socioeconomic data are consistent with those from similar studies throughout the region showing significant increases in population and housing, substantial economic shifts from extractive industries toward the service and professional sectors, and a land use policy environment largely affected by an abundance of public land and increasing urbanization. In addition to revealing differences in the demographic, economic, and land use patterns of each county, it also discusses issues of natural and cultural resource protection common to the entire region.

**Actors and knowledge in planning the
management of semi-natural habitats.
Implementing the European habitats directive
in France**

Deverre, Christian
Ecodeveloppement
Institut National de la Recherche Agronomique
Avignon France 13210

Ghislain Geniaux
Ecodeveloppement
Insitut National de la Recherche Agronomique

Email: deverre@avignon.inra.fr

Keywords: Multiple use. Biodiversity management.
Scientific knowledge. Plain knowledge. Expert networks.

Abstract: After a period of sharp conflicts with representatives of forest, hunting and agricultural interests, the French administration decided in 2000 that management objective projects were to be finalised in each of the 1.200 future Special Areas of Conservation designated according to the EU Habitats Directive. The aim of these projects is to define locally which activities should be developed by rural customers to achieve the habitats conservation objectives. The projects are worked out by state appointed local institutions (municipalities, environmental associations, forest agencies...) which have a wide autonomy in the organisation of the procedure.

A postal survey has been conducted among these institutions to identify the actors and scientific abilities which were chosen and the kind of knowledge produced in the process of planning the adjustment of economic and recreational practices to the objectives of nature conservation. The paper presents the results of this survey (360 questionnaires). Beyond empirical data, it emphasises the fact that new expert skills appear, particularly among local municipalities, which ability is more to combine previously distinct areas of knowledge and know-how than to produce new scientific and technical conservation outcomes. However, the institutional framework in which these new forms of expertise emerge make it precarious, as no particular professional status has been institutionalised, nor any centre of capitalisation of these experiences has been set up.

**Skier preferences for eco-efficient ski-hill
management in Whistler, B.C.**

Dickson, Mathew E
School of Resource and Environmental Management
Simon Fraser University
Vancouver BC Canada

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Peter Williams
School of Resource and Environmental Management
Simon Fraser University

Ben Beardmore
School of Resource and Environmental Management
Simon Fraser University

Email: mathewd@sfu.ca

Keywords: Ski hill

Abstract: The literature on winter tourism offers a wide range of environmentally sound management initiatives. Several of them have been evaluated for skier acceptance in surveys before, but only few studies have attempted to evaluate them jointly as components of a ski hill operation. This investigation applies a discrete choice experiment to a ski hill operation which is described by ski run distribution, skiable terrain, number of terrain parks, gondola wait time, night skiing, days during which the bottom half of the mountain is closed, on-slope restaurants and snack bars, groomed area, snow making capacity, backcountry access, environmental certification, and environmental surcharge. A total of 464 completed responses were received to a web-base survey (response rate = 36%). The most important variables were gondola wait time, backcountry access, environmental certification, and environmental surcharge. Surprisingly little differences emerged between day skiers and overnight visitors to Whistler. A latent class segmentation separated skiers into two classes. However, this segmentation was only significant for age and several attitudinal questions. Overall, visitors preferred ski hills which had shorter gondola wait time, more skiable terrain and total area groomed daily, backcountry access without a lift, no significant night skiing, fewer days that the bottom half of the mountain was closed, environmental certification, and although visitors preferred no environmental surcharge added onto lift tickets, they still had a positive preference for a surcharge of 5%. This information can be used to link with a energy and materials flow model to evaluate the

preferences for environmentally sounder management alternatives.

Does land fragmentation in term of ownership affect contractual choices in the case of Bulgaria?

Dirimanova, Violeta D
Department of Resource Economics
Humboldt University
Berlin Germany 10117

Email: violeta_dirimanova@yahoo.com

Keywords: agricultural contracting, Bulgaria, land fragmentation, private land property rights

Abstract: Land fragmentation is an issue, which is typical for most transition countries after land restitution processes in Central and Eastern European Countries. Fragmentation in land ownership, combined with an underdeveloped land market, is a problem for land use, and hinders the production processes in agriculture. The main argument developed is that the fragmented land ownership generates high exchanging costs for tenants. The aim of the paper is to investigate how land fragmentation, in term of ownership, affects contractual agreements between landowners and tenants through typical agricultural contracts. To study the impact of fragmentation in land ownership on the contractual choice, qualitative data was collected in three regions of Bulgaria, where the degree of land fragmentation differs. The findings of the investigation show that the landowners, who are assumed by contractual theory to have stronger bargaining positions than tenants, are in fact the weaker actors. This is due to the higher contractual costs such as information of searching for the owners, high opportunity costs and transaction costs all resulting from land fragmentation. There is a direct correlation between land fragmentation and bargaining position.

A segmentation approach to understand angler preferences for tournament fishing policies

Ditton, Robert B
Department of Wildlife and Fisheries Sciences
Texas A&M University
College Station TX USA 77843

Chi-Ok Oh
Department of Parks, Recreation and Tourism Manage
Clemson University

Robin Riechers
Coastal Fisheries Division
Texas Parks and Wildlife Department

Email: rditton@ag.tamu.edu

Keywords: Stated preference choice model, recreational tournament fishing, management preferences

Abstract: With an increasing number of recreational saltwater fishing tournaments in the U.S., there has been concern over the inequitable use of public fishery resources and the lack of any special licensing requirements for participants. A typical analysis based on an average angler perspective fails to consider the heterogeneous preferences of various user groups into optimized policy development. Therefore, we sought to understand the differences in concerns and preference for management of tournament fishing based on previous tournament participation (i.e., tournament and non-tournament participants). Study objectives were to: 1) better understand anglers' preferences for tournament fishing trips under various policies and management options; 2) examine group differences in preferences; and, 3) provide feasible management options that maximize satisfaction for both groups concurrently with conserving the resources involved. Using seven different policy and expectation attributes, a fractional factorial design generated 56 paired choice sets, which were included in seven versions of the mail questionnaire. Random parameter logit models were used for parameter estimation. Results indicated that the average angler most preferred a conservation-oriented scenario that introduced additional management measures over other scenarios. However, the use of the segmented group approach revealed different patterns of preferences for the management scenarios proposed. While both groups most preferred a conservation-oriented scenario, participants were more interested in maintaining the current laissez-faire management conditions. A segmentation approach is advantageous for understanding how changes in management options have a differential influence on angler segments and is

useful for avoiding the unwanted displacement of affected angler types.

Ten years of social assessments for forest management: what have we learned?

Donoghue, Ellen
PNW Research Station
USDA Forest Service
Portland OR USA 97208

Lita Buttolph

Susan Charnley
USDA Forest Service

Jonathan Kusel
Sierra Institute

Rebecca McLain
Institute for Culture and Ecology

Email: edonoghue@fs.fed.us

Keywords: Northwest Forest Plan; NW Economic Adjustment Initiative; Sierra Nevada Ecosystem Project

Abstract: In the early 1990s, federal land management agencies in the U.S. adopted ecosystem management as their approach to managing public lands. Since then, several broad-scale social assessments were conducted to inform and evaluate forest management policy, planning, and practice. These assessments typically produced information about socioeconomic conditions in forest communities in a specific geographic area, and how change in community socioeconomic conditions over time could be, or had been, linked to forest management.

This paper draws on five broad-scale social assessments conducted in the greater Pacific Northwest region over the past decade that the authors have participated in, or are highly familiar with. We suggest that three things shape social assessments: policy directives, existing scientific methods and analytical constructs, and the quality of connections between the scientists conducting them and the people who are their subjects and their audiences. This paper explores the challenges associated with undertaking social assessment in light of these three influences; identifies what we have learned to help address these challenges; and suggests how to move forward to improve the science of social assessment and application of the results.

Beyond wheat: Using interdisciplinary research to develop conservation strategies in the Palouse landscape

Donovan, Shannon M
Environmental Science
University of Idaho
Moscow ID USA 83843

Chris Looney
Environmental Science
University of Idaho

Thor Hanson
Natural Resources
University of Idaho

Yaniria Sanchez-de Leon
Soil Science
University of Idaho

Tim Hatten
Entomological Science
University of Idaho

J.D. Wulforst
Agricultural Economics and Rural Sociology
University of Idaho

Michael Jennings
Geography
University of Idaho and the Nature Conservancy

Sanford Eigenbrode
Entomological Science
University of Idaho

Jodi Johnson Maynard
Soil Science
University of Idaho

Nilsa A Bosque-Perez
Entomological Science
University of Idaho

Steve Brunsfeld
Forest Resources
University of Idaho

Email: dono2412@uidaho.edu

Keywords: Geographic Information Systems; Integration; Sustainable; Private Lands; Agriculture; Fragmentation

Abstract: The Palouse is a cultural landscape dominated by agricultural fields. Due to expanding agricultural practices beginning in the 1860's, less than one percent of the native Palouse prairie remains intact, classifying it as an endangered ecosystem. Currently, no local or regional land use policies protect the remaining prairie remnants, however these remnants face continued threats from development, grazing, and invasive species. Although interest in conserving the native Palouse ecosystem has increased, no contemporary systematic assessment of attitudes and perceptions among landowners and stakeholders exists to include aspects of social acceptability and desirability into a potential conservation strategy.

Through the Integrative Graduate Education Research Traineeship (IGERT) project at the University of Idaho, an interdisciplinary team of researchers is working to develop sustainable conservation options for the Palouse aimed at balancing landowners and stakeholder values with biological and ecological conservation needs. To do this, we use a Geographic Information System (GIS) to characterize areas of convergence between biophysical, ecological and social areas of importance. The resulting GIS maps will be used to 1) understand the landscape from the perspective of multiple local stakeholders; 2) document areas of high native biological diversity, and determine how landscape context affects these; 3) discover if and where spatial connections exist between areas of high native biological diversity and stakeholders' perceptions of their landscape; 4) provide a flexible tool that can be used by stakeholders and regional planners to explore and interpret regional landscapes; and 5) develop a model for developing conservation plans in fragmented landscapes.

Woodland owner perspectives on the restoration of Acadian old-growth forest

Dube, Andrea L
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada

Peter N Duinker
School for Resource and Environmental Studies
Dalhousie University

Email: aldube@dal.ca

Keywords:

Abstract: Old-growth forests (OGF) are a key component of the forest ecosystem. However, there is very little true OGF remaining in Nova Scotia (NS). The forest landscape of NS is 50% privately owned and divided among 31000 small, private woodlands. Initiatives to restore OGF must therefore involve private woodland owners. Private woodlands are well suited for restoring many of the structural, compositional, and process features that are associated with Acadian OGFs. To engage woodland owners in restoration activities, it is essential to have a comprehensive understanding of their attitudes regarding OGFs and the use of sustainable forest management to restore OGF features. The results of a survey of 250 woodland owners in central NS suggest that woodland owners are generally concerned with the decline of OGFs in NS and are interested in restoring OGF features on their woodland. Woodland owners' motivations and goals appear to be supportive of OGF restoration and a majority of woodland owners are willing to use forest management methods that support the restoration of OGF features. Woodland owners identified economic factors and a lack of information as the most significant barriers to OGF restoration. This study provides information that can be used to develop effective programs to increase woodland owner involvement in OGF restoration and related stewardship activities.

Old economies, new economies and the political symbolism of animals: hunters, bears, and the urbanization of nature in a central Canadian resource hinterland

Dunk, Thomas
Sociology
Lakehead University
Thunder Bay ON Canada P7B 5E1

Email: thomas.dunk@lakeheadu.ca

Keywords: Hunting, Animal Rights, Regional Protest, Political Symbolism

Abstract: The cancellation of the spring bear hunt in Ontario ignited a vocal opposition from hunters. Following the anthropological adage that animals are “good to think with”, this paper discusses the political significance of the bear hunt controversy in the context of the decline of the regional resource-based economy and the transition to the so-called new information-based economy. The conflict over the bear hunt demonstrates the idea that urban-based environmentalism and animal-rights activism that ignores social and economic inequities is bound to face a stiff resistance from regional and rural populations, and that the separation of environmental and socio-economic issues perpetuates a form of dualistic thinking and action that contradicts environmentalist claims regarding holistic thinking and ultimately defeats environmental and social reform in areas that need it the most.

The organization of denial: Support for environmental skepticism by conservative think tanks

Dunlap, Riley E
Sociology
Oklahoma State University
Stillwater OK USA 74078

Peter Jacques
Political Science
University of Central Florida

Mark Freeman
Political Science
University of Central Florida

Email: rdunlap@okstate.edu

Keywords: environmental skepticism; anti-environmentalism; conservative think tanks

Abstract: Environmental skepticism denies the authenticity of environmental problems. This paper presents the results of an analysis of 90+ published books (close to the total the population of such books) espousing environmentally skeptical positions and their links to conservative think tanks (via author affiliation with and/or publication by such think tanks). After describing the key themes of environmental skepticism presented in the books, we demonstrate that 91% of the books have overt ties to conservative think tanks such as the CATO Institute located primarily in the United States. Further, we analyze conservative think tanks with an expressed interest in environmental issues and find that 88% of them espouse environmental skepticism. We conclude from this evidence that environmental skepticism is organized by the conservative movement as an anti-environmental project. This casts serious doubt on the claim by environmental skeptics that they are independent seekers of truth, and particularly that they are essentially “Davids” battling the “Goliaths” of environmental scientists and environmentalists. We further suggest that the visibility and legitimacy given to environmental skepticism by influential conservative think tanks has contributed to the deterioration of U.S. domestic and international environmental policy since the 1990s.

Privatizing towards the public sector.

Eagles, Paul F
Department of Recreation and Leisure Studies
University of Waterloo
Waterloo ON Canada

Email: eagles@healthy.uwaterloo.ca

Keywords: privatization, public parks, outdoor recreation

Abstract: Private sector techniques such as pricing, marketing and outsourcing can help public land management agencies achieve public objectives. By “privatizing towards the public sector” we can increase efficiency while enabling parks and protected areas to receive improved levels of funding. The presentation will cite examples from Canada and other countries around the world.

Visitor management policy of National Parks, National Wildlife Areas and Refuges in Canada and the United States: An analysis of public documents

Eagles, Paul F
Recreation & Leisure Studies
University of Waterloo
Waterloo ON Canada

Kristine E Hyslop
Department of Geography
University of Waterloo

Email: eagles@uwaterloo.ca

Keywords: national parks, wildlife refuges, tourism, policy analysis, Canada, USA

Abstract: The visitor management policies of national parks, national wildlife areas and refuges in Canada and the United States are important components of the overall management system. This paper analyses how the visitor management policies that apply to all units operated by each agency compare to each other and compare to an ideal framework, using data from publicly-available sources. The quantity and quality of visitor management policy is higher with higher funding levels, as demonstrated by the US National Park Service at the high end of the spectrum, and the US Fish and Wildlife Service at the low end. The US National Park Service has the most comprehensive visitor management policy, and this policy is well coordinated in one overall document. The Canadian Wildlife Service has a very weak visitor management policy structure that lacks even basic goals for visitor management. Some visitor policy gaps exist for each agency. All agencies lack explicit policies governing visitor length of stay, human resources required for visitor management and economic impact measurement.

Does policy influence criteria for establishing protected areas? A study of the Swedish mountain area 1909-2003

Eckerberg, Katarina
Department of Political Science
Umeå University
UMEÅ Sweden Sweden S-901 87

Jon Moen
Department of Ecology and Environmental Science
Umeå University

Email: katarina.eckerberg@pol.umu.se

Keywords: environmental policy, sustainable development, implementation, policy analysis, nature conservancy

Abstract: Government policy for nature protection in Sweden has changed over the last century. While the early establishment of protected areas was driven by a desire to preserve national heritage and 'pristine' areas, the environmental movement in the 1960s implied increased focus on the connection between nature and society. Further underlined by international agreements from the Rio Summit in 1992 and onwards, a broader understanding of sustainability has established. Does this policy change then result in changes on the ground, such as in the motives for setting aside protected areas? Empirically, in the light of these overall policy changes, we analyze criteria for establishing protected areas in the Swedish mountain area in the period 1909-2003. We focus particularly on differences in criteria between the pre- and post-1992 periods. Our database consists of 201 protected areas (191 reserves and 10 national parks), of which 113 (56%) were established before 1992. Criteria were divided into conservational (such as botanical, zoological or forestry values) and societal (such as recreational or cultural values). Our results show that both conservational and societal values have been quite equally represented over time, but also that more recently protected areas have often been motivated by both. More specific differences between the two periods are, for instance, that 'nature experiences' increase strongly after 1992 while 'scenic vistas' decrease. Some new criteria have been introduced post 1992: such as 'reference areas for science', 'educational values' and 'ecotourism'. Hence, criteria for establishing protected areas have indeed changed with overall policy changes, but perhaps not as strongly as might be expected.

Large wind throws in managed landscapes - optimisation of recovery strategies concerning timber and natural conservation values

Edman, Tobias
Southern Swedish Forest Research Centre
Swedish University of Agricultural Sciences
Alnarp Sweden SE23053

Mats Niklasson
Southern Swedish Forest Research Institute
Swedish University of Agricultural Sciences

Email: tobias.edman@ess.slu.se

Keywords: Large Infrequent Disturbance

Abstract: Southern Sweden was in January 2005 hit by a wind storm that fell 75 million cubic meters of forest. This is equivalent to several years' harvests in the affected areas. The immediate concern after the wind throw was how to take care of the fallen trees without too large loss of timber value and how to avoid insect attacks in the affected forest. No strategy on how to achieve goals concerning biodiversity and nature conservation in relation to large wind throws was available although environmental concerns are as important as the production concerns, according to the Swedish forestry act.

In the policy process regarding natural resource management after large wind storms it is important to develop optimisation models, for the development and test of strategies for nature conservation as well as maintenance of timber production, to achieve the targets set by society.

Three main values must be considered to achieve a good optimisation model; (1) the net value of the timber i.e. the extraction cost subtracted from the timber value of the wind throw, (2) the cost of bark beetle attacks on the standing forest and (3) the conservation value of the species of the red data book that benefit from the increased amount of suitable substrates after the wind throw. All these values are dependent on the spatial distribution of the wind throws in relation to the road network and topography (net timber value), mature forest stands (cost of bark beetle attacks) and populations of species listed in the red data book that are dependent on coarse woody debris (value for nature conservation).

Evaluating and improving a community-based natural resource conservation program: A case study of the natural resource outreach coalition evaluation project

Eisenhauer, Brian W
Center for the Environment / Social Science Depart
Plymouth State University
Plymouth NH USA 03264-1595

Joan M Brehm
Department of Sociology and Anthropology
Illinois State University

Ted Diers
New Hampshire Coastal Program
New Hampshire Department of Environmental Services

Email: bweisenhauer@plymouth.edu

Keywords: collaboration
community based natural resource management
evaluation research

Abstract: Discourse-based collaborative natural resource conservation programs that operate at the community level are a form of participatory governance whose political and social theoretical dimensions have been analyzed in detail over the last fifteen years. Most of these investigations have examined the broader forces giving rise to the popularity of these approaches, and have also analyzed the outcomes from these processes on natural resources. However, fewer research projects have directly evaluated the internal performance of a particular program and its effects on participants. Participants' perceptions of the inclusiveness of the program's processes, their attitudes towards other aspects of the dynamics of the program's operation, their opinions of program outcomes, and their beliefs about how participation in the program affected themselves and their communities are among the topics examined in an evaluation of the Natural Resource Outreach Coalition (NROC). NROC is a partnership of federal, state, regional, and local organizations that works with residents of communities in the rapidly growing seacoast region of New Hampshire to identify natural resource related issues of concern in participants' communities and to facilitate their efforts to address them using a variety of means. An evaluation of the NROC program was conducted using in-depth interviews with NROC project team members and a survey (N=142) of residents from various communities that participated in the NROC program. The evaluation was focused using ideas from the body of literature on discourse-based collaborative decision making approaches, and the presentation highlights key findings from the evaluation

and also demonstrates how the evaluation was used to refine the NROC program.

Protected Areas and Ecological Crisis: Can Social Capital Development Promote Deliberative Governance over Natural Resources

Elgert, Laureen
Alberta Research Council and London School of
Economics
Edmonton AB Canada T6N 1E4

Ross Mitchell
Sustainable Ecosystems
Alberta Research Council

Luis Vallovera
Alberta Research Council and Fundación Moisés
Bertoni

Email: mitchell@arc.ab.ca

Keywords:

Abstract: It is generally understood that the genuine participation of local populations in environmental conservation is not merely desirable, but necessary and inevitable to successful conservation projects and programs (e.g. Robertson and Hull 2001). However, debates about public participation have increasingly turned away from a mechanistic approach of involving local people in task-oriented Natural Resource Management (NRM) to the incorporation of the concepts of social capital, democracy and deliberative governance (Parkins and Mitchell 2005; Mitchell and Parkins 2005). Population pressures and market forces are understood to have aggravated increasing rates of deforestation and loss of biodiversity in many parts of the world. These environmental 'crises' have given rise to a growing number of private and public reserve lands which are managed under strict controls and to which people have limited access.

The question we will address in our paper is: Can the potential for deliberative governance of natural resources be improved by development interventions that aim to develop the trust and establishment of rules and norms (social capital) in and between communities? We address this question through an analytical case study in Paraguay. The Alberta Research Council has worked with the Fundación Moisés Bertoni in Paraguay since April 2004 in the Mbaracayú Biosphere Reserve, which pertains to the UNESCO Man and Biosphere Reserve program. Alarming rates of deforestation has been occurring in recent years in the surrounding watershed of the forest reserve due to intensive, export-driven agriculture. This exploitation is also beginning to encroach onto one of the few remaining protected pieces

of high biodiversity, forestland in the country, leading to environmental and social challenges and even crises. As an alternative option to deforestation, our work has focused on developing land use planning tools and building social capital through the expansion of mechanisms for public participation in NRM. Our paper demonstrates how this work with local communities and other participants has contributed to greater local involvement in, and control over, NRM in Paraguay. In short, new openings for meaningful public deliberation may not only increase social capital, they may also lead to improved NRM and forest conservation.

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**Impact of tour package purchase on the
nonconsumptive use value of a scenic
highway: Glaciers National Park, Argentina**

Ellingson, Lindsey J
Agricultural and Resource Economics
Colorado State University
Fort Collins CO USA 80524

Andrew F Seidl
Agricultural and Resource Economics
Colorado State University

Lawrence Pratt
Center for Competitiveness and Sustainable Develop
Central American Institute for Business Administration,
Costa Rica

Email: lindseye@lamar.colostate.edu

Keywords: Nonmarket valuation, international
development, roadways

Abstract: The nonconsumptive use value of the undeveloped scenic roadway between the gateway community of El Calafate and Glaciers National Park in Argentine Patagonia is the focus of this analysis. While the influence of most physical developments on economic returns to the region is quite easily understood through market signals, the potential benefit of not developing the roadway may be substantially less easily detected and analyzed. In particular, the view from a scenic highway may directly affect the value of the tourism experience.

A travel cost, contingent valuation and contingent behavior survey approach was employed to estimate the value of an undeveloped roadway to nonresident visitors to Glaciers NP in the Spring of 2005. Survey respondents were provided three pairs of images depicting the current state of the roadway next to one of three potential development scenarios. Scenario I placed overhead electric wires, Scenario II introduced rock quarries, and Scenario III included both forms of infrastructure development, which are typical to the region.

We hypothesize that people with higher incomes, who travel greater distances, are more educated, are older, and travel independently will be willing-to-pay more to avoid infrastructural development and will be relatively less sensitive to changes in travel costs. The results will allow us to provide insights into these hypotheses as well as estimate the potential local income loss or gain from various potential policy strategies currently or potentially under consideration. This is important as

tourism visitation and other economic development drivers are currently demonstrating remarkable regional growth.

The relationship between environmental advocacy group affiliation and recreational behavior in the coastal zone

Ellis, Christopher L
Human Dimensions Program
NOAA Coastal Services Center
Charleston SC USA 29405-2413

Email: chris.ellis@noaa.gov

Keywords: beach; leisure; North Carolina; tourism; activity; preferences; survey

Abstract: Numerous studies have attempted to explain relationships and discrepancies between the display of environmentally friendly behaviors and environmental knowledge and awareness. This session presents findings from a study of recreational beach visitors in North Carolina—a study that examines the relationship between environmental organization affiliation and coastal-based recreational activity preferences and behaviors. The study, and this session, will test theoretical insights and assumptions about the preferences and behaviors of members of environmental advocacy groups from a recreational standpoint. In the North Carolina study, researchers collected data from April to October 2003 at seven distinct beaches within the state by means of a self-completed questionnaire. Researchers selected beaches by considering a number of characteristics, including geographic distribution, responsible management agency, and various physical and social characteristics. The study obtained 672 successful surveys by means of a modified systematic sampling strategy. Researchers asked respondents if they were members of any environmental groups or organizations, and later compared affiliated and nonaffiliated members on their coastal recreation activity preferences and motivations for engaging in such leisure activities. The study also recorded sociodemographic measures as a means of accounting for potential differences in respondent groups. This session's discussion will focus on descriptive analysis and contrast of member and non-member group responses.

Impacts of boat-based wildlife viewing on grizzly bear (*Ursus arctos*) behaviour in the Khutzeymateen Inlet, British Columbia

Elmeligi, Sarah
Resource Recreation and Tourism
University of Northern British Columbia
Prince George BC Canada V2K 4Z9

John Shultis
Resource Recreation and Tourism
University of Northern British Columbia

Email: elmeligi@unbc.ca

Keywords: wildlife tourism; brown bear; tourism in protected areas

Abstract: Ecotourism can engender positive attitudes among people towards wildlife and natural environments (Fennel 1999). Wildlife viewing, a specialized form of ecotourism, not only can affect environmental attitudes but can also lead to increased behavioural and physiological stress responses in animals (Jelinski et al., 2002).

The viewing of grizzly bears (*Ursus arctos*) has become a popular tourist activity throughout coastal Alaska and British Columbia (BC). The Khutzeymateen Valley, north of Prince Rupert, BC has experienced a rise in boat-based wildlife viewing since 1995. In particular, the designation of Prince Rupert as a Port of Call for cruise ships in 2004 almost immediately doubled wildlife tourism in the Khutzeymateen Inlet. Previous research suggests that increased viewing tourism may contribute to spacial or temporal displacement of bears from prime foraging areas (Olson et al. 1997, Nevin and Gilbert 2005). Boat-based wildlife viewing tours have been found to have negative impacts on birds (Galicía and Baldassarre 1996) and marine mammals (Constantine et al. 2004, Williams et al. 2002), but no previous study has focused on studying boat-based impacts on grizzly bears. Because the Khutzeymateen Valley is one of the most important refuges for grizzly bears within British Columbia, it is imperative that the impacts of this increased wildlife tourism are investigated.

The main objective of this research program was to quantify grizzly bear behavioural reactions to boat traffic, with particular emphasis on foraging and vigilance levels. This presentation will discuss the behavioural changes of the Khutzeymateen Inlet grizzly bear population to boat-based wildlife tours and introduce potential management implications of these findings.

And then there were 13 National Parks: Ecotourism development strategy in Gabon

Emptaz-Collomb, Jean-Gael J
School of Natural Resources and Conservation
University of Florida
Gainesville FL USA 32611-0410

Brijesh Thapa
Department of Tourism, Recreation and Sport Manage
University of Florida

Email: jg@ufl.edu

Keywords: Protected Areas; Tourism; Sustainable Development; Environmental Protection; Africa

Abstract: Ecotourism has been promoted as a sustainable means for conservation and economic development especially in developing countries largely due to diverse biodiversity, culture, and recreational opportunities. The emergence of ecotourism during the past decade has been attractive as it has been considered to minimize negative impacts; maximize economic benefits for local people and their natural and cultural environment, and provide positive experiences to visitors. Based on this framework, Gabon, a small country located in Central Africa embarked on this quest with the creation of a National Park system through a presidential decree in 2002. Prior to this action, the country lacked a single National Park and now boasts a network of 13 National Parks that represents approximately 11% of its territory. The network offers protection to a wide variety of plant and animal species, such as gorillas, elephants, whales, endemic guenons, rockfowls, and orchids. While the parks' creation was highly acclaimed by the international conservation community, its implementation generated a series of institutional, legislative, human capacity and financial challenges. In addition to protection of diversity, promotion of economic development opportunities in such rural areas has been constrained, and it is vital for local involvement and participation of all local stakeholders in order to support the mandate of the Park system. The purpose of this paper is to provide a historical and institutional analysis of the process of creating a large National Park network tied to an emerging ecotourism development strategy in Gabon.

Integrating GIS and choice experiments: visitor evaluation of land use scenarios in whistler, BC.

Englund, Krista B
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Joe Kelly
School of Resource and Environmental Management
Simon Fraser University

Peter Williams
School of Resource and Environmental Management
Simon Fraser University

Email: kenglund@sfu.ca

Keywords: quantitative research; parks; values; planning; local government

Abstract: This study integrated Geographic Information Systems (GIS) and Discrete Choice Experiments (DCE) to implement a spatial survey and create a GIS-based decision support tool. The discrete choice survey was used to investigate preferences of visitors for alternative land use scenarios at a mountain resort. The hypothetical choice sets, which were developed in GIS, illustrated different amounts and arrangements of development, protected areas, and recreational opportunities in a map. A sample of visitors to Whistler, British Columbia completed the survey over the internet. The results of the survey can be used to estimate tourist preferences for more environmentally sensitive land use scenarios. For example, visitors preferred resorts with greater amounts of protected areas, especially when protected areas were buffered from development and situated to protect the most ecologically valuable areas. In addition, visitors preferred to limit the amount of development at nodes external to the resort core and tolerated a high percentage of the workforce living in the resort. A GIS-based decision support tool (DST) was created using the survey results to demonstrate an effective way to communicate the findings of spatial research. This presentation will outline the innovative approach used to develop a spatial DCE using GIS and a GIS-based DST, highlight some interesting results, and suggest future research directions.

Visual landscape strategy options for the Vancouver to Whistler corridor in advance of the 2010 Olympic winter games

Fairhurst, Kenneth B
Forest Resources Management
University of British Columbia
Vancouver BC Canada V6G 2L7

Email: kbf@interchange.ubc.ca

Keywords: scenic; forested; visual inventory; visual quality objectives; variable retention; GEOptics

Abstract: The 2010 Winter Olympics will bring world-wide attention to Vancouver and Whistler, and heightened scrutiny of the scenic, mountainous, forested landscapes along the highway that links these two main Olympic venues. Visual landscape inventories have been used to guide resource development along the route since as early as 1991. The author is currently updating and amalgamating those inventories, following current (1997) British Columbia Ministry of Forests and Range standards and procedures. The author is also examining and advising the Ministry on visual landscape strategy options. Forest industry representatives, feeling the tightening influence of the Olympics, are concerned that there may be increasingly restrictive visual quality objectives applied which may severely curtail economic operations. They argue, instead, that a new approach is warranted to provide increased flexibility in response to their implementation of best practices for visual management, such as integrated visual design and variable retention silvicultural systems. These procedures have effectively reduced the visual impacts of commercial-scale timber harvesting compared with conventional forest practices when the inventories were originally conducted. Visual landscape strategy options are briefly examined, including those of the US Bureau of Land Management, US Forest Service, UK Forestry Commission, and the author's Visual Landscape System developed for the oil sands mining area of Alberta. The author's Ph.D. dissertation research on a refinement of conventional landscape inventory will also be discussed. Termed GEOptics, the approach is used to map a derivative of the cumulative angle of visual incidence using digital terrain modelling. The findings of the analysis of options will be presented.

Australian experiences in regional planning and management: A case study of the natural heritage trust, Victoria.

Farrelly, Megan A
School of Earth and Geographical Sciences
University of Western Australia
Perth Western Au Australia 6009

Email: farrem02@student.uwa.edu.au

Keywords: natural resource management; environmental planning; public participation

Abstract: Strategic investment in regional planning and implementation is the focus of an Australian Government funding initiative, the Natural Heritage Trust Phase 2 (NHT2). Previously, the NHT individually funded local community groups for on-ground action, but now requires the formation of regional, community-based groups to develop and implement a nationally accredited regional plan and investment strategy. An emphasis of the NHT2 is 'regional empowerment through regional planning'. Using a case study approach, the paper presents the key findings from research carried out in the North Central region of Victoria in 2004, which focussed on the experiences of local landcare and catchment groups. Through interviews with key regional stakeholders, participant observation and document analysis, the processes of regional group formation and operation, regional plan development and stakeholder involvement were examined. Despite a ten-year history of community involvement in regional-scale management the 'review, reflect and renew' planning process was problematic. Changing guidelines, inadequate community consultation and communication, regional Board problems, and limited monitoring and evaluation added to the complexity. The concept of regional-scale management was perceived favourably; however, there were concerns that NHT2 requirements would lead to increased bureaucracy and alienate the regional group from the community it represents. With sub-regional 'implementation committees' disbanded the regional group was isolated from the community it is supposed to empower. Efforts are now being made to address this through further strategies and capacity building projects. The success of the regional planning process will be evidenced by how many regional community members actively work to implement the regional priorities.

Preliminary steps to developing old-growth policy for Idaho's state forest lands

Feldman, Gabrielle R
Forest Resources
University of Idaho
Moscow ID USA 83844

Jay O'Laughlin, professor
Forest Resources
University of Idaho

Email: feld7176@uidaho.edu

Keywords: old growth management, policy analysis, social values

Abstract: Old growth forest management on state trust lands must address a variety of issues, including revenue production objectives. Interviews with representatives of citizen conservation groups and state agencies throughout the Pacific Northwest reinforced the social importance of old growth and revealed three key issues: 1) whether a state has its own environmental policy act, 2) interest groups mistrusting state agencies, and 3) differing interpretations of the constitutional mandate to maximize revenues. Many controversies can be mitigated prior to policy implementation if decision-makers include all stakeholders in the decision-making process. Defining old growth forests is one of the most difficult aspects of developing policy for their management. Regionally applicable definitions with characteristics matching timber inventory data attributes were used to develop maps of old growth areas with geographic information systems (GIS). In one state forest different definitions resulted in a range between less than one to more than thirty percent of the area; in another, between zero and eight percent. This exercise was somewhat problematic but nonetheless a first step towards a new management policy.

Performance measures for fishery rationalization programs: Data and other considerations

Felthoven, Ronald G
Alaska Fisheries Science Center
National Marine Fisheries Service
Seattle WA USA 98115

Daniel Holland

Email: ron.felthoven@noaa.gov

Keywords: fisheries; data collection; economic performance; property rights;

Abstract: The North Pacific Fishery Management Council has developed a program to "rationalize" the Bering Sea and Aleutian Islands (BSAI) crab fisheries. A mandatory data collection program has been implemented to assess the effects on both the harvesting and processing sectors. Monitoring the performance of these sectors before and after rationalization is a way to assess whether the program is achieving some of its objectives, and may aid the design of future rationalization programs in other fisheries. One purpose of this paper is to discuss various measures that may be used to monitor the impacts of rationalization programs on plant and vessel performance, and to identify the data required to adequately construct the measures. The second and perhaps more important purpose of the paper is to discuss some hurdles that must be overcome to properly interpret and use such data; even when all the necessary cost and earnings data are available, there are still a broad range of issues that one should consider in specifying the appropriate model(s). The concepts discussed are applicable in fisheries other than BSAI crab, and may serve as a useful guide to those tasked with collecting and assessing the data needed to analyze the effects of rationalization.

Does community-based collaboration increase social capital?

Fernandez-Gimenez, Maria E
Forest, Rangeland & Watershed Stewardship
Colorado State University
Fort Collins CO USA 80523-1472

Cheryl Wagner
Forest, Rangeland & Watershed Stewardship
Colorado State University

Email: gimenez@warnercnr.colostate.edu

Keywords: discourse-based planning; community-based conservation; public participation; community capacity

Abstract: Communities, government agencies, and non-profit organizations are increasingly adopting collaborative approaches to natural resource management. Yet the question remains whether collaborative approaches provide more benefits than traditional natural resource management and public involvement practices. One potential benefit of collaboration is increased social capital, that is, trust, norms of reciprocity, and networks, among participants and partners of collaborative groups. Social capital, in turn, may increase groups' and communities' ability to collaborate, manage risk, innovate, and adapt to change. We used mail surveys and interviews to assess whether social capital changed over time for 8 community-based collaborative groups involved in natural resource management, planning, or dialogue in northwest Colorado. The majority of social capital measures increased over time in all groups. Further, social capital between agencies and collaborative groups often increased more than relationships among other group participants. In a few groups, social capital measures decreased. Our results suggest that some community-based collaborative groups effectively build social capital. Commitment and continuity; understanding, empathy, and respect; transparency; and dependability and predictability are important mechanisms through which collaboration influences social capital. Understanding and applying these mechanisms may help agencies and communities increase the likelihood of successful collaboration. Our survey instrument may serve as a useful tool for groups and researchers wishing to assess point in time levels of social capital or track changes in social capital over time.

Protecting our children's water: Bridging disciplinary, institutional and perceptual barriers to improve coastal watershed management using a collaborative learning approach

Feurt, Christine B
Coordinator, Coastal Training Program
Wells National Estuarine Research Reserve
Wells ME USA 04090

Email: cfeurt@wellsnerr.org

Keywords: ecosystem management; mental models; framing; action research

Abstract: Natural resource managers are not always surprised when carefully crafted management plans encounter barriers to implementation. Moving from plan to action and adoption of best management practices or innovative technology can be blocked when adopters of the information fail to recognize or understand relevance or benefits.

The Coastal Training Program at the Wells National Estuarine Research Reserve (NERR) in Maine, USA is bridging gaps among watershed stakeholders through a series of collaborative learning workshops designed to implement a watershed management plan. The title for the workshop series "Protecting our Children's Water, 2005 - 2025" frames the project in language that enables watershed stakeholders to recognize that project goals address shared values for clean water and intergenerational environmental stewardship.

This application of Daniels and Walker's (2001) Collaborative Learning approach used ethnographic methods as a formative evaluation to guide the design of the project. Open ended interviews of municipal officials and water managers were analyzed using grounded theory. Data analysis provided a profile of the diverse knowledge, attitudes and mental models used to guide understanding and decision-making about water.

The local scale of this project puts a "face and a place" on theoretical concepts of ecosystem based management, especially as an example of social learning and adaptive management. A framework, represented as a "kaleidoscope of expertise," emerged from the project as a way to conceptually dissolve expert/novice barriers and use differences in expertise, knowledge, and experience as fuel for innovation.

From Iowa to the Andes: Content and use of environmental discourse among farmers and their organizations

Finan, Ann
Sociology and Graduate Program in Sustainable Agri
Iowa State University
Ames IA USA 50014

Email: afinan@iastate.edu

Keywords: agriculture; critical discourse analysis; Peru; Midwest; trade and environment

Abstract: Farmers are the primary decision-makers about how 40% of the world's land area is managed, both regarding the agricultural system and associated natural resources. Their decisions take place in a social context in which Discourse is a primary structure determining constraints and opportunities for environmental thought and action. This paper uses Critical Discourse Analysis to understand farmers' contextualization and action within broad Discourse Coalitions, and how Discourse interacts with particular farming systems realities. Critical Discourse Analysis allows us to examine the role of the structure of discourse and language in shaping environmental values and praxis. I compare five groups of farmers, three from Peru and two from the U.S. Midwest, and their Discourse surrounding environmental practices and values. The farmer groups from Peru include large-scale exporters, small-scale exporters, and peasant farmers. The groups from the U.S. Midwest include conventional corn and soy farmers and alternative/ sustainable farmers. The data show a Discourse milieu much more complex than previously demonstrated. Scale (from local to global), organizational involvement, instrumental concerns, political context, and personal and community values layer to create unique farmer Discourses that are actively deployed for various purposes, and that also actively shape others' perspectives and actions. Specifically, Discourses about environmental practices and values demonstrate very different values and reasons for action among the groups – even among those that might be thought to share instrumental goals. However, patterns emerge as to how Discourses develop among farmer groups, and how those Discourses may be altered and actively used toward a variety of ends by farmers and their associates.

Framework of PA Highlands: Qualitative assessment

Finley, James C
Human Dimensions Unit
Pennsylvania State University
University Park PA USA

Alexander L Metcalf
Human Dimensions Unit
Pennsylvania State University

Al E Luloff
Human Dimensions Unit
Pennsylvania State University

Email: fj4@psu.edu

Keywords:

Abstract: The Highlands Conservation Act of 2004 (cite) mandated a comprehensive assessment of five conservation values throughout the Highlands (i.e., biodiversity, farmland, forestland, recreational/cultural, and water). An important component of this assessment was garnering public input to identify places of high conservation value and threats to those places.

Pennsylvania's public assessment used a mixed method approach that included key informant interviews, facilitated group discussions, and cognitive mapping exercises. Over a three month period, nearly 300 individuals contributed to our understanding of conservation concerns in the Pennsylvania Highlands.

The Pennsylvania Highlands spans west from the Delaware River across ten counties and 181 municipalities to the Susquehanna River in the southeastern portion of the state. For the purpose of the assessment we considered this large geographic area a single unit; however, our research design ensured even distribution of public participation and representation across the region.

Our initial investigation involved interviews with people knowledgeable and concerned about natural resources and conservation issues in the Highlands. Interviewees were identified by their roles in local conservation organizations, local government, planning institutions, etc. In addition, a "snowball" approach was used to identify further key informants in the region based on reputations of leadership, influence, or knowledge with regard to conservation values or land use decisions. This initial foray provided an important context for further investigation.

During October and November of 2005, four public meetings were held to engage the public in a discussion of conservation values and concerns. Facilitated group discussions were held during these meetings and participants were asked to reflect on findings from the key informant interviews, places they found important, and threats they saw to those places

Conspicuous absences: African-Americans and natural resource management

Finney, Carolyn
Graduate School of Geography
Clark University
Worcester MA USA 01610

Email: cmfinney@mindspring.com

Keywords: Racialization; Social Equity; Representation

Abstract: Environmentalism and the meanings we attribute to the environment are grounded in history, race, gender and culture. Prominent views about the environment, while not unified, draw from the experiences of those in a position to influence and establish legitimacy for their ideas institutionally and culturally. Furthermore, these narratives, which contribute to the American environmental imaginary, are grounded in the values, beliefs and attitudes of the individuals who construct these narratives. These attitudes and beliefs manifest in our everyday environmental practices, affecting our livelihoods and our interactions with each other.

For African-Americans, the everyday practices associated with environment interactions are directly related to issues of African-American identity and American history. This ideology can be at odds with thinking about and honoring the environment in the way that the dominant narrative of conservation/preservation is constructed.

This paper explores the challenges facing African-Americans working strategically within a larger environmental movement where participants experience unequal power relations and access to resources. In particular, I will examine how African-Americans negotiate to meet practical needs within an atmosphere that does not support addressing fundamental issues of racism, white privilege and cultural competency issues embedded in natural resource management.

Oak in the valley: A case study of conservation policy on family forestlands in the United States

Fischer, A. Paige
Forest Resources
Oregon State University
Corvallis OR USA 97331

Email: apfischer@oregonstate.edu

Keywords: private forests; environmental policy; oak habitat

Abstract: In the United States, many of the thorniest natural resource conflicts occur on private lands. This is especially true in the Willamette Valley of Western Oregon where the hallmark habitat type, Oregon white oak woodland and savanna, is imperiled. Almost exclusively found on private land, Oregon white oak woodland and savanna are threatened by urban development, vineyards, tree plantations, and the elimination of the periodic fires to which it is adapted. While regional and local planners, conservationists and natural resource agencies are attempting to conserve oak, little effort has been made to understand the social group in whose hands the fate of much of the resource rests: family forest owners.

This paper presents a case study of oak conservation on family forestlands in Oregon. Through individual and group interviews and building upon social constructionism and interpretive policy analysis, this research investigates how family forest owners and other stakeholders frame the problem of oak's decline and explores opportunities and constraints for its conservation. By illuminating owners' needs, capacities and constraints, and identifying areas of common ground and conflict in stakeholders' interpretive frames, this research identifies ways to reach out to a target group with empathy, facilitate cooperation between stakeholders, and avert potential conflicts that arise from conservation strategies.

Social assessment for coastal regions: Practical applications and capacity building

Fish, Thomas E
NOAA Coastal Services Center
National Oceanic and Atmospheric Administration
Charleston SC USA 29405

Shawn E Dalton
Environment and Sustainable Devlpmt. Resch. Ctr.
University of New Brunswick

Reid McLean
Canaan-Washademoak Watershed Association

Email: Tom.Fish@noaa.gov

Keywords: social assessment, demographics, training, coastal, National Estuarine Research Reserve System

Abstract: Natural resource management decisions have traditionally been informed by scientific information about landscape features, ecological processes, population dynamics, and other biophysical characteristics. However, many challenges related to effective natural resource management are a result of complex and changing social processes, public demands, and values. As more people choose to live, work, and play along our nation's coasts, coastal and marine resource management professionals are challenged with balancing the changing demands of the public with the management of the resources under their stewardship. Success in this delicate balancing act is aided by the use of consistent, systematic, decision-making tools. In the absence of such tools, management decisions are often fragmented, reactionary, and less defensible.

Today's managers increasingly recognize the need for greater understanding and application of social science concepts and methods to address the human dimensions of natural resource management. Consequently, the planning and implementation of stewardship practices that are effective, defensible, and acceptable to the public require systematic and rigorous inquiry and analysis focused on both biophysical and sociocultural aspects of natural resource management problems. Social assessment is a systematic means of data collection and analysis that employs a variety of social science methods to generate information about the social environment—social structure, social processes and institutions, and relevant social changes. This presentation provides an overview of social assessment applied to coastal landscapes and marine protected areas and describes efforts underway at the NOAA Coastal Services Center to build capacity for incorporating social science into coastal management decision making.

Changing forest disturbance regimes and local risk perceptions in Homer, Alaska

Flint, Courtney G
Natural Resources and Environmental Sciences Dept
University of Illinois at Urbana-Champaign
Urbana IL USA 61801

Email: cflint@uiuc.edu

Keywords: community, ecosystem disturbance, fire, forest management, risk, climate change

Abstract: Forest ecosystem disturbances by insects and fire are often viewed as dynamic ecological or biophysical processes at the landscape scale. Relationships between larger scale processes such as regional or global climate change are increasingly linked to local disturbance regimes. Societal responses to these disturbances are not as well understood, particularly with regard to perceptions of risks emerging from rapidly changing landscapes and how they affect local engagement with resource management.

This paper addresses changes in community-level response to forest disturbance over time. Homer, Alaska and the Kenai Peninsula experienced a large-scale forest disturbance by spruce bark beetles over the last decade. Qualitative interview data and quantitative survey data were collected from Homer residents in 2003 and 2004 as part of a larger community assessment project on community response to forest disturbance. In May 2005, a 5,000 acre fire burned near Homer. Post-fire interviews were conducted with the same Homer residents to assess changing risk perceptions, experiences, issue saliency, and relationships with land managers. Research findings from before and after the Tracy Avenue Fire revealed mixed risk perceptions about fire hazard, decreasing saliency of the bark beetle issues among residents, increasing public agreement and satisfaction related to forest management, and growing awareness of climate change and its affect on the local wildfire hazard situation.

Social capital and natural resource management in the Andes

Flora, Cornelia B
Sociology
Iowa State University
Ames IA USA 50011-1050

Email: cflora@iastate.edu

Keywords:

Abstract: Management of natural resources is seldom an individual endeavor. As natural resources are assaulted by climate change and globalization, communities must be prepared to constantly adapt to change. This is particularly true of communities with less access to built capital in the form of technology and of financial capital to invest in mediating technology. This paper examines the formation of social capital as part of participatory action research in the Andes of South America to determine 1) what other community capitals are mobilized to enhance social capital around natural resource management and 2) how the formation of social capital can help or hinder the enhancement of natural resources. Preliminary results suggest that mobilization that includes the relation of natural capital to the widest number of other capitals leads to more successful adaptation of the management of natural resources.

Practical application of qualitative research methods: Focus groups, interviews, and secondary data analysis

Floress, Kristin M
Department of Forestry and Natural Resources
Purdue University
West Lafayette IN USA 47907

Elisa G Svanda
Department of Forestry
Southern Illinois University

Email: kfloress@purdue.edu

Keywords: watershed management; stakeholder involvement

Abstract: Qualitative methods have become popular means of assisting with natural resource decision-making processes. Numerous benefits such as obtaining richer detail are frequently cited. However, studies which perform qualitative analysis rarely provide concrete examples of the process used to produce results. Typically, Strauss and Corbin's (1998) grounded theory is cited without further explanation. Researchers are in need of examples that provide a methodological framework. This paper will describe the qualitative research process used in a two-phased case study of a watershed collaboration in south central Illinois. The four terms associated with trustworthiness (credibility, transferability, dependability, and confirmability), as described by Guba and Lincoln (1985), are detailed with clear focus on methods employed to insure trustworthiness was achieved. Methods outlined in qualitative research literature, specifically Guba and Lincoln, Strauss and Corbin, and Henderson (1991), which contribute to trustworthiness were utilized. The process of open and axial coding, leading to the formation of categories, subcategories, properties, and ranges, is detailed. Qualitative data consisting of three focus groups, nineteen interviews, and secondary sources comprised of public comments and public meeting transcripts were analyzed in this study. Examples from each form of data are used to illustrate qualitative data analysis techniques. Important findings from the Illinois study, including transference of responsibility for water quality impairments and local watershed planning committee leadership issues, are discussed as examples of how findings emerge from the data. Additionally, the flexibility that qualitative methods provide, specifically the ability to tailor working objectives as a project progresses, is stressed.

Fishing as an act of faith: Is there room for science?

Foote, Lee
Renewable Resources
University of Alberta
Edmonton AB Canada T6G 2H1

Stephen Spencer
Alberta Sustainable Resources Division
Province of Alberta

Michael G Sullivan
Alberta Sustainable Resources Division
Province of Alberta

Email: lee.foote@ualberta.ca

Keywords: perception; political will; fishery management; whole-lake experiments; walleye; stunting

Abstract: Anglers' mixture of qualitative and observation-based experience helps them harvest fish and reinforces belief systems. Angler perceptions that work well at the individual may not work at larger scales. Knowledge used by anglers is difficult to incorporate into science-based management plans because fisheries scientists require repeatability, generalization, verification, bias control, and defensibility to satisfy peer review or courts of law.

We tested angler conclusions that abundant, sub-legal sized walleyes were stunted. We used different size limit regulations to alter angler effort, and thus walleye densities, on four lakes in central Alberta, Canada with truncated walleye size classes. With liberal regulations anglers quickly reduced walleye populations and further truncated the population size structure. There was no evidence of compensatory rebound in growth rates. Lakes with restrictive regulations and reduced harvests showed increases in both mean walleye size and abundance. These responses show logically that stunting was not the primary reason for abundant small walleye. Population size structure of walleyes in low-productivity northern lakes responds to regulations that establish minimum size limits.

A hidden cost to fisheries scientists is their loss of professional credibility when promoting regulations based on scientific research, especially where anglers' empirical observations may be correct but for the wrong reasons. When angling groups use their political will to influence and steer policy and regulations, management may be directed by anti-science. This conundrum has no easy reconciliation at present.

Institutional Design and Aboriginal Governance: Case Studies from Canadian Forestry.

Forsythe, Jay
University of British Columbia
Vancouver BC Canada

Email: george.hoberg@ubc.ca

Keywords:

Abstract: Historically Aboriginal groups in Canada have been excluded from incurring economic and social benefits from the forest sector. Over 80% of Aboriginal communities are located within Canada's productive forest, with many of these groups expressing a clear desire to increase their access to the resource and decision-making authority over forest management. Although several studies have examined the nature of resource co-management arrangements, few have focused on the specifics of Aboriginal-state relationships in Canada's forest sector. While some typological frameworks have been developed to classify and evaluate co-arrangements, these typologies aim to classify the arrangements as a whole, not by the specific functions of how the arrangement is implemented. This paper describes a new conceptual framework for evaluating management authority transfer in Aboriginal forestry arrangements. The framework builds on existing literature regarding institutional analysis, co-management power relationships and functions associated with ecosystem based forest management. The result is a Management Authority Matrix that provides a clear and concise analysis of Aboriginal management authority over various levels of forest management functions. Initial application of the matrix demonstrates that Provincial Governments still retain the decision-making authority over major strategic (constitutional) decisions, while devolving authority over lower, operational levels of forest management.

Towards a typology of watershed councils in Oregon

Fox, Samuel H
Department of Planning, Public Policy and Mgmt
University of Oregon
Eugene OR USA 97403

Rich Margerum
Department of Planning, Public Policy and Mgmt
University of Oregon

Email: sfox1@uoregon.edu

Keywords: watershed management; watershed councils; collaborative natural resources management

Abstract: Among people who work with watershed councils, a common refrain is that *each watershed council is different*. Many people have anecdotal stories of these differences, but there has been little attempt to document these differences. Our effort began with an identification of the types of variables that appeared to distinguish councils. Using a set of factors identified from a typology by Margerum (in press), this research proposes a typology of watershed councils in Oregon.

The decentralized nature of watershed councils makes data collection on them complex and time consuming. We have focused on data available from the Oregon Watershed Enhancement Board (OWEB) for this analysis of watershed councils. OWEB provides council support grants through a biannual statewide application, review and assessment process. The demand for funding is greater than the funding available, so the application process is a competitive one. Councils must submit information about council size, operations, budgets, partners and other background information as part of the application process.

In June 2005, we obtained all of the 2005-2007 operational grant applications and entered the data into a database. The limitations of this data is that much of it is self-reported and has not been verified. However, we have also obtained data from OWEB on grants provided to councils during the two preceding grant periods. The researchers will also be using several existing surveys and case study findings to classify 48 different watershed councils into a typology.

Place Attachment and Tourism Development in Gateway Mountain Communities

Frauman, Eric
HLES - Recreation Management Program
Appalachian State University
Boone NC USA 28608

Sarah Banks
HLES - Recreation Management Program
Appalachian State University

Email: fraumaned@appstate.edu

Keywords: sustainable development; resource management; gateway communities; nature-based tourism

Abstract: The economy in a number of gateway communities (i.e., towns that border desirable public lands [e.g., national parks]) around the country is growing with many areas experiencing growth premised on nature-based tourism and second/third homeownerships. Unfortunately, "... no place will retain its special appeal by accident" with gateway communities often seen as "ground zero" in the struggle between indiscriminate development and planned growth (McMahon, 1999). Recognizing this current dilemma in many communities in the southern Appalachian Mountains, US, this paper examines the relationship between resident perceptions of environmental attributes, place attachment, and residence type.

Currently ongoing, a 3-page survey instrument was mailed to a random sample of 800 residents in two gateway communities in North Carolina, US, (pop'n 40,000) in January. The survey included a modified version of Hammitt's (2004) multi-dimensional Place Bonding (Attachment) scale, 10 Likert items measuring environmental attributes (e.g., amount of open space) evaluated from both an importance and current condition perspective, as well as residence type and length of residency.

Preliminary findings suggest that long-time primary residents are more emotionally attached to the area, place similar importance but view the current conditions of the majority of environmental attributes worse than long-time secondary residents and newer primary residents. Moreover, a number of significant relationships ($p < .05$) between attachment to place,

perceptions of importance and current condition of environmental attributes, and length of residence were found. Lastly, primary versus secondary residents are distinctly different across many of the items examined, with dimensions of place attachment greatly differentiating the two.

With the study's completion in April, it is anticipated that community planners, resource managers, and tourism officials will have an additional tool to aid them in addressing future growth. Furthermore, it is believed the place attachment component, as utilized in this study may offer community decision makers a tool to help them articulate the commonalities many residents feel about the places they call home despite differing perceptions of the surrounding environment

Outdoor recreation in change: Current issues and recent trends in Sweden

Fredman, Peter
ETOUR
Mid Sweden University
Östersund Sweden 831 25

Email: peter.fredman@etour.se

Keywords: participation; use patterns; nature conservation; public health; regional development; tourism

Abstract: In modern society, outdoor recreation started as a privilege for the upper class, then became a mean to public health and equity in the welfare society, and today it is increasingly becoming commercialized, specialized and globalized. Recent changes in Swedish environmental and tourism policy identify the importance of outdoor recreation and nature based tourism vis-à-vis conservation, public health and sustainable development. There is a huge span from the rhetoric of the Nordic "Friluftsliv" tradition to the fossil-fuelled high-tech practice of a snowmobiling adventure; or from the motives of public health for close to town forest recreation, to the motives of a better national balance of trade for making tourism investments in a national park in the mountain area. Understanding outdoor recreation in a changing society call for a broad multidisciplinary approach and data that captures the core elements of activity participation, use patterns, attitudes, constraints, social and economic values and impacts etc. This presentation will give an overview of some of the current issues and recent trends regarding outdoor recreation participation, policies and research needs in Sweden. Topics covered are trends in outdoor recreation, nature conservation, public health, regional development and nature based tourism. It is concluded that outdoor recreation in Sweden is currently getting an increased political attention, while at the same time being under pressure from different interest groups.

Assessing the potential for conversion to biomass fuels in interior Alaska: Cultural considerations, costs, and carbon credits

Fresco, Nancy
Biology and Wildlife
University of Alaska Fairbanks
Fairbanks AK USA 99775

F. Stu Chapin III
Biology and Wildlife, Institute of Arctic Biology
University of Alaska Fairbanks

A. David McGuire
Biology and Wildlife, Institute of Arctic Biology
University of Alaska Fairbanks

Email: ftntl@uaf.edu

Keywords: Electrical generation,
Forest fire,
Carbon offset,
Black spruce,
Sustainability

Abstract: In rural Alaskan communities, high economic, social, and ecological costs are associated with fossil fuel use for power generation. Local concerns regarding fuel prices, environmental contamination, and the effects of global climate change have resulted in increased interest in renewable energy sources. This study assessed the overall feasibility of switching from fossil fuels to wood energy in rural Alaska villages located in forested regions of Interior Alaska. Existing data on rural energy use, demographics, economics, and forest dynamics provided inputs for economic and ecological models of the system. Results indicated that even using conservative estimates for system efficiency, the installation costs of biomass systems would be recouped within ten years for 21 communities. In addition, results showed that all but the largest remote communities in the Interior could achieve a sustainable harvest of biomass within a radius of less than 5-10 km of the village sufficient to meet all electrical demand and some heating needs. Marketable carbon credits may add an additional incentive for fuel conversion, particularly if U.S. price eventually rise to match European levels. Socially, biomass conversion offers the potential additional benefits of providing local employment, retaining money within village economies, and reducing the risk of catastrophic wildfire near human habitation. This analysis demonstrated that conversion to biomass fuels is a viable option that could reasonably result in successful demonstration projects across Interior Alaska.

Disproportionality and Distraction in Research and Theory on Environment-Society Relationships

Freudenburg, William
Environmental Studies
UCSB
Santa Barbara CA USA

Lisa Berry
Bren School of Env. Science and Management
UCSB

Email: freudenburg@es.ucsb.edu

Keywords: Double Diversion; Disproportionality;
Misdirection; Resources and Discourses

Abstract: Many classic theories see environmental impacts as proportionate to the overall scale of socioeconomic activity, while several newer lines of thinking argue that impacts have been de-coupled from the scale of socioeconomic activity. Two variables appear to offer promise for resolving this dispute. One -- the ecological efficiency of production -- has begun to receive increasing attention. This paper argues that there is also a need for greater attention to the other promising variable, involving potential disproportionality between scales of socioeconomic activity and levels of environmental harm. Initial analyses, using a combination of statistical approaches, find strong support for the disproportionality hypothesis in the case of toxic emissions in the U.S. Gini coefficients show consistently higher levels of inequality in toxicities than have ever been measured in national-level economies, with disproportionalities actually being higher in more fine-grained comparison!

s. The Kolmogorov-Smirnov Test shows that proportionality hypotheses can be rejected at very high levels of confidence ($p < .00005$). Given the strong initial support, colleagues are invited to consider other approaches to empirical testing and other contexts for testing and refining the disproportionality hypothesis.

Hurricane Katrina and the lessons of un-natural disasters

Freudenburg, William
Environmental Studies
University of California, Santa Barbara (UCSB)
Santa Barbara CA USA

Robert Gramling
Sociology
University of Louisiana, Lafayette

Shirley Laska
Sociology
University of New Orleans

Email: freudenburg@es.ucsb.edu

Keywords: wetlands loss; Mississippi River Gulf Outlet; FEMA; Corps of Engineers; pork-barrel projects

Abstract: Across much of the Gulf Coast, Hurricane Katrina was a significant natural disaster. New Orleans also suffered from a series of un-natural disasters. The news coverage of the hurricane revealed two of them: The city's floodwalls were seriously deficient, and the "organized emergency response" was none of the three. In addition, however, it is clear that a major cause of disaster was the damage that humans had inflicted on the surrounding wetlands during the previous several decades. Historically, the city has been protected not just by floodwalls but also by wetlands. Unfortunately, Louisiana lost more of its wetlands during the 20th century than any other place on earth -- an area the size of Rhode Island. One purported "economic development" project, the Mississippi River Gulf Outlet, proved especially disastrous. This "salt pork" project has destroyed thousands of acres of wetlands over the years, and during Katrina, it contributed to the loss of thousands of homes -- all while providing remarkably few of its predicted economic benefits. Katrina revealed weaknesses not just in floodwalls, but in earlier thinking about human-environment relationships; what remains to be seen is whether post-Katrina responses will correct the earlier mistakes or merely reinforce them.

Scientific knowledge and environmental action: A closer look at the United States

Fuhrman, Amy L
Department of Sociology, Undergraduate Student
Western Washington University
Bellingham WA USA 98225

Audrey C Harrison
Department of Sociology, Undergraduate Student
Western Washington University

Email: fuhrmaa@cc.wwu.edu

Keywords: Citizenship; Science Knowledge; Environment Knowledge; Region; Action; News Sources; General Social Survey

Abstract: We investigate the relationship between scientific knowledge and level of active citizenship. Using data from the 1993 General Social Survey (GSS), we examine whether more knowledge about science and the environment is correlated with an increase in activities that support the environment. We expect this relationship will be positively correlated. Active citizenship, originally developed by Barkan (2004), is composed of two areas: personal actions (recycling, driving less frequently, being a vegetarian, purchasing organic produce) and group actions (giving money to an organization, signing a petition, member of a pro-environmental group). Each respondent's scientific knowledge was measured using an additive scale of twelve measures from the GSS (Holbrook 1995).

Results show that as respondents' score on the knowledge scale increases, participation in active citizenship also increases. Respondents scoring better than 50% correct on our knowledge scale were more likely to participate in two or three group actions. The knowledge scale was also positively correlated with education. Further, the more frequently the respondent read a newspaper and watched television news, the higher their score on the knowledge scale.

Results of region analysis show that there are regional differences in scientific knowledge. We calculated the mean score on the knowledge scale for each of the nine regions. The highest mean was New England, followed by the Mountain Region. The lowest mean score was East South Central.

Mango: A GIS based environmental education and entertainment system.

Gandy, Ryan S
Research & Development
ManGo
Vancouver Canada V6R3N9

Michael J Meitner
Forest Resources Management
University of British Columbia

Michal Urbanski
Research and Development
ManGo

Email: gandy@interchange.ubc.ca

Keywords: GIS, Environmental Education, Tourism, Outdoor Recreation, Scenic Beauty

Abstract: Landscape related social science experimentation and traditional resource management rely heavily on spatial data and Geographic Information Systems to represent and model office based proxies of the real world. This need to represent the world in a computer continuously generates reams of detailed spatial data. This planning and management data is in many cases the most spatially resolute "atlas" available for any given area. Whilst this "atlas of facts" is available to everyone, technological barriers and domain specificity make its contents inaccessible to the lay man. The wealth of interesting facts and educational material trapped in these datasets was the starting point for the development of ManGo, a recreation and entertainment based traveler information system. ManGo was designed as a go anywhere travel companion capable of interpreting GIS data sets, filtering, prioritizing and programming interesting facts and anecdotes about the users' immediate visible environment, and then presenting this information at appropriate times in a similar way that a local or tour guide might showcase an area to a friend or visitor. Laboratory based testing of this system showed that it is capable of making a recreational drive significantly more enjoyable and elevates passengers' ratings of perceived scenic beauty of the environment. The scalability, freedom of movement and low overhead of this system make it an ideal way of educating and entertaining visitors in a variety of settings including highway drives, cities and national and provincial parks.

The relative efficiency of public, private and partnership management: the case of forest management in Quebec

Gelinas, Nancy
Sciences du bois et de la foret
Universite Laval
Quebec QC Canada G1K 7P4

Email: nancy.gelinas@sbf.ulaval.ca

Keywords: logging industry; cost function approach; land tenure

Abstract: The privatization of natural resources management would constitute the solution for actual economic problems. Is this the only solution? In the mid 1800, John Stuart Mill tried to answer the question. Since this time, many researchers presented contradictory outcomes. The question still exists concerning the forest management in Quebec.

The forest management is dominated by the industrial management of public land and private management of private land. But some initiatives exist to test other management models supporting integration of multiple resources and consideration of community needs. Which management model gets the most convincing results in the scope of sustainable development? The objective of this project is to compare, in a first step, forest management on an economic basis. The economical efficiency of three types of ownership; public, private and partnership, is compared on a firm cost-minimizing behaviour. We consider as a firm, the responsible of forest-harvesting activities on each territory. The method consists in the establishment of an econometric model based on a cost function, with a symmetric normalized quadratic functional form. The model estimation is performed with 1996 and 2004 databases from each land tenure system.

The economic analysis emphasizes a significant difference between the three types of management, indicating an influence on the factor demands. In focusing on optimised values and price elasticities of demand, the partnership management appears like an interesting option. It seems more effective in combined use of raw materials factor and labour factor. On the other hand it seems more sensitive to labour wages.

Introducing an emotional experience learning model based on a critical analysis of experiential learning in environmental and outdoor education and experience production.

Gelter, Hans
Division of Academic Media Center
Luleå University of Technology
Piteå Sweden 941 28

Email: Hans.Gelter@ltu.se

Keywords: Learning; outdoor education; experience production; environmental education

Abstract: Engagement and awareness of environmental issues are emerged by formal environmental education, media communication and from personal environmental experiences in leisure activities. Learning in environmental education has traditional been a cognitive communication of knowledge based on a scientifically objective epistemology leaving the constructive integration process and understanding the world to the student. This traditional “learning about” has recently been complimented by a “learning from” through experiential learning and outdoor education. The passive absorption of knowledge has shifted towards a more active immersion in the experiences of the world. The emergence of active experience production based on Pine and Gimore’s staged “Experience Realms” and new neuro-cognitive findings opens up for deeper understanding of the processes of learning through experiences.

Colb’s experiential learning is based on an active cognitive reflection process, “learning from” our actions and experiences. Using the metaphor of experiences and actions as a temporal process illustrated as a river, Colb’s experiential learning is based on of the process of stepping out of the river and from the beach active reflect on what happened in the river with the purpose to learn and become better prepared for further actions when re-entering the river of experiences. Colb’s experiential learning model is thus a “time-out” reflective process from the experience, and therefore not a true experiential learning, thus not a “learning in” the experience.

I here propose a model of “emotional experiential learning” based on neuro-cognitive processes such as unconscious learning and emotions as relevance detectors in the learning process. The learning occurs in the river of experiences generating a silent emotionally based unconscious knowledge. This model emphasis the importance of the materialistic component of the experience composed of the socio-spatial constitution of

the experiential space and the subjective immaterialistic component of the experience. The model can be used both in environmental and outdoor education as well as in experience production in tourism and leisure. This silent emotional knowledge acquired unconsciously “in” and “through” the experiences may be a more powerful agency for environmental awareness and engagement than the traditional cognitively acquired communicative knowledge learned “about” the environment.

Using landscape indicators to ecologize land use policy

Geniaux, Ghislain
SAD Ecodeveloppement
INRA
Avignon France 84914

Claude Napoléone
SAD Ecodeveloppement
INRA

Email: geniaux@avignon.inra.fr

Keywords: biodiversity conservation, hedonic analysis, urban sprawl.

Abstract: Urban-rural fringes, which are a growing category of spaces, place the notion of landscape in the heart of human-nature relationships. Conservation strategies in these spaces may be improved by identifying landscape that are valuable from both an economic and an ecological point of view. One key question is to determine what kind of landscape plays a role in selection of a residential localization and may be relevant from an ecological perspective. In human sciences, numerous works have studied the perceptions and the representations on landscape through elicitation of preferences, or through discourses analyses. We propose an analyze of the capitalization of landscape in periurban house value, with a pivot question: is it the descriptors of the “natural scene” viewed from the house, or is it the descriptors of global landscape in the surroundings that play a role in the value of dwelling? The ecological part of the study lies in the construction of landscape indicators, at scales that may be relevant to ecological and economic phenomena. Landscape indicators are built using geomatic procedures 1) to generalize landscape expert-based criteria or 2) to compute ecological landscape indicators. These indicators are estimated for the landscape a) seen from the house, or b) in the surroundings of the house. The range of constructed landscape indicators are then confronted with ten years of residential housing sales in Provence (France). The implications of the results are discussed in terms of appropriation of landscape, and the nature of descriptors that can play a role in ecologization of urban planning policy.

The Swiss regional nature parks: An instrument to mitigate conflicts about the landscape resource

Gerber, Jean-David
Swiss Graduate School of Public Administration
University of Lausanne
Chavannes-Lausanne VD Switzerland 1022

Peter Knoepfel
Swiss Graduate School of Public Administration
University of Lausanne

Email: jean-david.gerber@idheap.unil.ch

Keywords: conflict mitigation; governance; participation; political ecology; institutional economics

Abstract: In this contribution, we consider landscape as a cultural resource, which allows us distinguishing it clearly from physical resources (such as land, forest, water, buildings...). The concept of resource has the advantage of focusing on actors (potential users). Indeed these actors are also the targets or beneficiaries of public policies and they frequently hold property and use right on resources.

Landscape is a cultural resource whose management is particularly difficult, because it might be affected by all human activities which have a spatial impact. Rivalries on resource use and competitive appropriation strategies generate landscape conflicts between users, who mobilize either property rights (on soil or other fundamental resources, because there are no property rights on landscapes) or public policies to defend their interests. If these conflicts remain unresolved, they can become prejudicial to the quality of the landscape. In this context, regional nature parks (or any similar structure allowing participative management) are often considered as adequate coordination platforms allowing competing actors to reach mutual agreements.

Experience shows that the mere establishment of such platforms is not enough, because they often do not include external actors. On the basis of different case studies, we propose a typology of landscape conflicts, which considers three main dimensions: the configuration of the actors in conflict (the users of the landscape itself, the providers of landscape who use it commercially and the users of other resources which have an indirect impact on landscapes), the resources of public policies which are activated in the conflict (title of property, money, information, time...), the type of project at the origin of the conflict (conservation vs. exploitation, projects proposed by locals vs. non-locals, state vs. private support...). This typology allows

highlighting important “external” variables affecting the negotiation process taking place within the platforms. This knowledge is important for spotting relevant actors and structuring the negotiation process taking place within platforms like regional nature parks. This approach allows in particular overcoming situations where the processes of conflict resolution only reproduce the local power relations. Indeed the simple reproduction of these power structures neglects external factors, which often constitutes an unfavorable context for negotiations.

**The New York city watershed model forests:
An assessment of successes, failures, and
challenges for the future.**

Germain, Rene H
Faculty of Forest and Natural Resources Management
SUNY ESF
Syracuse NY USA 13210

John F Munsell
Faculty of Forest and Natural Resources Management
SUNY ESF

Kevin P Brazill
Watershed Forestry Program
Watershed Agricultural Council

Email: rhgermai@esf.edu

Keywords: forest management; best management practices; silviculture; conflict; diffusion of innovations

Abstract: New York City's water supply system is the largest surface storage and supply system in the world, supplying high quality drinking water to nearly nine million metropolitan consumers. Well-managed forests provide the optimal land cover for protecting water quality in the Watershed. Forests cover 75% of the 2,000 square-mile watershed, with 70% of the forest area owned by nonindustrial private forestland (NIPF) owners. Involving NIPF owners in resource management practices that are compatible with water quality is imperative.

The Watershed Model Forest project was established in 1998 to demonstrate that working forested landscapes can be compatible with water quality. The Model Forests were designed to integrate education, research, and demonstration to a wide audience. Two of the four Model Forests are active and successful, serving the outreach and continuing education needs of forest stewards throughout the watershed. The other two Model Forests have fallen victim to the politics associated with the public's general opposition to timber management. This paper provides extension practitioners and natural resource educators with a case study detailing the implementation of four model forests in this high profile watershed.

First, we will provide the context for the Model Forest Program and review procedures for establishing a model forest site; second, we will summarize the status of each model forest, beginning with our success stories, followed by a summary of our shortcomings and on-going challenges. We will conclude by reporting the results of a formative evaluation of the Model Forest

Program. We hope our experiences will be instructive to natural resource professionals currently implementing or considering similar long-term demonstration sites.

Bush's war on the environment: Business and conservative evangelicals join forces to exercise dominion over nature

Gibson, James W
Sociology
California State University, Long Beach
Long Beach CA USA 90034

Email: jwilliamgibson@comcast.net

Keywords: culture; religion; Congress; Bush administration; ANWR; Republican; anti-environment

Abstract: George Bush's administration and the Republican dominated Congress have conducted an extraordinary assault against U.S. federal environmental regulations and programs to preserve the nation's public lands and waters. Business lobbying to overthrow these regulations and open up public lands for economic exploitation represents the "modern" wing of this movement.

However, conservative evangelical theologians and religious leaders constitute a second, "premodern" part of Bush's coalition. These leaders, including figures such as Pat Robertson, James Dobson, and Tim LaHaye, have created a theology called "dispensational premillennialism" that provides several reasons for abusing the environment: Christians will leave the planet in a "Rapture" before seven years of war between God and the Antichrist; much of the planet will be destroyed in this fight; God will destroy the rest, because the entire planet and atmosphere is the "abode of Satan"; any belief that the earth as a whole is alive (Gaia) or that animals or rivers and forests have some kind of spirit is understood as Satan worship; in the interim, before the Rapture, God grants humans absolute dominion over the earth, meaning people are entitled to violently subdue the land and its creatures and rule them harshly; God can regenerate natural resources, making conservation unnecessary.

My paper examines this theology in detail, showing how it rose as a reaction against the environmental movement and the greening of religion in the 1990s, and traces evangelical connections to Congressional leaders. The paper concludes with a discussion of recent developments pointing to the decline of the theology and weakening of this anti-environmental coalition.

Knowledge, values, experience, perceived risk, and attributions of National Park visitors and residential neighbors about bears, cougars, and wolves

Gifford, Robert
Psychology
University of Victoria
Victoria BC Canada V8W 3P5

Sasha Wade
Psychology
University of Victoria

Christine Jackson
Psychology
University of Victoria

Email: rgifford@uvic.ca

Keywords: wilderness; tourists; residents; attitudes; large carnivores

Abstract: Two studies examined the conflict-related attitudes and self-reported behaviors of visitors to and nearby residents of Pacific Rim National Park Reserve (PRNPR) towards bears, cougars and wolves. The studies aimed to gain knowledge about the human side of human-wildlife conflicts, with the ultimate goal of assisting in the effective management of these interactions.

In study 1, 179 PRNPR visitors were asked about their perceived risk from, emotional attributions about, and perceived and actual knowledge of large wild animals on PRNPR. The study also attempted to explain visitors' perceived risk in terms of the Simplified Conjoint Expected Risk (SCER) model. Perceived knowledge, perceived risk and emotional attributions toward the animals all significantly predicted visitors' conflict-related behavior. Only subjective probability of harm from the SCER model significantly predicted perceived risk from the animals.

In study 2, values, environmental attitudes, knowledge, experiences, attributions, and support for various management practice options related to human interactions with bears, cougars, and wolves were investigated. 121 residents who live near the Long Beach Unit of PRNPR participated. Environmental attitudes were mildly related to the desirability of management practices, and resident behavior was not strongly related to environmental attitudes or knowledge about current management practices. Residents attributed the main cause of wildlife problems to waste management.

practices, and favored environment-centered solutions to human-animal conflicts.

Understanding collaborative synergy in multi-stakeholder sustainable development processes

Gilbert, Bruce C
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada B3H 3J5

Peter Duinker
School for Resource and Environmental Studies
Dalhousie University

John Sinclair
Natural Resources Institute
University of Manitoba

Email: bcgilber@dal.ca

Keywords: partnership; synergy helping and hindering factors; resource and environmental management;

Abstract: The collaboration or partnership approach to building sustainability has gained considerable momentum in Western societies since the 1992 Earth Summit. Collaboration-related processes, methods, tools, and best practices are routinely discussed in the relevant literatures. However, despite widespread support for more and better collaboration, such processes are also coming under increased scrutiny. The process of building them is often time consuming, resource intensive and difficult. Skeptics argue that many initiatives generate more frustration than results.

This paper reports the results of a mixed-methods research program examining synergy in 22 Canadian multi-stakeholder collaborations. Specifically, the study aims to understand better the factors that help or hinder synergy development in inter-organizational collaborations set within sustainable forest management (Canadian Model Forest Program), and community-based coastal zone management (Atlantic Coastal Action Program) contexts. The broad goal of the study is to contribute to an enhanced understanding of collaborative synergy in multi-stakeholder processes, such that practitioners are better able to initiate, build, evaluate and sustain them.

Results are based on 70 semi-structured interviews and 250 returns of a mailed-out questionnaire to collaboration leaders and participants from the Canadian cases noted above. Preliminary results reveal: there is no single helping factor sufficient for synergy development although several factors are especially important (trust and respect, clear need for the work, meaningful participation opportunities, shared

leadership and decision making, flexible governance and structure). In addition, results reveal that there are a myriad of factors that can prevent or undo synergy in multi-stakeholder processes.

Outdoor recreational resource planning as economic development strategy: A case study of the Superior Municipal Forest

Gillotti, Teresa
Department of Urban and Regional Planning
University of Wisconsin-Madison
Madison WI USA 53706

Jamie MacAllister
Department of Urban and Regional Planning
University of Wisconsin-Madison

Heather Stewart
Department of Urban and Regional Planning
University of Wisconsin-Madison

Email: seamusalister@yahoo.com

Keywords:

Abstract: Outdoor recreational resources have the potential to provide tangible market-driven community economic benefits. To a large extent, these benefits are driven by user expenditures. In particular, non-local spending injects new dollars that stimulate local business activity. In this work, we use the Superior Municipal Forest in Northern Wisconsin as a case study to provide implications for planning practitioners engaged in resource economics, outdoor recreation and tourism, urban forestry, and parks and protected areas. An economic impact analysis indicated that the municipal forest is an economic asset to the City of Superior by projecting its potential as an outdoor recreation and tourism-based economic development tool. A stakeholder analysis demonstrated the need for increased transparency and continued collaborative efforts among stakeholders. Prior city policy and community planning efforts regarding the forest, as well as ongoing community volunteerism, have resulted in a local community that is well educated about the issues surrounding the forest, yet highly distrustful of non-aligned interests. The community has already performed visioning exercises, written management plans for the Superior Municipal Forest and adjacent natural areas, and has demonstrated much energy and commitment to the forest as a valued local resource over the years, yet lacks the ongoing organization to permanently protect the forest from threats of development and/or unwise use. We conclude that focusing on the Superior Municipal Forest as a local and regional asset not only in ecological and cultural terms but also as an amenity-based economic development strategy would give coherence to the disparate and sometimes conflicting stakeholder goals that fuel distrust and unwise decision-making in the community.

A framework for dialogic stakeholder communication at small protected areas

Gilson, Jacquie F
Resources and the Environment
University of Calgary
Calgary Canada T2J 2T9

Email: jfgilson@ucalgary.ca

Keywords: stakeholder theory; collaboration; consultation; parks

Abstract: Small exurban protected areas are a unique subset of protected areas due to their size and near urban location. They require an ecosystem-based approach to management with strong emphasis on the social dimension. Small protected areas are greatly impacted by human-based activities on the landscape and successfully working with stakeholders is critical to ensuring their long term ecological integrity.

As the manager of the Ann and Sandy Cross Conservation Area, a 4800 acre day use preserve on the southwest doorstep of the growing city of Calgary, I decided to study this very relevant topic in more detail and recently completed an interdisciplinary Masters thesis at the University of Calgary.

My research involved comprehensive reviews of stakeholder literature, with an emphasis on a communication-based dialogic stakeholder theory, plus interviews and focus groups with small protected area staff from across North America.

The results were synthesized into a practical framework for small protected areas to use in planning and implementing a Stakeholder Strategy. The Framework includes: identifying the context of the protected area, and developing responses to questions within six key dialogic concepts i.e., Information, Control, Consent and Voice, Forums, Conflict and Negotiation, and Collaboration and Participation.

It is hoped that use of this framework in practice will result in more engaged and satisfied stakeholders, leading to enhanced integration of the small protected area into the landscape.

Residential landscape water checks - interventions to promote water conservation behavior

Glenn, Diana T
Dept. of Environment and Society
Utah State University
Logan UT USA 84321

Joanna Endter-Wada
Dept. of Environment and Society
Utah State University

Roger Kjelgren
Dept. of Plants, Soils, and Biometeorology
Utah State University

Jennie Hoover
Dept. of Plants, Soils, and Biometeorology
Utah State University

Email: dtglenn@xmission.com

Keywords: landscape water use; water audits; irrigation system; conservation program evaluation; drought

Abstract: In response to drought and regional growth in the United States West, urban water demand management is increasingly important. Residential landscape water check programs that evaluate irrigation system effectiveness enjoy popularity among municipalities as a conservation tool. In Utah's sixth year of drought (2004), we conducted interview research in connection with free landscape water checks offered to all households in Logan, Utah. During the summer of 2005, we selected a targeted sample of above-average Logan water users but otherwise replicated the intervention (water checks, interviews). The landscape water checks included detailed evaluations of households' sprinkler systems and landscapes, and provided the occupants with site-specific seasonally adjusted watering schedules and conservation recommendations, which the occupants were encouraged to adopt. Pre-intervention (at time of water check) and post-intervention (end of growing season) open-ended interviews were conducted with all households. These interviews were designed to discover how participants interact with landscapes, their motivation to conserve water, their understanding of water costs and billing information, the acceptability of various water conservation approaches, and the effectiveness of the water check in aiding them to conserve water. This research investigated water conservation behavior in relation to residential landscapes and the effectiveness of a water check program as a conservation tool. Research findings shed

light on the nature of conservation decision making within households as resource consumption units and provide recommendations on conducting water check programs. These findings have important implications for municipalities interested in adopting and evaluating the effectiveness of water check programs.

Planning, place, and inequality: Forgone opportunities for conservation

Golding, Shaun A
Rural Sociology
University of Wisconsin
Madison WI USA 53706

Roger B Hammer
Rural Sociology
University of Wisconsin

Email: sgolding@ssc.wisc.edu

Keywords: Amenity Communities; Second-homes

Abstract: This paper examines how a rural and natural resource dependent community undergoing amenity migration experiences inequality in confronting seasonal home development with comprehensive planning. Using Logan and Molotch's growth-machine theory, it is argued that development in Vilas County, Wisconsin is situated in unequal conditions and dominated by specific interest groups brokering use and exchange values. The market for housing thus privileges those with non-local income sources while ignoring the presence of other, less tangible or utilitarian currencies maintained by some landowners. It is argued that a third value: "place value," is an important factor in landownership for some residents in Vilas County, and that it is place value which embodies the motive of long term residents to protect natural resources. Further, it is observed that Wisconsin's comprehensive planning law, which is partially employed as a tool to restrain development, mirrors the local land market in its acknowledgement of only use and exchange values. The authors question whether a development control mechanism operating under the same general tenets as the development process systematically obscures arguments for local stewardship that might be more effective in negotiating between resource conservation and development.

Helping managers understand the relationship between people and the coast

Gold-Krueck, Hansje
Human Dimensions
IMSG at NOAA Coastal Services Center
Charleston SC USA 29464

Tricia L Ryan
Human Dimensions
NOAA Coastal Services Center

Kelly L Dickson
Human Dimensions
PSGS at NOAA Coastal Services Center

Christopher L Ellis
Human Dimensions
PSGS at NOAA Coastal Services Center

Thomas E Fish
Human Dimensions
NOAA Coastal Services Center

Zachary H Hart
Human Dimensions
NOAA Coastal Services Center

Heidi R Recksiek
Human Dimensions
NOAA Coastal Services Center

Thomas G Safford
Human Dimensions
NOAA Coastal Services Center

Email: hansje.gold-krueck@noaa.gov

Keywords: coast; management; Web site; support; MPA; recreation; tourism; capacity building.

Abstract: Some of the most challenging decisions in coastal management depend on the relationship between people and the environment. Coastal managers have become increasingly aware of the importance and helpfulness of using social science information and tools to address these relationships. This poster illustrates a new effort by the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center to respond to information needs of coastal management professionals.

The Human Dimensions program at the NOAA Coastal Services Center focuses on providing products and services that foster recognition, understanding, and consideration of the social, cultural, and economic

aspects of managing natural resources along the nation's coasts. The focus of most human dimensions projects is on applying social science tools such as needs assessments and surveys and on providing technical assistance to managers on projects such as regional socioeconomic assessments.

An example of a project that applies social science tools is the Human Dimensions Wheel, a handheld interactive tool that introduces coastal managers to basic social science concepts and tools. Another example is the Mapping Social Change in Coastal Counties project, where geographic information system mapping is used to depict socioeconomic and demographic change in 20 coastal counties of North Carolina over a period of three decades.

For technical assistance, the group has provided training in the fields of social assessment, coastal community planning and development, or smart growth, and visitor use management to coastal practitioners throughout the United States, as well as in the development of natural resource performance measures for state coastal zone management programs.

As part of the new strategic focus of the NOAA Coastal Services Center, the Human Dimensions program will work with other Center programs to integrate social science into more projects in the future.

National government policy vs. local realities: impact on fishery stock management in the Philippines

Gomez, Aurelia Luzviminda V
School of Management
University of the Philippines in Mindanao
Davao City Philippines 8000

Email: twin9512@yahoo.com

Keywords: natural park, upland communities, coastal communities, Subanen, local government units

Abstract: The Philippine Fisheries Code (Republic Act 8550) is a national government policy, which was passed into law on 25 February 1998 after 10 years of legislative process. Its main objectives are to develop, manage and conserve the country's fishery and aquatic resources, while also providing for food security of the population. This paper presents results of an empirical research that aimed to assess the effectiveness of the Philippine Fisheries Code on fish stock management, with specific reference to community awareness, equity considerations, community acceptability of the Code, and enforceability. The data utilized in the study were generated from secondary and primary sources; primary data were obtained through key informant interviews and focus group discussions with fishers and policy implementers. Results indicate that fishers were aware about certain provisions of the Fisheries Code, such as the prohibitions on certain fishing gears and fishing practices, and also the positive impact of these provisions. However, there was also general acceptance about the continued involvement of local fishers on acknowledged illegal fishing activities, which they themselves claimed to be a major cause of continued fish stock depletion in the area. This was largely influenced by the local fishers' general perception that compliance with the policy would have a negative impact on livelihood. From the perspective of local policy implementers, the lack of sufficient manpower, logistics, and local government support were major challenges in policy enforcement. This paper concludes that the potential of the Fisheries Code for effective fish stock management remains to be fully realized. This can be attributed to a number of major factors, including the local fishers' more immediate concern for survival; lack of sufficient local government support, and weak coordination among the various agencies involved in policy enforcement. Thus, this study calls for intensive and sustained information, education and communication campaign, and concerted efforts among local government units and other relevant government agencies in addressing both the livelihood concerns of

the local fishers and sustainable management of fishery resources.

Government policies for biodiversity management in a Philippine mountain protected area

Gomez, Aurelia Luzviminda V
School of Management
University of the Philippines in Mindanao
Davao City Philippines 8000

Alita T Roxas
College of Business Administration
MSU-Iligan Institute of Technology

Leontine E Visser
Rural Development Sociology
Wageningen University and Research Centre

Isabelita M Pabuayon
Department of Agricultural Economics
University of the Philippines at Los Banos

Email: twin9512@yahoo.com

Keywords: natural park, upland communities, coastal communities, Subanen, local government units

Abstract: A policy research was conducted to determine the impact of selected national government policies on biodiversity management and conservation in Mt. Malindang and its environs, a mountain protected area in the southern Philippine island of Mindanao. Most of the mountain range is within the province of Misamis Occidental, and is quite unique because almost all municipalities have both mountainous and coastal areas. The specific government policies included in the study were the National Integrated Protected Areas System (NIPAS) Act, the Indigenous Peoples' Rights Act (IPRA), and the Philippine Fisheries Code of 1998. Data collection was conducted between December 2003 and March 2005; analysis focused on community awareness, acceptability of the policies, equity considerations, and enforceability. Research results indicate a generally low level of awareness about the policies that mainly affect the upland communities; the NIPAS Act was perceived mainly as the law that prohibits the cutting of trees, and the rights and responsibilities of the indigenous peoples as stipulated in the IPRA were almost unknown. In the coastal areas, the communities were generally aware that the Fisheries Code prohibits the use of certain fishing gears, as well as the encroachment of commercial vessels into municipal waters. However, results also indicate that policy awareness does not necessarily translate into compliance, and that the acceptability of certain policies is largely influenced by the local communities' perception about the likely effect of government policies on their

livelihood. In terms of equity, results indicate that current implementation of the policies does not intentionally prejudice the welfare of certain stakeholders. Enforceability is affected by the community's acceptance of the policy, together with the availability of institutional support in terms of logistics, funding and manpower. The study concludes that much remains to be done in the implementation of the policies for them to be effective in the management and conservation of biodiversity in Mt. Malindang and its environs.

Participatory societies and personal awareness

Gonzalez, Julian M
Forest Resource Management
University of British Columbia
Vancouver BC Canada V6L1L3

Michael J Meitner
Forest Resource Management
University of British Columbia

Email: jgt@interchange.ubc.ca

Keywords: collaboration, personal growth, global citizenship, co-operation

Abstract: Most contemporary thinkers that strive for a new vision of post-capitalist society have embraced in some way the notion of participation. Participation can take many forms including but not limited to participation in political, economical, and environmental movements. In addition these forms of participation often are discussed in relationship to a particular scale ranging from local to global. However much of the thinking in these matters is often focused on the external world illustrated by efforts to simply change methodologies in the hopes of profound change.

For participatory societies to function individuals must also transform. We are all actors in this global society and are own personal awareness shapes this world as much as foreign policy does. Spirituality is the word that most closely defines the internal seeking and evolution of the individual. There are many paths to spirituality, and any if followed with awareness and questioning, lead to the same outcome of an ever increasing consciousness. We must strive to break free of our personal limitations and to collectively participate in the advancement of our collective destiny. In short we must transcend.

In this paper we hope to present an analysis of some of the mechanisms for social change that are currently evolving including local politics, research, education, and self-development. In research, an individual can be a leader and catalyst for change – engaging and supporting research methodologies that work towards higher order of consciousness of all the involve in the research, including the researcher. In education, an individual can work towards re-shaping education – supporting and nurturing future human capacity by moving education past the current focus on “cognitive capacities” towards forms of deeper “understanding”. Through the process of self-development, we foster and nurture our abilities to see beyond our limitations, continually striving to push the boundaries of our consciousness, becoming effective actors in new forms of

participatory society. While there are no simple solutions to these problems, we must continue to engage in a dialogue that seeks to enrich the emerging global society that we are all a part of.

National landscapes: Attitudes and desires

Goossen, Martin
Centre Landscape
Alterra, Wageningen University Research
Wageningen Gelderland Netherlands 6700 AA

Email: martin.goossen@wur.nl

Keywords: recreational use, experience, resources, activities, valuable, economic development

Abstract: The European Landscape Convention (ELC) is the first European Treaty that is aimed specifically at the landscape. A main point is that the landscape contributes to the shaping of local cultures. Landscape is a basic component of European nature and cultural heritage. Landscape contributes to the well-being of people and the strengthening of the European identity. This produces everyone rights and responsibilities for protection, management and planning of the landscape. The ELC promotes the involvement of citizens at ' their ' landscape and stimulates the regional and national governments in Europe to create good conditions for the development and the management of the landscape. The ELC cover all landscapes, urban or rural, nicely or ugly.

On the 10th of June 2005 the Dutch minister of Agriculture, Nature and Food quality announced that The Netherlands will ratify the European Landscape Convention. The Dutch landscape policy has been renewed and is entirely in line with this Convention. There are 20 National Landscapes in the Netherlands, which cover approx. 25% of the surface. In the Netherlands important spatial changes are in preparation, varying from new house construction projects to catching the impact of climate change. So involvement of citizens is very important. Therefore the government was interested in the opinion of inhabitants of these National Landscapes, and what their attitude is and what their wishes are. An on-line research with 4000 respondents was carried out to give the answers. The most important result is that the inhabitants agree with the policy. Their attitude is that (economic) development must continue, but with great care of the typical characteristics of the landscape. The wishes depend on the different recreation motives, but the desire for nature development is very popular.

Fire at the wildland urban interface: a co-constructivist approach to community wildfire risk perception

Gordon, Jason S
Agricultural Economics and Rural Sociology
The Pennsylvania State University
University Park PA USA 16802

Rich Stedman
Agricultural Economics and Rural Sociology
The Pennsylvania State University

Email: jsg246@psu.edu

Keywords: risk assessment, wildland fire, wildland urban interface, social construction

Abstract: The relationship between humans and wildland fire has evolved over time, from a tool used to increase the productivity of natural landscapes for agriculture and human settlement, to an evil to be avoided and suppressed, to an important tool in ecosystem management. The wildland-urban interface is emerging as an important, and at times conflictual, locus where people encounter the natural world. In this paper, we explore the interactions of society and nature through the meaning of wildfire, paying special attention to the implications of how these meanings of fire are manifested at the wildland urban interface. The framework of the paper is built on Alan Irwin's concept of co-constructivism, which implies a discourse that emphasizes the interdependent existence of the social and the natural. We examine general issues of social-natural relations, focusing on issues such as perceived risk, mitigation, response, and recovery, that are especially relevant to the maintenance of human community in fire prone wildland Urban interface zones.

Communication strategies for fire management: Creating effective citizen-agency partnerships

Gordon, Ryan P
Department of Forest Resources
Oregon State University
Corvallis OR USA 97331

Bruce A Shindler
Department of Forest Resources
Oregon State University

Email: Ryan.Gordon@oregonstate.edu

Keywords: resource management;wildland-urban interface;public outreach;social acceptability;fuel treatments

Abstract: Current legislative direction at the state and federal levels recognizes the importance of creating citizen-agency partnerships to accomplish fuel reduction objectives. Resource professionals face the task of developing management strategies that protect forest health, address the concerns of local citizens, and encourage property owners to take responsibility for fuel reduction activities. Engaging the public can be a challenging experience and resource professionals need strategies to create effective citizen-agency partnerships. Over the past five years, we have monitored and evaluated numerous attempts by fire management agencies to build cooperative relationships with citizens in forest communities. This research has yielded a series of success stories and lessons learned that are relevant to managers across the spectrum of fire planning. Our presentation will draw from the sum of this research to characterize measures of successful outreach efforts and outline key principles for building a multi-partner communications strategy. We will present a stepwise approach for building cooperative relationships with citizens to accomplish fire and fuel management objectives. We have already developed two products in an effort to make these lessons learned available to land managers in an easily distributed, readily accessible format. The first, a 25-minute video program, showcases ongoing outreach efforts and practical ideas from managers working at the ground level. The second, a field guide, details specific tools and strategies for implementing concepts presented in the video program. Both are organized around the key communication principles identified by our research efforts.

New approaches to land and water resource management on ranchlands in the greater Yellowstone ecosystem: Implications for sustainability

Gosnell, Hannah
Geosciences
Oregon State University
Corvallis OR USA

William R Travis
Geography
University of Colorado - Boulder

Julia H Haggerty
CSAFE
University of Otago

Jessica Lage
Landscape Architecture and Environmental Planning
University of California - Berkeley

Email: gosnellh@onid.orst.edu

Keywords: ranch ownership, water resource management, land use, sustainable development, U.S. West

Abstract: An ownership transition with potentially significant implications for biodiversity, ecosystem function, and community stability is underway on the ranchlands of the American West, especially in high amenity areas that also often serve as critical wildlife habitat. The new cohort of owners is by and large independent of the ranch for income, and purchases ranches with an interest in environmental amenities, recreation, and real estate investment. Because ranchlands represent the largest parcels of privately owned - and mostly intact - land in the West, and are often associated with senior water rights and important aquatic ecosystems and riparian bottomlands, the fate of these landscapes is of great interest to ecologists, conservationists, water resource managers, and longtime land and water users who may be at risk of third party impacts related to new approaches to resource management. This paper reports on results from a survey and set of interviews with 40+ old and new ranch owners and managers regarding approaches to land and water resource management in three GYE watersheds. We consider how new owners may be managing land and water resources differently than longtime residents and what the ecological, political and legal implications of this shift in management might be. At issue is the extent to which land and water laws and institutions rooted in utilitarian "Old West" ideologies can accommodate new values and uses in an equitable

manner while minimizing community conflict. The paper concludes with a consideration of strategies for developing sustainable communities and ecosystems in this rapidly changing region.

Effects of income and other demographics on perceptions of affordability and reported visitation of pacific northwest National Forests

Graefe, Alan R
Recreation, Parks and Tourism Management
Penn State University
University Park PA USA 16802

Robert C Burns
Division of Forestry
West Virginia University

Email: gyu@psu.edu

Keywords: Outdoor recreation participation; income; fees; demographics

Abstract: To what extent are low-income people excluded from recreation participation on National Forests? This question was addressed by examining the relationships between income, other demographic variables, perceptions of recreation fees, and reported forest use among residents in two Pacific Northwest states. This analysis includes income, along with other demographic indicators, in order to control for the effects of the other variables. If fees are truly constraining forest visitation by low income people, we would hypothesize that income influences both the perceived affordability of visiting the forests and the number of actual forest visits. Data were collected through a telephone survey of the general population in Oregon and Washington, USA. Results showed that the lowest-income individuals were quite distinct in their attitudes toward and uses of the national forests. However, when controlling for other variables, income was unrelated to frequency of visiting the forests for recreation. Demographic variables were much more effective at discriminating between those who visit National Forests at all and those who do not than they were at predicting the number of recreation visits. It appears that the income/forest use relationship is complex and non-linear. Our results add to the growing evidence that the influence of demographic variables on the concern for entrance fees is small and support the argument that lower income people are already priced out of the market by other factors such as travel and equipment costs.

Last child in the parks? Age trends in U.S. National Park visitation

Gramann, Jim H
Social Science Program
U.S. National Park Service
Washington DC USA

Steve Hollenhorst
Conservation Social Science
University of Idaho

Margaret Littlejohn
Visitor Services Project
National Park Service

Lena Le
Park Studies Unit
University of Idaho

Email: jgramann@tamu.edu

Keywords: outdoor recreation, protected areas,
attendance, demographic trends, tourism

Abstract: In his book “Last Child in the Woods: Saving Our Children from Nature- Deficit Disorder,” Richard Louv argues that today’s young people have lost their connection to nature because of overly protective parents and the distractions of TV and the digital world. This argument has been advanced as one cause of declining visitation to national parks. In this paper, we examine age trends in national park-going in the U.S. over a 16-year period and compare these to trends in the U.S. population. If “nature-deficit disorder” is affecting visitation to national parks, then the percentage of young visitors should be declining, and this decrease should be greater than in the U.S. population as a whole.

Age data come from the National Park Service’s Visitor Services Project database. The 38 surveys analyzed provide age data on over 47,000 visitors in 1989-90 and 2003-04. Between these two periods, the proportion of national park visitors in their mid-teens to mid-thirties declined from 27 percent to 19 percent. This was twice the decrease occurring in the U.S. population. However, the percent of park visitors under 16 matched the national percentage, both in 1989-90 and in 2003-04. If eroding interest in nature underlies recent declines in visitation, it is reflected in visits by young adults, rather than by children. However, other explanations for this trend are plausible, including increasing pressures in college, home, and the workplace (which may constrain discretionary time and income) and the growing ethnic and racial diversity of the U.S.

Conflict management between recreational users and land managers in the new Cairngorms National Park, Scotland

Grant, Bob M
Visitor Services and Recreation Group
Cairngorms National Park Authority
Grantown on Spey Scotland United Kingdom PH26
3HG

Email: bobgrant@cairngorms.co.uk

Keywords: Conflict management: recreationalists and
land managers: Cairngorms National Park

Abstract: With the passing of the Land Reform Act in 2003, Scotland now has some of the most permissive access legislation in Europe. People now have a legal right of access to almost all land and water for non-motorised recreation. These new rights come with new responsibilities, both for recreational users and for land managers, as defined in an Outdoor Access Code which was approved by the Scottish Parliament. This paper reviews experience of implementing this innovative approach to management of outdoor recreation in Scotland’s largest National Park.

A number of practical mechanisms have already proved their value. A Local Outdoor Access Forum has been established, comprising 21 members from communities, recreational users, land managers and Government agencies. This group has an advisory role and assists the National Park Authority in reaching agreement. Whilst the Forum is relatively new, the cross-sectoral nature of membership ensures a holistic and consensual approach is taken. The advice therefore carries credibility within the relevant communities.

Financial incentives also have a useful role to play in minimising scope for conflicts. Direct government funding of new access infrastructure and contributions to maintenance of existing facilities can be practical means of assisting in recreation management. The provision of thoroughly researched guidance at a national level has also been extremely.

But all these incentives and consensus-based approaches are backed by new powers for the National Park Authority. The powers have barely been used to date but their presence in the background has provided considerable assistance in resolving intractable problems.

The role of the private sector in the conservation of parks and protected areas.

Grewell, J. B
Research Associate
Property Environment Research Center
Bozeman MT USA

Email: grewell@perc.org

Keywords: privatization, public lands, user fees

Abstract: Concerns about the trend towards privatization of public lands generally fall into 4 categories: 1) Will privatization price low-income citizens out of access to the public lands?, 2) Will privatization lead to commercialization, thereby ruining the natural experience?, 3) Do recreation fees actually mean double taxation?, and, 4) Will freedom from the public appropriations process reduce agency accountability? None of these concerns presents insurmountable objections and shifting from public funding towards private may create a system that is both more efficient and more equitable.

Privatizing Collective Forest Land in China's Economic Transitio

Grinspoon, Elisabeth J
Resource Planning and Monitoring
USDA Forest Service
Portland OR USA

Email: egrinspoon@fs.fed.us

Keywords: public participation, criteria and indicators, systems thinking, USDA Forest Service

Abstract: This presentation examines the transformation of forest property rights that has accompanied China's transition to a market economy. As China's economy booms, its demand for timber, pulpwood, and paper grows dramatically. The increased demand, and changes in national property rights law, has encouraged officials to experiment with market mechanisms that increase forest productivity. In one city called Yongan in Southeast China, local officials are encouraging farmers and rural collectives to sell their use-rights to businesses that create economies of scale. To facilitate forest property rights transfers, officials in Yongan built a modern business center that provides a place for farmers and business people to register forest property rights and forestry businesses. The center even has an electronic billboard with up-to-date information about each parcel of forestland with use-rights for sale. In less than one year, property rights to more than 17,000 acres of forest land were transferred in Yongan City alone. The City's forest business center has been hailed as a success by national government officials, who are promoting similar centers around the country. While the transfer of property rights to forest land is gaining economic momentum, the social implications of this policy for China's rural population is still uncertain. This presentation, which is based on ethnographic fieldwork conducted in China, will examine this new phenomenon in terms of both its economic and social implications.

**The Ndoho Istchee conservation process -
creating an opportunity for Cree participation
right from the beginning of the forest
management planning process**

Gull, Sam W
President
Waswanipi Cree Model Forest
Waswanipi QC Canada J0Y 3C0

Email: samwgull@waswanipi.net

Keywords: Aboriginal; knowledge; participation; process;
sustainable; forest; management; planning;

Abstract: The Waswanipi Cree First Nation is a Cree community in the heart of the boreal forest in Northern Quebec who has led a partnership, the Waswanipi Cree Model Forest, to define and achieve sustainable forest management for the territory. Its partnership consists of forestry companies, the Quebec Ministry of Natural Resources, federal government, Universities and the Crees whom performed ground-breaking research based on Cree Traditional Knowledge and focuses on the inclusive participation of Crees in natural resource land management. Our work revolves to a considerable extent around Ndoho Istchee, which means “family hunting ground.” Ndoho Istchee is the fundamental basis of Cree traditional activities, culture, language and values. The people of Waswanipi—especially the elders, trappers and community leaders—have a responsibility to protect and enhance the Cree way of life as well as the wildlife and natural environment that have sustained life for many generations. It is imperative that we create a process in which our communities can participate without bias in managing the land. The Ndoho Istchee Conservation Process has outlined an important means of participation for users of the land to contribute to the planning and monitoring of the land. This new tool takes into consideration Cree traditional activities and the economic needs of present-day society. Through our unique experience, we have worked toward creative solutions in order to achieve a meaningful participation of Crees and to ensure that our culture and economic stability will continue to provide for future generations.

**Collaborative planning in British Columbia: A
macro analysis.**

Gunton, Thomas
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A1S6

J C Day
School of Resource and Environmental Management
Simon Fraser University

Email: tgunton@shaw.ca

Keywords:

Abstract: This paper provides an overview of the collaborative planning process in B.C. The origins and structure of the B.C. collaborative processes are described. The collaborative process for 17 completed plans is evaluated based on a stakeholder survey using 25 process and outcome criteria. The paper assesses the strengths and weaknesses of the process and identifies lessons for future collaborative planning.

Roles and responsibilities of communities in forest management decision-making: Case study of the Bimbia-Bonadikombo Natural Resource Management Council, Cameroon

Gwena, Beatrice
Forest Resources
University of Minnesota
St. Paul MN USA 55108

Dorothy H Anderson
Forest Resources
University of Minnesota

Email: muto0003@umn.edu

Keywords: procedural justice, forest policy and law, indigenous people

Abstract: Community participation in local forestry decisions is integral to forest management and is a funding strategy for organizations to implement projects. In 1994 forest policy reforms were instituted in Cameroon to formalize and strengthen involvement of local communities in forest management. Local community people and non-government organizations working with them believe the new policies have not performed as promised. This paper reports on a community involvement study designed to determine the roles and responsibilities of the Bimbia-Bonadikombo communities of Cameroon in forest decision-making. Bimbia-Bonadikombo was selected as the study site because it is one of the first existing and most heterogeneous community forests in Cameroon. Lind and Tyler's (1998) model of procedural justice was used to determine the decision-making process surrounding forest planning and management. Face-to-face interviews were conducted with community leaders and government agency personnel who carry out government policies on forest resources. Participants were asked if and how they were involved in the formulation of the 1994 Forestry Law and about their level of involvement in the implementation of this law. They were also asked to describe their influence in the decision-making process. Themes emerging from the study included the significance of representation, voice, accountability, transparency, trust, ownership and benefits. The study informs policy makers about effective formulation of policies and the clarification of different aspects of the policy, including that of property rights, to ease implementation and minimize resource use conflicts.

Drilling in the rockies: The influence of pace and scale on community impacts

Haefele, Michelle A
Ecology and Economics Research Department
The Wilderness Society
Denver CO USA 80202

Pete Morton
Ecology and Economics Research Department
The Wilderness Society

Janice L Thomson
Ecology and Economics Research Department
The Wilderness Society

Dawn A Hartley
Ecology and Economics Research Department
The Wilderness Society

Email: michelle_haefele@tw.s.org

Keywords: energy

Abstract: Large scale oil and gas drilling on public lands in the Rocky Mountains (United States) has accelerated in recent years with little understanding of the cumulative impacts to local communities. Potential negative impacts from drilling include air and water pollution, habitat fragmentation, increased traffic, strain on public services, decline in quality of life, and the loss of hunting, fishing and recreation jobs. The potential positive impacts for communities from drilling include increases in population, jobs and government revenue. Communities often expect drilling to increase county revenues sufficiently to not only improve local quality of life through investments in public services, but to also mitigate the costs imposed by the energy development itself.

In order to better understand the economic tradeoffs between protecting the environment and drilling for natural gas, we have developed a method for examining the influence that pace and scale have on communities. Positive and negative impacts are both influenced by the scale of oil and gas drilling, and the pace at which it proceeds. Our hypothesis is that large scale drilling that occurs at a fast pace increases the overall risks to the environment and to communities. To illustrate our methods we present the results for a hypothetical community. Results demonstrate changes in annual well drilling rate, gas production, tax law, revenue and jobs under various scenarios. We also present a video simulation of oil and gas development, in order to show the on-the-ground impacts temporally and spatially. Our recommendations to reduce these risks are phased

development combined with an adaptive management framework.

Decision-making preferences of amateur winter recreationists in avalanche terrain

Haegeli, Pascal T
Research Division
Avisualanche Consulting
Vancouver Canada V6L 1L3

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Margo Longland
School of Resource and Environmental Management
Simon Fraser University

Ben Beardmore
School of Resource and Environmental Management
Simon Fraser University

Email: pascal@avisualanche.ca

Keywords: avalanche safety; risk perception; risk propensity; adventure recreation; risk management

Abstract: Every winter, approximately 16 people are killed in avalanches in Canada. Most fatal avalanches are caused by amateur recreationists triggering the avalanche themselves, which implies that the root cause of many accidents is a failure in human perception: recreationists thought that the risk was different from what it actually was. This fact clearly highlights the importance of the decision-making process when participating in high-risk outdoor recreation. So far, avalanche research and education in Canada have primarily focused on the snow science aspect of avalanche safety. In addition, however, a sound understanding of the characteristics, behaviours and decision-making patterns of recreationists is clearly needed for the development effective avalanche safety programs.

The present study investigates the motivations and decision making of the three main target groups for avalanche safety in Western Canada - backcountry skiers/boarders, out-of-bounds skiers/boarders, and snowmobile riders - with special emphasis on their experience, their risk perceptions and propensities. The study consisted of a short intercept survey and a full-sized follow-up web survey that were both conducted in the 2005 winter season. While the intercept survey focused on respondents' awareness of current avalanche conditions, the web survey used a social science method known as Discrete Choice Experiment to quantitatively model the decision factors and preferences of recreationists. In addition, the study also examined the

potential effectiveness of a hypothetical decision support tool for decision making in avalanche terrain.

This study is the first of its kind in the field of avalanche awareness and has produced significant insights for the current development of public avalanche safety programs in Canada and other countries.

Climate change, biodiversity and resource management: Examining the implications for decision-making in British Columbia

Hagerman, Shannon
Resource Management and Environmental Studies
University of British Columbia
Vancouver BC Canada V6T 1Z3

Hadi Dowlatabadi
Institute for Resources, Environment and Sustainab
University of British Columbia

Terre Satterfield
Institute for Resources, Environment and Sustainab
University of British Columbia

Tim McDaniels
Institute for Resources, Environment
University of British Columbia

Email: hshannon@interchange.ubc.ca

Keywords: climate change; decision-making; biodiversity; triage; environmental justice; equity

Abstract: Ideas of conservation and the relationship between protected areas and natural resources management have evolved since their initial articulation approximately 100 years ago. Some of the most dramatic changes have emerged since the 1980's. Global drivers including the idea of sustainable development (WCED - 1987), the discourse of biodiversity (The Convention on Biological Diversity - 1992), and increased calls for public participation, all radically changed resource management at the local and regional levels. In British Columbia, these drivers changed the objectives of protected areas, shifting the focus from iconic environments for tourism, to biodiversity and ecosystem representativeness. Critically, they also linked extraction and protection efforts. Resource management agencies now have to balance biodiversity protection with extraction within a region. However, this framework is based on the assumption that in successfully protecting an area from local disturbance (e.g. logging), its biodiversity will in fact be maintained over time. Ironically, although the impetus for local protection can be seen as a global initiative, the implications of global bio-physical influences, specifically climate change have largely been ignored in regional planning.

This paper considers the implications of alternative assumptions that take climate change in account. If, for example, we accept that not all currently protected ecosystems can be sheltered from the impacts of climate

change, what are the implications for resource management and participatory decision-frameworks? Can we identify the conditions under which alternatives such as “triage” would be contemplated? What are the barriers? And, how can we ensure that equity and social justice concerns are addressed?

Assessing attitudinal change caused by information and deliberation in public meetings

Hall, Troy E
Conservation Social Sciences
University of Idaho
Moscow ID USA 83844-1139

Erin Seekamp
Conservation Social Sciences
University of Idaho

David Cole
Aldo Leopold Wilderness Research Institute

Chuck Harris
Conservation Social Sciences
University of Idaho

Email: troyh@uidaho.edu

Keywords: Stakeholder involvement; wilderness management; persuasion; collaborative learning; small groups

Abstract: Deliberative processes have been advocated as ways for stakeholders to develop knowledge of alternative viewpoints and values and reach informed judgments about resource issues. Although many case studies have investigated collaborative processes, much research relies on participants' post hoc self reports of attitudinal impact, and such reports may be subject to various biases. In this study, we use structured measures of attitudes in a pre/post design to explore the impact of information, deliberation, and initial attitude strength on participants' attitudes toward wilderness management actions.

In May and June 2005, four public meetings were convened to discuss appropriate management of a heavily used wilderness destination. A total of 50 stakeholders were recruited through snowball sampling of people interested in wilderness management. Participants' attitudes about different management options were assessed three times over the course of the 4-hour meetings: at the beginning of the meeting, immediately following a formal presentation on wilderness management policy and findings from a large study of wilderness visitors' attitudes, and after group deliberation about participants' values and views on wilderness management.

Findings revealed complex patterns of attitudinal change. Although few people reversed themselves (shifting from supporting to opposing an action, or vice

versa), for certain questions approximately 20% of participants reversed their views. Additionally, the intensity of attitudes toward most actions shifted for a majority of participants, and the percent of people with attitude changes was high after both the information presentation and the group deliberation. The study demonstrates the impact of collaborative processes on public opinion.

51 million participants and growing: Research to begin managing the off-highway vehicle experience

Hallo, Jeffrey C
Rubenstein School of Env. & Natural Resources
University of Vermont
Burlington VT USA 05405

Robert E Manning
Rubenstein School of Env. & Natural Resources
University of Vermont

Email: jhallo@uvm.edu

Keywords: carrying capacity; national park; ORV

Abstract: The number of people in the U.S. participating in off-highway vehicle (OHV) use has grown from 27.3 million in 1995 to 51.0 million in 2004. This recreational activity has both ecological and social impacts. Relatively little research has been conducted on the social impacts of OHV use, and these impacts may result in diminished enjoyment of the activity for OHV users themselves. As demand for this activity continues to increase, comprehensive management of OHVs will require developing indicators and standards of quality for the recreational experience. Indicators of quality are measurable, manageable variables that act as proxies for the visitor experience, while standards of quality are the minimum acceptable condition for indicator variables. Research on both indicators and standards for the OHV experience was conducted at Cape Cod National Seashore, Massachusetts, USA. Qualitative interviews were conducted with OHV users during 2004 and used to inform the development of a quantitative survey that was administered in 2005. Examination of the interviews using content analysis served as the basis for identifying potential OHV indicators. Normative standards were developed from the quantitative survey by using both textual questions and photos simulating a range of conditions for selected indicators. The study resulted in standards of quality for OHV use levels, litter, and waiting times to get an OHV permit. The results of this study may be used to provide an empirical basis for the management of OHV use at Cape Cod National Seashore. Further research on indicators and standards of quality for the OHV experience is needed on other public lands to manage this increasingly popular recreational activity.

Values and actions of Cape Breton woodlot owners: Modelling the post-material shift

Hallstrom, Lars K
Political Science
St. Francis Xavier University
Antigonish NS Canada B2G 2W5

Roberto Martinez-Espineira
Economics
St. Francis Xavier University

Email: lhallstr@stfx.ca

Keywords: Cape Breton; environmental values;
postmaterialism; forest management;

Abstract: Attitudes and orientations toward issues such as the environment, political participation, and even the arts have long been explained as varying due to socio-economic status. This is also true in the area of natural resource management, where management goals and strategies may change in tune with social change, and where economic development may, once key markers have been reached, place material objectives in a less preferable position. It is assumed that this should also hold for the attitudes and values of those owning and managing small-scale forests in Cape Breton. Using data from a 2005 survey, this article tests the post-materialism thesis of cultural change by assessing the causal relationships between socio-economic factors, and in particular increased economic prosperity and the values and activities of non-industrial woodlot owners. Specifically, using ordered logistic and Poisson regression analyses, we test the assertion that an increasingly affluent and therefore post-material population of owners should demonstrate (1) more post-material values such as conservation; and (2) activities that reflect these values, particularly in terms of reforestation. We find that for the population surveyed, the post-materialism thesis does not hold – neither values nor actions are significantly affected by increased affluence. We must therefore seek alternative explanations for both value and activity change.

Cellulosic ethanol and land management policies and goals

Halvorsen, Kathleen E
Social Sciences/Forest Resources & Environ Science
Michigan Technological University
Houghton MI USA 49931

Barry D Solomon
Social Sciences
Michigan Technological University

Justin Barnes
Social Sciences
Michigan Technological University

Email: kehalvor@mtu.edu

Keywords: renewable energy, forest management, climate change

Abstract: Switching to the harvesting of biomass to be used in cellulosic ethanol production will rely on the management and harvesting of those materials on public and private lands. Understanding the role that markets and landowner objectives play in the supply of these materials is therefore critical. We present some underlying background on pulp and timber markets. Our paper also includes discussion of non-industrial private landowner goals regarding forest management and harvesting. We also present the implications of key private and public land management policies for biomass-based ethanol. For instance, the Conservation Reserve Program encourages the replanting of agricultural lands to biomass-valuable plants like switchgrass but generally precludes harvesting it. Public land management policies on state and federal lands set targets for the harvesting of timber that could be converted to ethanol feedstocks. Increasingly, private forest certification programs set strict standards for timber harvesting that could affect feedstock availability. This paper will focus primarily on the upper Midwestern states of Minnesota, Michigan, and Wisconsin, but will draw out some implications for the United States as a whole.

Building community through post-wildfire forest restoration

Hamin, Elisabeth M
Landscape Architecture and Regional Planning
University of Massachusetts
Amherst MA USA 01003

Robert L Ryan
Landscape Architecture and Regional Planning
University of Massachusetts

Email: emhamin@larp.umass.edu

Keywords: qualitative; natural disasters; public participation; fire management; volunteers

Abstract: After a wildfire that affects a community in the urban-wildlands interface, agency personnel often undertake physical restoration efforts for the surrounding forest land. The affected community, however, may also need 'restoration' to move beyond feelings of victimization toward empowerment, and also to undertake measures to prevent another wildfire event. This research investigates the community-U.S. Forest Service agency relations in the post-wildfire period in three fire-affected communities in the United States' West. The three communities, Los Alamos, New Mexico, Durango, Colorado, and Arnold, California, varied in the impact and characteristics of the wildfire, the extent and kind of restoration efforts undertaken by the local Forest Service, and in social conditions such as social capacity within the community. We undertook focus groups with community members in each place as well as key stakeholder interviews to better understand how U.S. Forest Service restoration efforts were received by community members, and how those receptions were influenced by underlying community and fire conditions. Among our findings is that community-based but agency-supported volunteer efforts to restore the most-used natural areas subjected to fire can help to heal not just the forest, but the community. However, social capacity to undertake such efforts is an important consideration in their design. Post-fire restoration also creates an opportunity to build networks for collaboration between community residents and the main agency, but also among agencies and tribes in an area. When handled well, these trying times can actually improve community-agency relations.

Likert resource-attitude scales: Much ado about nothing to a lot

Hammitt, William E
Parks, Recreation and Tourism Management
Clemson University
Clemson SC USA 29634

Gerard T Kyle
Recreation, Parks and Tourism Sciences
Texas A&M University

Email: hammitw@clemson.edu

Keywords: Methodology; measurement scaling; camper attitudes, place bonding; site choice behavior

Abstract: One of the most common methods of collecting public attitudes about resource management is through the use of questionnaires. And, one of the most commonly used response formats for attitude measurement in questionnaire design is the Likert Scale. Response categories and rating formats of 1 = strongly agree to 5 = strongly disagree are referred to as Likert Scales and Scaling, named after the dissertation research of Dr. R. Likert (1932; 1934). However, Babbie (2001:167) states that the interpretation and use of such response categories and scaling as "Likert Scales/Scaling" is technically a misnomer. The purpose of our presentation is to argue that social scientists in resource management are guilty of several misnomers and misuses of the Likert Scale. The presentation begins with a brief history of Dr. Rensis Likert and the development of his Scale, followed by the misnomers/uses of (1) pronouncing Likert as Like-ert, rather than Lick-ert; (2) the bastardization of true Likert Scales as Likert-type, Likert-format, Likert-like, etc. scales; (3) the formation of item and dimension means, rather than summated scores or linear composites, and (4) the over-interpretation of scale item and dimension means, when Likert's procedure is not concerned with individual items or dimensions on an underlying attitude continuum scale (McIver & Carmines, 1982:27). While many in the audience will consider our misnomers/uses of Likert's scale to be "much ado about nothing," the analysis of a data set using true Likert procedures versus resource management social scientist procedures will address that concern.

Assessment of evaluative practices in deliberative approaches to public participation on water reuse

Hampton, Greg R
Academic Services Division
University of Wollongong
Wollongong New South Australia 2522

Email: gregh@uow.edu.au

Keywords: Participation; consultation; water reuse;

Abstract: The field of participatory planning and policy analysis suggests the need for discursive and deliberative methods of public involvement. Such methods provide participants with opportunities for in-depth discussion of issues of concern and rely less on traditional methods of attitude and preference assessment such as questionnaires and surveys. The use of deliberative methods provides the public participation practitioner and researcher with the task of analysing group discussion and distilling public preferences from this discourse. Work in discursive social psychology demonstrates that attitudes, or what are referred to as evaluative practices, are inextricably a part of the rhetorical context in which they are expressed. Understanding participants' views and concerns, on a matter on which consultation is being sought, requires careful consideration of the interactive context in which participants express such views. Within the Oz-AQUAREC project on water reuse, being conducted on the east coast of Australia, we have developed a method of assessing evaluative practices expressed within a deliberative workshop format, which can be used in public participation programs on reuse. This method was used to assess how participants evaluated the benefits, technological aspects and health risks of wastewater treatment and reuse. Details will be provided on the method of analysing the workshop discourse and how it is of use in public participation programs. The method has the benefits of retaining the context of participants' views in the analysis and presentation of the outcomes of participation programs on water reuse.

Integrating ecological objectives into regional land use planning: The 'Oak Ridges Moraine Conservation Plan'

Hanna, Kevin S
Geography and Environmental Studies
Wilfrid Laurier University
Waterloo ON Canada N2L 3C5

Steven M Webber
School of Urban and Regional Planning
Ryerson University

Scott Slocombe
Geography and Environmental Studies
Wilfrid Laurier University

Email: khanna@wlu.ca

Keywords: urban ecology; planning policy; conflict; urban rural interface

Abstract: Toronto is among the fastest growing urban regions in North America and efforts to preserve remnant habitat have had variable success. In the 1990s significant conflict emerged over proposals to build large housing developments on the Oak Ridges Moraine; a 160 km stretch of environmentally sensitive land along Toronto's northern edge. In response, Ontario's provincial government created the Oak Ridges Moraine Conservation Plan which represents a dramatic change in the Ontario's approach to regional planning, growth management and potentially to the province's overall planning system. The Plan represents an effort to use ecological principles to define land use and guide development decisions.

This research examines the development and implementation of the Conservation Plan as an example of using ecology to inform planning policy in a complex urban setting. Data from interviews, planning documents and geospatial analyses are used to construct a discussion of the Plan and its implementation. The Plan's evolution and implementation require analysis and monitoring to better understand how such approaches can best be put into practice. The Plan's implementation stage has emerged to be among the most important phases in its development. In the long term, addressing issues such as boundary definitions, consistency in application, and the need for effective monitoring may ultimately determine efficacy.

A conceptual model for analyzing meanings of landscape

Hansen-Møller, Jette
Urban and Landscape studies
The Royal Veterinarian and Agricultural University
Frederiksberg C Denmark 1953

Email: jhm@kvl.dk

Keywords: Charles Peirce; individual, social and cultural interpretations

Abstract: To improve weighing and conflict management in countryside planning knowledge of the stakeholders Meanings of Landscape seems necessary. By Meaning of Landscape we refer to the self-evident imaginations of a person or a group of persons about their surroundings and all the possible ways in which they can be perceived, utilized and conceptualized. Such meanings are rarely questioned as they are almost impossible to express. Nevertheless, they show themselves in all the practical as well as intellectual relations of a person to his or her surroundings, and as such they can be studied. Generally Meanings of Landscape are fairly stable, but when confronted with people carrying another meaning or, when situated in an unfamiliar physical setting, a subject may be provoked to reflect on the solidity of his own.

This paper presents a conceptual model for investigating Meanings of Landscape. The overall structure of the topological framework is inspired by semiotics and the concepts are refined by definitions from phenomenology and sociology. In the model Landscape is presented neither as a thing nor an object, rather as three types of modalities of relations between Man and Nature: Possibility, Actuality and Habit. As such Landscape is conceptualized as a Habitat, an Area or a Symbol respectively.

The use of the model will be demonstrated using quotes from qualitative interviews with Danish visitors to urban forests.

Land preservation in Maryland: an evaluation of a historical model

Harmony Miller, A
Landscape Architecture
North Carolina State University
Raleigh USA 27607

Email: hamiller@ncsu.edu

Keywords: conservation; land use

Abstract: As land surrounding the urban fringe is ever more rapidly being converted into other uses across the United States, there is a growing concern over how best to temper this loss and preserve critical farmland and unique natural environments. The state of Maryland has been touted nationally as a model of land preservation due to a long history of initiatives resulting from development pressure from expanding metropolitan areas and the sustainability of the state's unique identity, the Chesapeake Bay. Maryland's land preservation efforts center around preservation of farmland, open space and natural areas through the incorporation of a variety of programs from local, county, state and federal levels, private and public divisions. This paper investigates the efficacy of these programs using Harford County—an area experiencing unprecedented growth, creating extreme development pressure on its agricultural lands—as a case study. This was accomplished through archival research and interviews with residents and local government officials. In particular, this critical evaluation recognized the numerous accomplishments of Maryland's program in addition to areas of opportunity for a more successful program with more marked impacts. It is concluded that failure to account for the external effects generated from urban development will lead to inefficient preservation strategies based on fiscal incentives and misspecified preservation goals.

Stakeholder involvement in participatory computer based planning in St. Albans, Vermont

Harp, Hilary
Rubenstein School of the Environment and Natural R
University of Vermont
Burlington VT USA 05405-0088

Clare Ginger
Rubenstein School of the Environment and Natural R
University of Vermont

Email: hharp@uvm.edu

Keywords: watershed planning, conflict and collaboration, participatory modeling

Abstract: Natural resource managers face a set of complex challenges to address non-point source water pollution. In Vermont, these challenges include scientific uncertainty and stakeholder conflicts in the context of defining the causes and potential solutions to high levels of phosphorus in Lake Champlain. Researchers at the University of Vermont have proposed a computer modeling approach that incorporates stakeholders and scientists to generate local solutions to the problem. The computer model provides opportunities for participants in watershed planning processes to examine the sources of water pollution, and explore future policy and management options. This paper considers the question: How does participatory computer modeling help stakeholders address conflict and promote collaboration in watershed planning for the St. Albans Bay watershed?

This in-depth case study of watershed planning focuses on a participatory computer modeling project. Data were gathered from three sources: participant-observation of computer modeling, interviews with participants, and documents generated through the modeling process. The data are analyzed to assess dimensions of conflict as they relate to varying problem definitions and scientific uncertainty, and how participatory computer modeling aids in stakeholder collaboration. Initial results indicate that the modeling process provided a perceived neutral atmosphere for discussion of water pollution issues and participants gained a greater understanding of local environmental issues. Overall, this study highlights the importance of considering the dynamics of both social and technical factors in the use of modeling in natural resource planning processes.

Conceptualizing regional approaches to cumulative effects assessment: Project and strategic models

Harriman, Jill A
Geography
University of Saskatchewan
Saskatoon SK Canada S7N5A5

Bram F Noble
Geography
University of Saskatchewan

Email: j.harriman@usask.ca

Keywords: strategic environment assessment cumulative effects regional project impact

Abstract: There is general agreement that cumulative effects assessment (CEA) should go beyond the evaluation of site-specific, direct and indirect impacts. However, adopting a regional approach to CEA requires a different means of approaching the interrelationships between environment and development. In this regard, the notion of “regional” CEA can be perceived from at least two functional perspectives. Environmental impact assessment (EIA)-driven approaches emphasize the extension of EIA methodologies over broader spatial and temporal scales, while strategic environmental assessment (SEA)-driven approaches emphasize the CEA of initiatives, plans, and opportunities by adopting a more goal-oriented and objectives-led methodological approach.

The problem is that in Canada, CEA is neither explicitly objectives-oriented nor is it designed to sit within a broader sectoral, regional, or environmental management policy or planning research. In order to address the sources of regional cumulative environmental effects CEA and SEA must be effectively integrated. This research details the development of a methodological framework to do so. The intended benefits of an integrated approach CEA and SEA include a more comprehensive understanding of the potential impacts that might result from operationalizing specified initiatives and, therefore, better informed decisions. Insights and suggestions from Canadian and international practitioners and administrators familiar with both CEA and SEA methodology and case study applications provide the basis for this research. Products of the research include a typology of regional approaches to CEA, and a corresponding characterization of recent case study applications.

Testing a model of deliberative processes in public meetings: Is there a coming to public judgment?

Harris, Chuck
Conservation Social Sciences
University of Idaho
Moscow ID USA 83844-1139

Erin Seekamp
Conservation Social Sciences
University of Idaho

Troy Hall
Conservation Social Sciences
University of Idaho

David Cole
Aldo Leopold Wilderness Research Institute
U.S. Forest Service

Email: charris@uidaho.edu

Keywords: collaboration, public participation, co-management, conflict management, resource management

Abstract: Do deliberative processes enable stakeholders to reach more informed, reasoned judgments through "deeper cognition" and deliberation about resource issues? Studies of collaborative efforts have lacked a rigorous approach to assessing their results, especially in terms of an analysis of participants' information processing when deliberating as a group about an issue. This paper provides one answer to the question: Is there a coming to public judgment? Specifically, it discusses research that tests the application of the heuristic-systemic model of dual information-processing to an analysis of group-level deliberations during public meetings. In spring of 2005, structured public meetings were conducted to assess the values and attitudes of stakeholders concerning management of a heavily used wilderness in the western U.S. A total of 50 stakeholders in four Oregon communities participated in structured, small-group deliberative processes that elicited their perspectives on wilderness management. Preliminary results suggest that, while deliberation can significantly affect public opinion, assessing the larger context in which information is shared and deliberated upon is key for understanding the outcomes of these processes.

Regulation of open-pit gold mining in the state of Nevada (USA): A successful model for resource development in the global community?

Harris, Richard W
Doctoral Student, Department of Political Science
University of Nevada, Reno
Reno NV USA 89557

Email: rharris@gbis.com

Keywords: Gold mining; open pit mining; groundwater pollution; regulation of mining

Abstract: The State of Nevada (USA) is the third largest gold producer in the world. Most of the gold is derived from open pit mines which can reach one mile in diameter and depths of 600 feet or more. These giant operations create issues of dewatering, disposal of waste, mercury emissions, and the potential for long-term pollution when the pits fill with water.

Despite opposition from elements of the mining industry, Nevada adopted a comprehensive regulatory scheme in 1989 for protection of surface and underground water resources and other environmental values. The Nevada Bureau of Mining Regulation and Reclamation, in partnership with the U.S. Bureau of Land Management, implements and enforces these regulations. The "Nevada model" has been seen as highly successful, and Nevada has provided guidance and assistance to the World Health Organization, China, and other Asian and African nations. However, in a recent article published in the New York Times, "Drier, Tainted Nevada May be Legacy of Gold Rush," open pit mining has been criticized for its ultimate adverse impacts on water quality and water availability.

This paper will discuss (1) whether the "Nevada model" will continue to serve as a useful guide for regulation of resource development in other nations, and (2) whether the Nevada model should be modified in response to recent criticisms.

The representation of outdoor recreation in land-use planning in British Columbia

Harshaw, Howard W
Forest Resources Management
University of British Columbia
Vancouver BC Canada V6T 1Z4

Email: harshaw@interchange.ubc.ca

Keywords: perceived representation; public participation; recreation specialization; social capital

Abstract: The cases of recreation in the Sea-to-Sky Corridor and Peace Foothills in British Columbia are used to explore the issues of the representation of recreation in land-use planning and the participation of recreationists in land-use planning. The widening array of recreation activities in high-use areas poses new challenges to the equitable participation of diverse recreation user groups in land-use planning. How well have past land-use planning exercises represented the needs of recreationists? How well represented do participants of newer recreation activities feel? Moreover, who should represent these diverse groups? In an attempt to explore these questions and to build a theoretical framework for understanding key relationships, recreationists' perceptions of representation in land-use planning and their participation in land-use planning were measured. Relationships between recreation use and socio-economic characteristics and recreationists' participation and perceptions of representation in land-use planning were examined. Moderate levels of perceived representation were found for most recreation groups, although some users seemed unclear about how well they were represented. In sum, some socio-economic characteristics (household income, age, and education) were associated with a person's participation in land-use planning; this influence extended to perceived representation through aspects of social capital, as membership in a recreation club and degree of recreation specialization were associated with perceived representation. The localness of recreationists played a role in their participation in land-use planning and was also associated with perceived representation. Recreation characteristics, including components of recreation specialization and club membership, had an influence on recreationists' likelihood of participation in land-use planning. Logistic regression models suggested that recreation specialization and household income contributed to respondents' perceptions of representation in land-use planning; age, recreation specialization, the number of recreation activities participated in, club membership, and local residence contributed to respondents' likelihood of having been a

participant of a land-use planning process. The results of this study support four land-use planning strategies that may assist planners in increasing actual and perceived representation of recreationists.

Fishing communities responding to change: Communication network analysis of innovative strategic partnerships in New England

Hartley, Troy W
Resource Economics and Development
University of New Hampshire
Durham NH USA 03824

Michele L Gagne
Resource Economics and Development
University of New Hampshire

Email: troy.hartley@unh.edu

Keywords: coastal communities; socioeconomic change;

Abstract: Fishing communities throughout the United States, Canada and globally are undergoing significant change – economic, social, environmental, and cultural transitions. These changes are due in part to alterations in the natural resource base, local economic development, land use and gentrification, and other inter-related social, economic and ecological factors. Nonetheless, many fishing communities are finding innovative ways to survive and even thrive in the face of these mounting changes, including communities in New England that face increasing restrictions to their fishing industry and traditions. Two analytical frameworks – collaborative process and communication network analysis – were applied to three case studies: 1) the Cape Cod Commercial Hook Fishermen's Association (CCCHFA) and its partnership with Pew Charitable Trust and other environmental funders to address needs of commercial hook and line fishermen; 2) Massachusetts Fishing Partnership Health Plan, which is a strategic partnership between an industry association, Massachusetts Fishermen's Partnership, and the Tufts Health Plan to supply health benefits to fishing families; and 3) York, Maine lobstermen associations, which partnered with the York Land Trust to protect waterfront access, working waterfront property, and cultural heritage. The collaborative process framework employs a case study research design to examine the origins, goals, structures, challenges, and lessons learned of collaborative strategies. The communication network analysis maps actors (people, groups, organizations) and the linkages (flow of resources – e.g., information, funds, influence, etc.) between actors. Specific quantitative measurement instruments and analytical methods have been developed to characterize the individual actors, linkages, and the overall network (e.g., number and range of connections, role people and organizations play, stability of links, frequency and reciprocity of information and resource flow, strength of the links). Document content analysis, interviews, and

card sorting exercises were undertaken with leaders and participants in the three cases. Strategic partnerships with stakeholders outside of the customary communication network (i.e., reaching out to uncommon partners) are central to these innovative collaborative responses. Future research questions and ramifications for coastal community leaders are discussed.

State of agricultural resource management in Japan

Hashimoto, Shizuka
Department of Urban Studies and Planning
Massachusetts Institute of Technology
Cambridge MA USA 02139

Email: zennist@mit.edu

Keywords: rural resource, participatory management, multifunctionality of agriculture

Abstract: Recently in Japan, people have been showing a high interest in rural areas because of the multifunctionality of agricultural land for conservation and landscaping as well as food production. Rural resources, particularly agricultural resources, have long been managed through the community-based activities of both farmers and non-farmers. Those collective managerial efforts have been declining with the decrease in rural population, the advance of mixed habitation and the aging of farmers. The sustainability of rural resource management is at stake in Japan. This paper will explore, through statistical analysis, how agricultural resources are managed through community-based activities, what kind of agents, other than the rural community, play a significant role in those activities, and how the change in social structure affect those activities, in comprehensive manner. Based on the analysis, the following conclusions are reached. The aging and depopulation trend of rural areas largely exceeds those of the national average, especially in hilly and mountainous regions. On the other hand, since 1960's, in flatland and urban areas, though those areas often have large population, the ratio of agricultural population has decreased dramatically, as well as ongoing farming retirement. Although the mechanisms and the characteristics of social change are different in each area, the changes are triggering a decline in farming and collective activities, which in turn, is likely to degrade rural resources.

Economic priorities for marine resource managers

Haynie, Alan C
Alaska Fisheries Science Center
NOAA Fisheries
Seattle WA USA 98115

Email: Alan.Haynie@noaa.gov

Keywords: Fisheries economics; resource economics; bioeconomics; economic management

Abstract: Everyone involved in fisheries management appreciates that successful fisheries, and sustainability in general, involve effective economic and biological management, but there is often a disconnect between rhetoric and reality. Fisheries remain highly subsidized and the race for fish continues unabated in many fisheries. This paper offers concentrated economic advice to marine resource managers related to key management topics, including marine protected areas, transferable quotas, and choices of fisheries regulation.

Fisheries managers and biologists regularly make statements showing that they appreciate the need to integrate economics into fisheries management. However, economists attending marine policy meetings often report hearing misstatements of fundamental economic concepts. These misstatements are sometimes the result of different ways of talking about problems, but at times they result from the examination of resource allocation problems without proper attention to all of the costs of regulation. In this paper, we attempt to spell out economic priorities for marine resource managers – and remedy common points of confusion.

This paper presents the author's opinions as well as results from expert discussion and a survey of NOAA Fisheries/National Marine Fisheries Service economists. The economic priorities described in this paper have also been presented to marine biologists and other non-economist marine resource managers, and their feedback is incorporated in this paper. Areas of collaboration for marine resource economists and biologists are also considered. Survey results are presented which illustrate both economists' core priorities and a wide range of secondary economic tools for fisheries management.

**Parks, protected areas and the Irish visitor
centre conundrum: Analysis of visitor
management strategies from the west of
Ireland**

Healy, Noel P
Department of Geography
National University of Ireland, Galway
Galway Ireland

Email: nhealy@gmail.com

Keywords: Tourism planning; tourism impacts;
environmental interpretation; facilities; fragile
landscapes

Abstract: Considerable debate exists over whether nature-based tourism can be sustainable and what management regimes can be employed to minimise the negative impacts associated with anthropogenic influences on natural ecosystems. Maintaining the balance between attracting tourists to threatened environments while simultaneously conserving, protecting and implementing sustainable tourism practices has proved difficult.

Ireland's international appeal as a tourism destination is based around the quality of its environment. Its scenic unpolluted landscapes, uncrowded clean and green environment are promoted as a prime attraction for visitors. However, the threat of negative ecological impacts from rapidly increasing levels of visitation and visitor infrastructure now endanger Ireland's fragile environment. Quite beauty spots have become 'honeypots' with many sites being spoilt, altered or irreversible damaged.

In response to increasing visitor numbers, Ireland's national parks and protected areas have seen a growing number of visitor centre developments and upgrading of facilities. These recent management strategies have led to an unprecedented level of controversy at local, national and indeed international level, causing some of the longest drawn out acrimonious environmental debates in Ireland's history.

This paper explores two of the more infamous visitor centre controversies; the Burren National Park and the Cliffs of Moher (protected area) located in the west of Ireland. This study also critically assesses of the role played by visitor centres in the management, conservation, utilisation and exploitation of the landscape and attempts to explore whether a balance between development and conservation is achievable or indeed desired. The paper highlights how the Irish visitor centre controversies are a microcosm of a wide

range of issues that are confronting more extensive and developed protected areas worldwide; namely debates surrounding visitor needs, visitor experience, park designation and park management.

Mobilizing knowledge for co-management: lessons from the international development community in the technique of participatory rural appraisal

Heaslip, Robyn L
School of Resource and Environmental Management
Simon Fraser University
Vancouver BC Canada

Email: rhaslip@sfu.ca

Keywords: knowledge mobilization; self-management systems; participatory research; collaborative management

Abstract: Recent Canadian legal cases have dictated a greater role for First Nations in the management of land and resources within their traditional territories. As a result, government agencies have developed new policies and programs to support First Nations participation in resource management. The Department of Fisheries and Oceans Canada (DFO) has developed the Aboriginal Aquatic Resources and Oceans Management (AAROM) program to provide opportunities for First Nations and the DFO to co-manage resources. However, one of the major problems in implementing co-management processes lies in effectively assessing and mobilizing existing community knowledge. Research in institutional economics and co-management theory has demonstrated the importance of understanding the elements of any existing informal self-management systems prior to engaging in further collaborative institution-building. Since the 1970s, non-governmental organizations and governments working in international development have been developing and using the techniques of Participatory Rural Appraisal (PRA) to learn about local community-based systems. These approaches have led to more effective and sustainable development projects and capacity-building. This paper reviews the literature and case studies on Participatory Rural Appraisal (PRA) and co-management to determine what similarities exist between the international development and co-management contexts, and to explore the potential that the methodology of PRA might have to offer those who wish to implement co-management by first understanding the existing elements of knowledge and organization within a community.

Challenge and necessity for the European adhesion: Border National Parks

Hennig, Sabine
Institut of Geography
Friedrich-Alexander University Erlangen Nürnberg
Erlangen Germany 91054

Email: shennig@geographie.uni-erlangen.de

Keywords: national parks, europe, management, regional planning

Abstract: In the last decades political, economic and social changes took place in Europe: e.g. the enlargement of the European Union, the increase of the European political and economical unity by different treaties (Schengen Treaty, Monetary Union etc.). Different activities contribute to politicking in the nature conservation field (e.g. FFH-Guidelines, Natura 2000). Europe is furthermore the place where the greatest number of national parks has been established. A significant number of these protected areas are located in frontier situations. Frequently there is no cooperation between the involved countries. This problem is the consequence of the (border) policies, the frequently unequal economic activities and situations, diverse administrative management systems of the protected area as well as different languages, missing infrastructure and initiatives etc. But also in Europe border or bi-national protected areas can be part of a frontiers consolidation strategy and of geopolitical importance (e.g. Green Belt Europe). New and more effective methods not only of nature conservation must therefore been sought: Examples are bi-national accords, management policies, compatible uses and developing joint management programs as well as common environmental education and recreational activities. So far traditions in this field are poorly established, but are promising. An example is the increasing use of the concept International Parks.

A research on the situation of European border national parks is done exemplary for the German Berchtesgaden National Park next to Austria. Within the investigation a survey was send to 40 European national parks. The results, covering the existence and effectiveness of cross-border co-operations (level and type), management initiatives, regional and local programs as well as infrastructure (e.g. trans-border crossing), are used to evaluate the situation on-site. In succession they can support the conception of co-operations in the bi-national national park region.

Scientific knowledge and environmental action: United States and Canada 2000

Hennings, Ruth E
Department of Sociology (undergraduate student)
Western Washington University
Bellingham WA USA 98225

Racheal Ward
Department of Sociology (undergraduate student)
Western Washington University

Email: henninr@cc.wvu.edu

Keywords: country comparison; awareness index

Abstract: A lack of knowledge of environmental and sustainability issues is a critical road block on the path to alleviate the environmental problems that require the public's support. Our research explores differences in environmental knowledge between the United States and Canada. Smith (1996) uses a knowledge scale for international data from the International Social Survey Program (ISSP) 1993. In 2000, the ISSP ran a second international environmental survey. The findings from both studies show that Canada's knowledge is much higher than the United States' knowledge in multiple areas.

The U.S. and Canada share a border, but differ on environmental knowledge. We identify reasons for the U.S.'s low scores, as well as possible causes of the Canadians' higher scores on environmental information; through programs, education, or the media.

Our initial research shows limited changes in knowledge from 1993. We also find that the U.S. is more distrustful of sources of environmental information and they are more prone to believe environmental issues are exaggerated. This research examines the idea that those who are more distrustful and less knowledgeable scientifically are less likely to take personal actions to protect and conserve the environment.

Watershed stewardship institutions and the triple bottom line: The need for a research agenda

Hibbard, Michael
Institute for Policy Research & Innovation
5293 University of Oregon
Eugene OR USA 97403

Susan Lurie
Institute for Policy Research & Innovation
University of Oregon

Aaron DORITY
Institute for Policy Research & Innovation
University of Oregon

Email: mhibbard@uoregon.edu

Keywords: civic environmentalism; conservation-based development; environmental management; sustainability

Abstract: One of the most difficult challenges facing rural communities is the transition from industrialized agriculture and natural resource extraction to post-productivist approaches, from commodity production to sustainability. This has led to a values dispute between those who believe the continued socio-economic health of rural communities depends on commodity production and those who prioritize the needs of natural systems. The emerging conservation-based natural resource management (CBNRM) approach purports to offer a way out of that conflict, declaring that ecological integrity, economic opportunity, and community are inextricably linked in the long run.

The implementation of CBNRM has led to new watershed stewardship institutions at the local level. Institutions are the rules, procedures, and organizational structures that enable and constrain action. They can be formally organized, legally sanctioned associations or informal systems of social rules that structure interactions. Watershed stewardship institutions take both forms. They are associations of organizations focused on watershed and/or community socio-economic health, including local, state, and federal agencies, private firms and landowners, non-governmental organizations such as environmental and economic development groups, and watershed councils.

As watershed stewardship institutions become widespread it is essential to assess their effectiveness. This paper considers the issues involved and puts forward a research agenda for watershed stewardship institutions.

1) There is wide variety in the structure and functioning of watershed stewardship institutions, due to such elements as geography; numbers and types of partners; legal, administrative and financial support structures; and the depth of local civic engagement regarding watershed stewardship issues. We describe approaches to the comparative studies that are badly needed to shed light on the constituent elements of effective watershed stewardship institutions.

2) However there are no metrics or even broadly accepted approaches to assessing the effectiveness of watershed stewardship institutions. A good deal of work has been done on evaluating collaborative processes and some on environmental outcomes, but almost none on the socio-economic effects of their activities. We discuss how to measure the environmental, economic, and social consequences of the activities of watershed stewardship institutions.

Water conservation and reproductive life history strategy

Hill, Dawn M
Psychology
University of Arizona
Tucson AZ USA 85721

Ilanit Tal
Psychology
University of Arizona

A. J. Figueredo
Psychology
University of Arizona

Martha Frías-Armenta
Facultad de Psicología y Departamento de Derecho
Universidad de Sonora

Victor Corral-Verdugo
Facultad de Psicología y Departamento de Derecho
Universidad de Sonora

Email: dawnh@u.arizona.edu

Keywords: Environment; pro-environmental; PEB; evolution

Abstract: Most models explaining conservation behavior claim that varying levels of certain personal variables, experiences, attitudes and beliefs predict the level of conservation behavior and individual practices. Whereas conservation psychology has done little to understand the motivations that may explain tendencies to conserve or destroy the environment, evolutionary psychology has begun formulating and testing theories which might help us understand why some people are more receptive than others to conservation efforts, and what forces may overrule these tendencies. Instead of the traditional scales used to predict conservation behavior, we used a scale measuring Life History Strategy (the "K-Factor"), made up of the following variables: parental investment as a child from both mother and father, parental investment in their own children, family social support, friends' social support, general altruism, and long term planning propensity. We propose that there may be an interaction between the K-factor (and other water conservation predictors) and the drive for social status. We correlated individual water usage from 186 homes in a water-scarce Mexican city with individual life history strategy. Personal water use was positively correlated to the K-Factor, supporting one of two alternative hypotheses proposed. Implications for water policy and suggestions for future studies are discussed.

**Balancing beachfront vehicular access with
endangered species protection: A case study at
Fort Fisher State Recreation Area, North
Carolina, USA**

Hill, Jeffery M
Environmental Studies
University of North Carolina Wilmington
Wilmington NC USA 28403-5949

James Herstine
Health and Applied Human Sciences
University of North Carolina Wilmington

Robert Buerger
Environmental Studies
University of North Carolina Wilmington

David Webster
Biology and Marine Biology
University of North Carolina Wilmington

Chris Dumas
Economics and Finance
University of North Carolina Wilmington

Email: hillj@uncw.edu

Keywords: coastal management; coastal resource impacts;
human dimensions

Abstract: Fort Fisher State Recreation Area (FFSRA) is located along the Atlantic Ocean in southeastern North Carolina. FFSRA contains approximately 7 miles of oceanfront beach, 4 miles of which are open to public access using four-wheel-drive vehicles. FFSRA also provides critical habitat for the endangered and threatened loggerhead sea turtle and the piping plover, as well as many other species of concern. Beachfront vehicular access has therefore been a controversy at FFSRA for many years.

In 2004, the North Carolina Department of Environment and Natural Resources (NCDENR) adopted a policy requiring that FFSRA be closed to vehicular access from March 15 to September 15 of each year. Prior to this, FFSRA was the only state park in North Carolina that was open 24-hours year-round. Concerns were immediately raised by a vocal population of local fishermen and residents who demanded vehicular access to the site at all times. However, other users and park staff believed that protection of federal/state listed species from vehicular impacts on the oceanfront required a schedule typical of other North Carolina state properties. To resolve this conflict, the North Carolina State Legislature passed a bill to fund a

study of beachfront vehicular use at FFSRA. The study comprised three components: 1) determine the demand for oceanfront vehicular access; 2) determine the biological impacts (particularly upon sea turtle and colonial water bird nesting activity) from vehicles using the beachfront; and, 3) determine the economic impacts of access restrictions at FFSRA.

Several findings were indicated in this study: 1) beachfront vehicular access, particularly at night, poses a significant threat to rare species at FFSRA year-round; 2) the threat is most significant in spring and summer months when the greatest number of species are nesting; 3) nighttime beachfront use represents a relatively small percentage of overall vehicular use; and, 4) restricting nighttime beachfront driving only during spring and summer months is projected to have a very minor economic impact.

Given these findings, the NCDENR concluded that although completely prohibiting beach driving within FFSRA would provide more protection to rare species, the economic impacts would be out of proportion to the additional natural resource benefits. Therefore, the current management policy of restricting nighttime driving on the ocean beachfront from March 15 to September 15 has been sustained.

Kimberley (western Australia) appropriate economies roundtable: A community discourse-based approach to sustainability through indigenous and non-indigenous partnerships

Hill, Rosemary
Northern Australia Program/Tropical Environment St
Australian Conservation Foundation/James Cook Univ
Cairns Queensland Australia 4870

Marian Mann
Environs Kimberley

Email: r.hill@acfonline.org.au

Keywords: Indigenous, sustainability, economies, discourse-based approach, protected areas

Abstract: In July 2004, the Kimberley Land Council, an Indigenous community organisation, signed a “Letter of Agreement” with two environmental non-government organisations, the Australian Conservation Foundation, and Environs Kimberley, that committed the three parties to work together on sustainability and Indigenous rights in the Kimberley Region of Western Australia. The three organisations consequently hosted a forum during October 2005 in the remote town Fitzroy Crossing, which brought together over 100 Traditional Owners, environmentalists, scientists, philanthropists, business people, pastoralists, artists, international experts and government bureaucrats to focus on “ecologically, culturally, socially and economically sustainable development founded in the vision and values of the peoples of the region.” A detailed set of sustainability criteria and recommended action plans emerged from the meeting.

The Roundtable initiative attempted to overcome perceived limitations in government-driven planning, and a history of land-use conflicts over proposed dams, irrigated agriculture and genetically-modified crops, including a current proposal to pipe water 3000 km south to overcome shortages in the State capital, Perth. When analysed in relation to current theory of discourse-based approaches to natural resource management, the initiative demonstrates robustness against key attributes including explication of a common purpose, adoption of multiple approaches to communication and an emphasis on mutual learning. The agreement between the Indigenous and non-Indigenous parties establishes a partnership approach that recognises informed consent for protected areas, Indigenous claims to ownership of water and the need for ongoing negotiation. Despite explicit support from

the WA Premier, the Roundtable initiative faces considerable opposition from some government agencies, arising in part from weak principal-agent connections in this vast State. More flexible and adaptive government-mandated processes would provide for greater articulation with the Roundtable initiative, and enhance the potential for sustainable development in the region.

Contributions of low-income workers to forest management and production

Hoare, Lesley M
College of Forest Resources, Social Sciences Depart
University of Washington
Seattle WA USA 98195

Robert G Lee
College of Forest Resources, Social Sciences Depart
University of Washington

Devon G Pena
Department of Anthropology
University of Washington

Email: hoarel@u.washington.edu

Keywords: LEK/TEK; social resources; natural resource management; community forestry

Abstract: Latino migrant workers are an increasing percentage of the low-income manual forest laborers in the Pacific Northwest. They have important ecological knowledge learned through years of experience and can be seen as a primary human resource in forest management. They are greatly involved in the harvesting of floral greens and mushrooms, pre-harvest thinning and tree planting, all of which directly affect the health and productivity of the forest. However, their knowledge is rarely taken into account when management practices are being developed. How do these laborers use social networks to acquire knowledge needed in their work? Can these networks be expanded to provide increased forest health and sustainability through a greater exchange of knowledge? Semi-structured interviews and participant observation with salal (*Gaultheria shallon*) harvesters and community members in a rural town in Western Washington provide data on what practices and knowledge are being applied daily in the forest and how this information is transferred to and among harvesters. This research also looks at the diversity of the stakeholders involved, with emphasis on the harvesters, identifying five languages and three countries of origin outside of the United States. In the words of the workers, it highlights challenges to implementing ecologically sustainable practices and suggests changes for the current management system. This is especially important with the recent shift in focus from timber production to sustainable forestry and ecosystem management. Non-timber forest products provide both ecological diversity and an economic alternative to timber production.

Designing Policies to Protect Environmental Values in the Forest: Lessons from British Columbia's Results-Based Forest Practices Code.

Hoberg, George
University of British Columbia
Vancouver BC Canada

Email: george.hoberg@ubc.ca

Keywords:

Abstract: This paper examines competing approaches to environmental regulation by analyzing government of British Columbia's efforts to introduce a "results-based" forest practices code. Coglianese and Lazer (2003) compare three approaches to regulation: technology-based, performance-based, and management-based. They develop ideas about under which circumstances the different approaches would be preferred, based on two variables: the capacity to assess output, and the homogeneity of regulated entities. Both of these variables, but especially the capacity to assess output, are significant challenges to the utilization of performance-based (called "results-based in BC) standards in the domain of forestry. The paper examines the advantages and disadvantages of a results-based framework in forestry, how far the province has gone towards a performance-based system, and what challenges were confronted in policy design and implementation of the new system. It emphasizes that the choice of regulatory approach depends not just on the characteristics of the problem, but the political environment within which standards are developed.

Charting a path toward natural resource stewardship at home and while recreating

Hockett, Karen S
Conservation Management Institute
Virginia Tech
Blacksburg VA USA 24061

Julie A McClafferty
Conservation Management Institute
Virginia Tech

Steve L McMullin
Fisheries and Wildlife Sciences
Virginia Tech

Email: khockett@vt.edu

Keywords: stewardship; behavior; environmental education; ownership; awareness of consequences

Abstract: This research identified primary indicators of natural resource stewardship behaviors through a mail survey of the general population of the United States. The goals of this research were to help identify a pathway to stewardship and inform education and outreach message strategies. Fifteen potential stewardship indicators were explored, including demographic variables, environmental concern, awareness of consequences, verbal commitment, ownership, personal responsibility, and the perceived seriousness of depreciative actions while recreating. Three types of stewardship behaviors were considered: Lifestyle behaviors included 7 everyday activities such as recycling and purchasing decisions; Activism behaviors included 7 activities such as writing a letter to a government official, volunteering time, and donating money; Recreational behaviors included 10 activities one could engage in while fishing and boating, such as following fishing regulations and traveling slowly through a low-wake zone. A summary behavior score was calculated for each of the three behavior types. The 15 potential indicators of behavior were considered separately, as well as in multiple stepwise regression models. A sense of ownership in being a natural resource steward and verbal commitment were important predictor variables of both the Lifestyle and Activism behaviors. Awareness of the environmental consequences of human actions was also an important predictor of the Activism behaviors. Perceived seriousness of depreciative actions while recreating was predictive of both the general Lifestyle and Recreation-related behaviors. These findings can be used to help design outreach programs and messages to promote stewardship behaviors in the general public and among outdoor recreationists.

Resource conserving behaviour and the use of natural resources by trekkers in Annapurna

Holden, Andrew
Faculty of Leisure and Tourism
Buckinghamshire Chilterns University College
High Wycombe Buckingham United Kingdom HP13 5BB

Email: andrew.holden@bcuc.ac.uk

Keywords: tourism development; natural resources; attitudes and behaviour

Abstract: This paper considers the use of natural resources by ecotourists in Annapurna in Nepal. The natural resources of peripheral regions often give them a comparative and competitive advantage for tourism. It is also the case that there often exist few other development options beside tourism. Therefore how natural resources are used for tourism is fundamental to sustainable livelihoods and the social-well being of communities. Although technological innovation can contribute to achieving sustainable development many of the negative environmental impacts in tourism are a cause of behaviour and are often cumulative and incremental.

As a principal actor of the use of natural resources it is argued that the attitudes and behavior of tourists towards natural resources will be consequently highly influential in determining their sustainability. The ability of traditional natural resource management methods to control the impact of an activity centered upon the experiencing of natural resources is limited. Subsequently, emphasis is likely to rely upon behavioral controls and the management of tourists to mitigate negative impacts. To enhance this process it is necessary to have a greater understanding of attitudes and behaviour.

The main aim of the research was subsequently to establish a profile of the trekking market based upon environmental attitudes, both those held generally in the trekkers everyday lives, and also in the context of Annapurna. The research was conducted in the two villages of Ghorepani and Tatopani. Over 2000 trekkers were interviewed by questionnaire survey and a selective sample through semi-structured interviews. At the time of writing the abstract the data analysis is still continuing but will be completed for the time of the conference. Consideration will subsequently be given to the results in the context of the system of tourism, including both international dimensions and those specific to Annapurna.

If it's broke then fix it: the tragedy of the commons in the science/policy/public interface

Hollstedt, Chris
Strategic Issues
FORREX
Kamloops BC Canada V2C 3J4

Email: chris.hollstedt@forrex.org

Keywords: Knowledge management, communities of practice, sustainable development, communities science, policy

Abstract: The wise, thoughtful and thorough application of science and indigenous knowledge is thought to be key to achieving sustainable development objectives. Where data and information resides, and how it can be accessed, understood and used to inform policy and practical application are critical questions that must be answered to move towards a knowledge-based and wise society. The forestry sector in British Columbia strives to be science based and a leader in sustainability. This requires the policy, industrial and knowledge sectors, including Aboriginal people, to collaborate in new models for innovative thinking. I will present ideas towards bridging, if not totally rethinking, the innovation system. From policy, research and professional practice silos to communities of practice. Using the FORREX model as a pilot that continues to push people's comfort zones I will demonstrate that we can bridge the data/information to knowledge and wisdom barriers. But not without some honesty, reflection and retooling.

The state of ecosystem management in Canada: A national overview

Holroyd, Peggy
Faculty of Environmental Design
University of Calgary
Calgary AB Canada T2N 1N4

Jenny Coleshill
Faculty of Environmental Design
University of Calgary

David Garrow
Faculty of Environmental Design
University of Calgary

Sheena Johnson
Faculty of Environmental Design
University of Calgary

Sara Jane O'Neill
Faculty of Environmental Design
University of Calgary

Michael Quinn
Faculty of Environmental Design
University of Calgary

Clarisse Thornton
Faculty of Environmental Design
University of Calgary

Shelley Willson
Faculty of Environmental Design
University of Calgary

Email: pmcholro@ucalgary.ca

Keywords: resource management; regional land use planning; protected areas management

Abstract: Ecosystem-based management (EBM) is emerging as the dominant philosophy for resource management around the world. We define EBM as an approach to guiding human activity using collaborative, interdisciplinary, and adaptive methods with the long-term goal of sustaining desired future conditions of ecologically bounded areas that, in turn, support healthy, sustainable communities. Canadian planning and managing agencies have embraced and applied the tenets of EBM to different degrees. We conducted a cross-Canada review of EBM initiatives, projects and approaches to provide a critical analysis of how EBM is being practiced in the Canadian context. The paper provides an overview of ecosystem management as it is practiced across Canadian administrative jurisdictions

and resource sectors. This project builds on our previous work that characterizes EBM in Canada as follows: 1) lacks explicit definitions in most jurisdictions; 2) explicit adoption of EBM terminology in policy and legislation occurs mainly at the federal level (especially in national parks); 3) provinces and territories have a wide disparity in the level of adoption of EBM; 4) the forest industry has been an enthusiastic sector with respect to advancing EBM, especially with respect to the emulation of natural disturbances; 5) development of research related to human dimensions lags far behind ecological dimensions; 6) some notion of an EBM approach is widely accepted between agencies, but the details of meaning differ significantly.

Co-management and nature protection: Experiences from local management in Norway.

Hovik, Sissel
Democracy, Public Administration and Governance
Norwegian Institute for Urban and Regional Research
Oslo Norway 0313 Oslo

Eva I Falleth
Environmental Planning
Norwegian institute for urban and regional research

Inger L Saglie
Environmental Planning
Norwegian institute for urban and regional research

Email: sissel.hovik@nibr.no

Keywords: Natural resource management; Sustainable development; Nature conservation; local management

Abstract: Sustainable natural resource management implies nature resources extraction for the benefit of some local actors without depriving the areas ability to produce collective goods for the benefit of local and external actors, as well as future generations. This multidimensional aspect of nature resources makes them complex management objects, arguably requiring complex institutional solutions. In Norway, we recently witness several examples of experiments on new institutional solutions, combining the responsibilities for conservation and use of nature resources. These experiments originate from different policy sectors (nature conservation or agriculture) and different levels of government (state, regional or local). They are all examples of complex governance arrangements, implying cooperation and co-responsibility across different policy sectors, levels of government and between private and public actors.

Such complex institutional arrangements face severe challenges regarding how to secure system capacity and accountability, both essential sources of legitimacy. The possibility to find win-win solutions, and a policy accepted by all affected is difficult. Co-management schemes do additionally often make it hard to know whom to hold accountable for the policy. We will describe how these challenges are met in different examples of co-management in Norway. How do they try to solve the contradictions between extraction and protection, and private versus common goods? Does it depend on whether the management system is founded in the agriculture sector or the nature conservation sector, and in central or local government?

The Potential Contribution of Integrated Land Management to SFM: Risks and Opportunities

Howlett, Michael
Economics
Simon Fraser University
Burnaby BC Canada V5A1S6

Jeremy Rayner
University of Regina
The Potential Contribution of
Integrated Land Management to SFM: Risks and
Opportunities

Email: george.hoberg@ubc.ca

Keywords:

Abstract: Integrated Landscape Management (ILM) is an example of a new kind of institutional design that is proposed as the solution to complex policy problems: the integrated strategy (IS). In addition to the substantive policy objectives that they pursue, IS designs are also attempting to create or reconstruct a policy domain with coherent policy goals and a consistent set of policy instruments that support each other in the achievement of the goals. The careful specification of goals and instruments is central to the problem of IS design.

This paper examines the main challenge facing ILM as an element in forest policy and, more generally, in land use policy: the fact that ILM does not begin with a clean slate. In fact, most IS designs are conceived as a result of dissatisfaction with the incoherent goals and uncoordinated policy instruments that are the legacies of single industry policy development on multiple-use landscapes. The paper identifies the likely causes and consequences of legacy constraints to successful ILM designs in western Canada and describes a research project that will assess ILM policy developments in Alberta, BC, and Manitoba

The miner and the tourist: Comparing the socio-environmental impact of extractive versus service sector economies in Yunnan, China

Huang, Ganlin
Rubenstein School of Environment and Natural Resou
University of Vermont
Colchester VT USA 05405

Weiqi Zhou
Rubenstein School of Environment and Natural Resou
University of Vermont

Email: ghuang@uvm.edu

Keywords: sustainable development; multiple data sources

Abstract: Tourism, a service sector, is often promoted as a more suitable alternative to extractive economics, such as mining. Yet few studies have compared their environmental impacts and contributions to the regional economy, or examined the spatial interaction between them. We are proposing to fill this gap in the context of Yunnan, southwest China where tourism and mining (coal and gold) have been growing at a rate of 20-30% since 1998 and competing with the landscape and pristine communities. Being as the fourth-poorest province, the habitat for 59.4% protected animals and the home to twenty-five ethnic groups in the country, Yunnan necessitates such an understanding to achieve an economic growth that could conserve the ancient cultures as well as the natural resources.

We used Geographic Information Systems (GIS) and statistic techniques to quantitatively analyze the correlations among the four data sets tourism, mining, economy and environment, and their spatial patterns at the prefecture scale (the administrative unit under province). We found that 1) both mining and tourism have positive spatial relationships with the environment degradation; 2) mining sites and tourism tended to avoid each other geographically but the spatial correlation was not significant at the prefecture level; 3) both the tourism income and the number of mines are strongly correlated to GDP, with the coefficients of 0.566 and 0.859 respectively significant at the level of 0.05 (n=16); and 4) although both having the tendency to aggregate in the areas with higher GDP, tourism dispersed more to the peripheral area than mining.

Creating a road map to collaborative conflict management

Huckabay, James L
Geography and Land Studies
Central Washington University
Ellensburg WA USA 98926-7420

Email: huckabay@cwu.edu

Keywords: managing resource issues; collaboration; solving public-private resource conflicts

Abstract: As human populations grow worldwide, conflicts with agriculture, wildlife and natural and wild areas grow as well. While there are many solutions to such conflicts, the greatest long-term successes may be found in processes involving all stakeholders. This paper suggests steps toward creating such processes.

In the summer of 2005, the White House recognized more than 800 “cooperative conservation” partnerships in the U.S. Most, if not all, of these collaborative groups had some level of public funding or guidance as they worked to manage or resolve the conflicts which brought them together. In response to the need for sustainable solutions to a growing number of conflicts related to human-nature interactions, however, many other collaborative, consensus-driven groups have formed independently—without federal or state support—to manage local disputes over resources.

The Kittitas County Big Game Management Roundtable (BGMR) is one of those independent groups. With nearly 50 active member-stakeholders, it has weathered several growing pains and is successfully resolving conflicts over elk depredation to high quality irrigated farmland in the valley. It is actively dealing with growing concerns over mountain lion-human conflicts. Its successful local action has implications for managing other resource problems.

While there are resources available to assist independent groups, most still have to reinvent many rules for consensus-driven problem solving. Using the BGMR as a case study, this paper identifies common pitfalls, and discusses relationship building, rules of engagement, goal setting and monitoring as steps toward creating a road map for collaborative conflict management.

The gap: Understanding the discrepancy between stated values and reported behaviour

Huddart, Emily
Environmental Management
Federación de Municipalidades de Cartago
Cartago Cartago Costa Rica 7050

Thomas M Beckley
Faculty of Forestry and Environmental Management
University of New Brunswick

Bonita McFarlane
Social Science, Systems and National Systems
Canadian Forest Service

Solange Nadeau
Atlantic Forestry Centre
Canadian Forest Service

Email: emily.h@unb.ca

Keywords: environmental values, beliefs, attitude, pro-environmental behaviour, participation, constraints

Abstract: Despite reportedly high levels of support (values, beliefs, and attitude) for protecting the environment, the bulk of research into pro-environmental behaviour (PEB) shows an incongruous relationship between stated behavioural intentions and actual behaviour. We probed the discrepancy – ‘the Gap’ – between high pro-environmental values, beliefs, and attitude, and moderate PEB in a nationwide survey in Canada (n=1664). To identify possible restrictions, we had respondents identify whether a list of eight PEB-supporting services (Community Environmental Services, CES) were available in their community. Only four CES were available in over eighty percent of communities sampled. We also looked into more personal constraints: support, control, time, money, and knowledge, to more closely examine the reasons that people do not follow through on their intentions. Of these five additional constraints, respondents reported being most restricted by time and knowledge. We contend that increasing the quantity and improving the quality of CES would raise involvement in PEB, and that providing clear, succinct information on environmental behaviour would increase the individual’s sense of personal efficacy in the effort to protect and improve the quality of the environment. Future research endeavours will focus on evaluating the overall impact of an individual’s cumulative PEB – as a result, an activity such as turning off lights to save electricity would receive a lower weight than carpooling.

An approach to the community-based ecotourism management

Hung, Chia-Yu
Urban Affairs and Environmental Planning
Chinese Culture University
Taipei Taiwan Taiwan 111

Email: jane2020@ms64.hinet.net

Keywords: Ecotourism; Sustainable development; community-based ecotourism; Attitude

Abstract: This study explores the feasible development of ecotourism site from the attitude and cognition and experience of visitors and residents. The JinGuaShi Community is the empirical study site. To use the structural questionnaire surveys the residents' and visitors' attitude and cognition and experience when they participate in ecotourism in the JinGuaShi Community. The results show that the development of ecotourism site in the JinGuaShi Community is feasible, and the study proposes to the management strategies of the sustainable development.

Using economic models of recreational behaviour to define rules in agent based models: A case of recreational fishing in northern Ontario, Canada

Hunt, Len M
Centre for Northern Forest Ecosystem Research
Ontario Ministry of Natural Resources
Thunder Bay ON Canada P7B 5E1

Rob Kushneriuk
Centre for Northern Forest Ecosystem Research
Ontario Ministry of Natural Resources

Nigel Lester
Aquatic Research and Development Section
Ontario Ministry of Natural Resources

Email: len.hunt@mnr.gov.on.ca

Keywords: fisheries management; random utility model;

Abstract: Researchers and resource managers are increasingly relying upon agent based models of human behaviour. Individuals use these models to forecast expected human behaviours that arise from changes to resources or the management of resources. Expert opinion typically is used to determine the behavioural rules for the agents. Researchers calibrate these rules by comparing predictions with empirical data.

Few studies, however, have focused on using recreational choice models to determine the behavioural rules. These choice models estimate the importance of various attributes to individuals when making choices among alternatives (e.g., the importance of travel distance to anglers when choosing fishing sites). Since choice models are consistent with economic theories of decision-making, one can use these models to estimate how different scenarios may affect choices of alternatives and the economic value of the behaviour.

We illustrate an agent based model that was developed to forecast changes in recreational fishing activity in northern Ontario. Our application combines two models that predict the decision to participate in recreational fishing along with models that predict recreational fishing site choice and expected catch rate for a popular game fish. The presentation describes the strengths and weaknesses of this choice modelling approach. There is also discussion of our next steps to refine the behavioural rules of anglers and to introduce agents for the fish.

Outdoor recreation: Motivation, attitudes and strategies influencing responsible behaviour towards nature and landscape

Hunziker, Marcel
Landscape and Society
Swiss Federal Institute of Forest, Snow and Landsc
Birmensdorf Switzerland 8903

Christina Zeidenitz
Landscape and Society
Swiss Federal Institute of Forest, Snow and Landsc

Email: hunziker@wsl.ch

Keywords: leisure, outdoor, recreation, nature, landscape, conflict, survey, experiment

Abstract: Outdoor-recreation activities can have negative effects on nature. Thus, the central aims of this project were: (1) to identify the motives for outdoor activities and the central factors that encourage responsible behaviour towards nature; (2) to evaluate behaviour changing strategies, fostering responsible behaviour towards nature.

A combination of several research methods was used. First, motivations for outdoor activities were explored by means of qualitative interviews and content analyses. Based on its results and on the "theory of planned behaviour" (Ajzen & Madden, 1986), a theoretical model was developed, which explains nature-responsible behaviour by driving factors. A representative postal survey was conducted in Switzerland to test this model. In a last step intervention experiments were undertaken in order to evaluate behaviour-changing strategies.

The results showed for example that 'closeness to nature' is one of the most important motives for outdoor activities whereas risk experience does not receive any higher significance as it is often assumed. The applied theoretical model could be corroborated empirically: it was shown that nature-responsible behaviour is not only influenced by "Ajzen-factors" such as subjective norms or perceived behaviour control but also by, e.g., landscape preferences. Concerning interventions, prompts seem to have an effect on attitude, but only a small one on behaviour. In contrast, the offer of infrastructure has a significant effect on behaviour but none on attitude. Possible applications of these findings will be discussed at the conference.

Social capital and leadership: Rural cooperation in central and eastern Europe

Hurrelmann, Annette
Resource Economics, Institute for Agricultural Eco
Humboldt University of Berlin
Berlin Germany 10099

Email: AHurrelmann@aol.com

Keywords: social capital, cooperation, leadership, Central and Eastern Europe, rural areas

Abstract: There is controversy about the potential for collective action in Central and Eastern European Countries (CEECs). Many authors argue that the level of social capital is low in CEECs, whereas others underline that, while trust in authorities and the state may be low, interpersonal networks are very strong. This paper explores the issue on the basis of seven case studies conducted in the project IDARI ("Integrated Development of Agriculture and Rural Institutions in Central and Eastern European Countries"). They study rural cooperation projects - such as the establishment of national parks, rural tourism initiatives and production cooperatives - in six countries. It was asked: what is the basis for successful cooperation and what are the reasons why cooperation fails or is never initialized? The conclusion is that there is, indeed, potential for cooperation in rural areas of CEECs because personal trust is high. However, what is often needed for concrete projects to be initialized and sustained is the leadership of locally respected actors. These can sometimes also establish a link to local and national authorities, overcoming the gap in trust. This finding is interesting because the literature on social capital usually does not explicitly state the need for a "mediating instance" but expects cooperation to happen "automatically" where enough social capital is present. A policy conclusion is that better financial support (by the state or NGOs) for prospective leaders in rural cooperation projects in CEECs could increase the number of successful initiatives.

Understanding human dimensions of hydrologic systems as a scientific project

Jackson-Smith, Douglas B
Sociology, Social Work and Anthropology
Utah State University
Logan UT USA 84322-0730

Email: douglasj@hass.usu.edu

Keywords: Human Dimensions; Water; Social Science; Interdisciplinary Research

Abstract: Traditional approaches to the modeling of hydrologic systems (particularly water quality and nutrient flows) have focused on understanding the basic dynamics of natural systems, unaltered by human activities. However, most natural systems have been significantly affected by human behavior. Indeed, it is difficult to find pristine areas where the movement of water can be understood without incorporating information about human manipulation of water. This is particularly true in the arid Intermountain West, where complex irrigation and culinary water diversions combine with urbanization to create new hydrologic dynamics that affect local climate, water availability and quality, and groundwater recharge patterns. This paper argues that the advance of biophysical modeling efforts will require integration of information about human dimensions that requires social science expertise at several levels. First, they can document and interpret trends in human behavior that affect the natural systems. Second, social scientists can contribute directly to interdisciplinary teams in the design of scientific experiments. Such integrated research designs will enable the distinctive contribution of human activities (and the impacts of changes in human impacts over time) on processes to be isolated and predicted with greater scientific precision. Benefits of bringing 'humans' into the modeling work include better science, more accurate models, and an improved ability of natural scientific research to be relevant and contribute to societal policy debates. Examples from several ongoing interdisciplinary research projects will be used to illustrate the diversity of ways that social science can contribute to the understanding and resolution of natural resource problems.

Ecology and sociology of parks: An integrated study at Acadia National Park

Jacobi, Charles
Acadia National Park
US Park Service
Bar Harbor ME USA

Daniel N Laven
Rubenstein School of Env. & Natural Resources
University of Vermont

Robert E Manning
Rubenstein School of Env. & Natural Resources
University of Vermont

William A Valliere
Rubenstein School of Env. & Natural Resources
University of Vermont

Jeffrey L Marion
Department of Forestry
Virginia Tech

Steven R Lawson
Department of Forestry
Virginia Tech

Email: Charlie_Jacobi@nps.gov

Keywords: Carrying Capacity, Ecological Impacts, Social Impacts, Integration

Abstract: Research on parks and outdoor recreation is conventionally divided into resource and experiential concerns, and this research relies on the natural and social sciences, respectively. An important manifestation of this approach is research on carrying capacity which traditionally recognizes and addresses "resource" and "social" components of this concept. However, there can be important relationships between these components that remain unaddressed in this conventional, disciplinary approach. For example, traditional "ecological" impacts of recreation may include soil compaction and erosion, destruction of ground cover vegetation, water pollution, and disturbance of wildlife, while traditional "social" impacts of recreation may include crowding and conflicting uses. However, the impacts of recreation as identified through ecological research may diminish the quality of the visitor experience through aesthetic degradation. Moreover, social science may offer insights into appropriate thresholds or standards of ecological impacts by identifying the points at which such impacts become noticeable and objectionable by park visitors and other stakeholders. To explore these relationships more

empirically, an integrated study of Isle au Haut was conducted using both ecological and social science approaches. Isle au Haut is a small, remote island unit of Acadia National Park located approximately seven miles off the Maine coast. Ecological monitoring and assessment of the Island's trail system found several recreation-related impacts, including trail widening and erosion and visitor-created (social) trails. These impacts were found to increase with increasing use levels. A companion survey of park visitors found that many respondents noticed trail impacts and reported that these impacts diminished the quality of their experience. A second visitor survey was conducted to help identify visitor-based normative standards of quality for trail impacts. Based on the findings from the ecological component of research, two series of photographs were prepared illustrating a range of trail widening and erosion and proliferation of visitor-caused trails. Respondents were asked to rate the acceptability of these photographs. Resulting data provide an empirical foundation for setting standards of quality for ecological conditions based on societal norms.

**The forest conservation strategies –
developing culturally-relevant forest
management strategies with the Waswanipi
Cree (moose project case study).**

Jacqmain, Hugo
Forest science
Laval University and Waswanipi Cree Model Forest
Québec QC Canada G3A 1C7

Louis Bélanger
Forest science
Laval University and Waswanipi Cree Model Forest

Email: hugo.jacqmain@sbf.ulaval.ca

Keywords: indigenous people, co-management, indigenous knowledge, management guidelines, moose

Abstract: First nation involvement in forest management is a prerogative to reach sustainability in northern Québec (Canada) where the James Bay Crees have constitutional rights over the land and resources. At the Waswanipi Cree Model Forest (WCMF) we translated this involvement into a methodology aiming at recognizing two systems of knowledge, Cree ecological knowledge and biological science, to develop culturally-relevant forest management strategies. For Eeyou Istchee, the traditional land base of the Cree, we initiated this process by defining the main ecosystems associated with Cree hunting and trapping activities. Using available literature and new knowledge gained at the WCMF about key wildlife species and their habitats, we developed, proposed and validated management options for each ecosystem. An illustration of this new knowledge lies in the Nordic Moose Project for which Cree knowledge about moose and scientific information (3-year moose telemetry program) were jointly analysed to develop a common vision about moose habitats and propose socio-ecological adapted management strategies. In our context, initiating the management process with Cree needs and considering Cree knowledge to better understand the boreal forest allows developing comprehensive forest management strategies and improving their social acceptability.

From the command-control management system to the self-regulated play model in Korea

Jaekyong, Chun
Legal Research
Korea Legislation Research Institution
Seoul Korea (south) 137-890

Hwang Eunju
Cultural Research
Korea Life Council

Email: jkchun@klri.re.kr

Keywords: command-control Management/self-regulated Play/natural resources/rural community/new social contract

Abstract: The legal systems for natural resources management of many countries in the Asia adopted the modernized legal systems of the western countries like the Germany, the France, the U.K and the U.S. But such adopted western laws did not from time to time be harmonized with the traditional laws in the Asia. In the field of natural resources management, traditional use methods are against that of the adopted statutes that are comprised of command and forcible control system.

Some reports of 5th World Park Congress in 2003 advised that the written laws should not be applied but customary laws should be applied to legal relations about natural resources management. For example, peoples at mountain villages in the Indonesia, have managed peaceably their forest according to customary laws. In Korea(south), there are many conflicts in the protected areas. But these conflicts are not prevented or resolved easily under the written statutes.

It is, therefore, necessary to rebuild the customary laws which contain self-regulated management system in some legal relations about use of forest, water and wetlands. The self-regulated management system takes after a play performed by producer with many players. We can find out such management model under the customary laws which might be revised to a new social contract at a rural community of the Mountain Jiri in Korea.

Key informants' perspectives on private land access and deer management in Pennsylvania

Jagnow, Coren P
Wildlife Division
Virginia Department of Game and Inland Fisheries
Richmond VA USA 23230

A E Luloff
Rural Sociology
Pennsylvania State University

James C Finley
School of Forest Resources
Pennsylvania State University

Email: coren.jagnow@dgif.virginia.gov

Keywords: hunting, posting of private land

Abstract: Access to private land for deer hunting is critical for effectively managing Pennsylvania's deer herd, especially when deer populations exceed cultural carrying capacity and cause unacceptable economic loss or lead to various conflicts. Posting, or placing signs on property to indicate that public access is restricted, is among the most common means of restricting access.

Understanding motivations for posting is important because posting reflects landowner motivations and influences the public's perception of land available for recreational use. In an effort to determine landowner motivations for their posting decisions, key informant interviews were conducted in three Pennsylvania counties. The key informant interviews included government employees, elected officials, and others knowledgeable about deer management and private land issues. Results from the key informant interviews indicate that many landowners post their land because they are concerned about safety and hunter behavior on their property. Others believed that landowner concerns about liability led them to post their land. Alternatively, landowners who were facing serious problems with deer damage to crops and personal property were thought to be more likely to allow access to their land for hunting. Newer landowners were also seen as more likely to post than long-term landowners. Landowners from urban areas were thought to be against hunting and less likely to allow recreational access compared to long-term residents with rural backgrounds. Absentee landowners were believed to be more restrictive of hunting access compared to landowners who resided on their property.

The loss wetland habitats and consequences of waterbirds, Tamilnadu, southern India

Jahanathan, Pandiyan
Zoology
Bishop Heber College (Autonomous),
Puthur, Tiruchirappalli Tamilnadu, India 620 017

Email: dunlinpandiyan@rediffmail.com

Keywords: Wetlands- waterbirds-lakes- factors- conflicts- interactions

Abstract: The survival of waterbirds depends upon the availability of habitats and prey items, but nowadays most of the wetland habitats are vanishing and many of them are facing critical situation due to undesired human activities which affect bird habitats. The study was carried out in the seasonally important wetland habitat of the cauvery deltaic region of southern India during 2000-2006. Totally 21 water bird species have been recorded in the three selected wetlands. The highest number of bird density was recorded between 1300 and 1,57,00 in 2002, and the lowest number was 132-5551 in 2006. The characteristics of water samples and mud samples have been evaluated and were correlated the bird characteristics features of bird in general such as bird density, diversity and richness. Significant variations have been observed. The anthropogenic pressures were evaluated and analyzed with the bird characteristics. The result of the present study revealed certain important contribution pertaining to the bird behaviour and their environment. Mostly the encroachment, habitat alteration, shrinkage of the habitat, vanishing of the vegetations, releasing the chemical effluents and domestic sewages directly influencing the birds habitats and alter the bird populations. But, among the 21 species the Purple Swamp Hen *Porphyrio porphyrio* is still surviving with good breeding quality within the disturbing area is one of the important and interesting result. How?

Are all family forest owners created equal? Examining private forest policy preferences using a typology framework

Janota, Jessica J
Forestry and Natural Resources
Purdue University
Lafayette IN USA 47907

Shorna R Broussard
Forestry and Natural Resources
Purdue University

Email: jjanota@purdue.edu

Keywords: NIPF landowners; forestland management

Abstract: Policymakers employ various tools in order to implement programs, achieve policy objectives, and shape the way in which target populations behave. Policy tools, such as incentives and regulation, offer those targeted a means by which to comply with the purposes of policy. Through the use of policy tools, policymakers are able to require, encourage, or support desired behaviors from target populations; however, the choice of policy tool(s) must be made carefully. Given the predominance of privately-owned forestland in Indiana and the United States, this research explores the forest policy preferences of family forest owners in southern Indiana. The research is based on data collected through a mail survey of 916 landowners in 32 southern Indiana counties.

The research objectives were 1) to determine private forest policy preferences of distinct “types” of family forest owners using a typology framework and 2) to make recommendations to policymakers regarding what policy approaches are best suited to differing landowner types. Landowner typologies were delineated via two-step cluster analysis and based on ownership motivations, land characteristics, and landowner demographics. This research places a ripe analytical lens on the subject of targeting policies at different types of owners and builds upon previous research that has advocated such specification.

Ecosystem based management planning

Janzen, Shannon L
Forestry
Coast Forest Conservation Initiative
Campbell River BC Canada V9W8C9

Bill Bourgeois
New Direction Resource Management

Email: sjanzen@westernforest.com

Keywords: tradeoffs; socio-economics; modelling;
forestry; sustainable management

Abstract: The Central and North Coast of British Columbia incorporates globally significant forests and supports human communities both inside and outside its boundaries. In the mid-1990s tension between conservation and development became an international issue as environmental campaigns focused on European and US customers of forest companies operating in the region.

A Government sponsored regional land use planning process (LRMP) was initiated for the North and Central Coast to engage local stakeholders, First Nations, industry and environmental groups in discussions intended to resolve the conflict. To assist this process, environmental groups and forest companies came together in attempt to work out their differences. Through this dialogue an agreement to implement Ecosystem Based Management (EBM) emerged that was adopted by the LRMP table.

The principles and definition of EBM embrace the need to maintain ecological integrity and promote the wellbeing of people and communities. Recognizing that these interests are often competing and our knowledge is limited, an additional principle of EBM is the precautionary approach to management.

Against a backdrop of uncertainty and imperfect knowledge, planning strives to balance the needs of human communities and ecological integrity. Where these needs conflict, an acceptable result to both parties often can only be reached via negotiation. These negotiations tend to be heated and result in outcomes that fall short of the overarching objectives of EBM.

Recognizing that such negotiations do not comprehensively address the full suite of land use issues, are we destined to always have this deficiency in achieving resolution? The answer is no.

A mid-level strategic planning process that translates regional objectives into reality in a comprehensive

fashion is a necessary next step for the transition to EBM in the Central and North Coast. This form of planning informs management decisions through the short and long-term forecast of alternative management scenarios and allows stakeholders to make transparent, balanced decisions that act as an effective starting point for adaptive management.

Typology of the entrepreneurial model for vacation B&B in Taiwan

Jen_son, Cheng
Leisure and Recreation Management
Asia University
Taichung Taiwan 413

Wu Chen-Dau
Department of Leisure and Recreation Management
Asia University

Shae Ren-Feng
Department of Leisure and Recreation Management
Asia University

Email: jenson@asia.edu.tw

Keywords: Entrepreneurial Model, B&B

Abstract: This research attempts to regard 13 B&B owners in Cingjing area of Taiwan as interview targets. According to categorical standards of B&B owners' local identification before involving in B&B and operational motive, the researcher can divide vacation B&B into direct business switch type, auxiliary operation type, investment venture type and countryside immigration type. 1) Direct business switch type: the B&B owner is originally local people and the main occupational background is farmer and military, civil and teaching staff. The farmers' agricultural income is slight. Thus, when they see the residents around is generally opening B&B, they are stimulated to change the business direction. They switch business to founding B&B as their main business. As to the people who are original military, civil and teaching staff, since they witness the business opportunity of B&B, they retire from work earlier in order to switch the business to B&B operation. 2) Auxiliary operation type: B&B owners are originally the locals and their main occupational background is farmer or military, civil and teaching staff. At present, they regard agriculture or public service as their main career. Since they reside in the area for a long period of time and possess real estate, they further manage B&B as their auxiliary operation. 3) Investment venture type: B&B owners are originally nonlocals and they are mostly professionals. The nonlocals see the business opportunity and treat B&B as a kind of investment venture; thus, they specifically arrive at Cingjing area for the investment of B&B business. 4) Countryside immigration type: B&B owners are originally nonsocial and they are mostly not farmers. These early immigrants decide to live here because of loving the wonderful environment in Cingjing area. Since B&B rises and develops around their residence, they decide to treat B&B as the main business and settle down in the area.

Opening B&B is mainly to comply with the needs of market instead of their life plan. The allocation method can be offered to the people intending to operate B&B. According to their personal identities and operational motives, they decide which B&B operational model for adoption; the method can be provided for future related study such as research on service quality of different types of B&B and consumer study.

Perceptions of a changing west: attitudes about economic development, population growth, and public lands management in a high amenity setting.

Jennings, Brian M
Sociology, Social Work and Anthropology
Utah State University
Logan UT USA 84322-0730

Tracy Williams
Sociology, Social Work and Anthropology
Utah State University

Donald R Field
University of Wisconsin

Richard S Krannich
Sociology, Social Work and Anthropology
Utah State University

AE Luloff
Pennsylvania State University

Email: bjennings@cc.usu.edu

Keywords: Natural resources; secondary homeownership; amenity growth

Abstract: Undergoing a purported transformation from an 'Old West' to a 'New West,' many communities within the American West have been experiencing notable demographic, economic, and social change. Survey data collected in five counties in southern Utah were utilized to examine residents' attitudes toward aspects of this changing American West, including attitudes toward economic development, population growth, and public lands management policies. Because many rural communities in this region are experiencing population growth from in-migrating permanent residents as well as seasonal residents, this study examines residents' attitudes along four categories of residential status (i.e. permanent longer-term residents, permanent newcomers, seasonal longer-term residents, and seasonal newcomers). Results from ANOVA (one-way analysis of variance) analyzing differences in residents' support for the dependent variables 'New West forms of economic development,' 'limiting the rate of population growth,' 'restriction of motorized recreation,' and 'preservationist policies' are presented. Through factor analyses, each of these variables was derived from sets of questionnaire items. Statistically significant differences were identified between various residential categories along the dimensions measuring support for economic development, restrictions on motorized recreation, and preservationist policies.

Immigrant and ethnic minority valuation of wilderness

Johnson, Cassandra Y
Southern Research Station
USDA Forest Service
Athens USA 30602

J.M. Bowker
Southern Research Station
USDA Forest Service

John Bergstrom
Agricultural Economics
University of Georgia

H. Ken Cordell
Southern Research Station
USDA Forest Service

Email: cjohnson09@fs.fed.us

Keywords: Wilderness valuation, ethnic minorities, environmental perception, social construction of nature

Abstract: The Wilderness movement has been criticized as elitist, the charge being that wilderness benefits accrue mostly to whites (particularly males) in the upper socioeconomic strata. We examine the proposition that wilderness is a social construction or that it holds value primarily for whites. We compare visits to wilderness areas and wilderness perception of U.S.-born racial/ethnic minorities to U.S.-born whites. We also compare wilderness visits and perception of non-white immigrants to U.S.-born whites. Results from the National Survey on Recreation (NSRE) and the Environment show immigrants are significantly less likely than U.S.-born whites to visit wilderness. For U.S.-born racial/ethnic groups, African Americans are least likely to visit, compared to whites. However, both immigrants and native-born African Americans are as likely as whites to indicate they value the continued existence of wilderness. U.S.-born Asians and Latinos are also less likely than whites to visit wilderness but again, results suggest they support the continued existence of the resource.

Results show mixed support for the contention that Western conceptions of wilderness are held primarily by native-born whites. Practical differences are identified only for questions related to past or future visitation. Results suggest both U.S.-born minorities and immigrants are as likely as whites to derive passive, non-use wilderness benefits. Because of minor differences in immigrant versus native probability for most of the value items included in the NSRE, we cannot conclude

that native whites, immigrants, and native-born minorities construct wilderness in culturally different terms.

Examining the relationship between crowding and dimensional structures of place attachment across multiple water resources

Jones, Christopher D
Community Resources and Development
Arizona State University
Phoenix AZ USA 85044

John Titre
Park Studies, Inc.

Email: chris.jones2@asu.edu

Keywords: Place attachment, crowding, water resources

Abstract: To support the need of water resource managers to understand place values, the relationship between place attachment dimensions and crowding is examined. It is predicted that higher levels of crowding will result in higher levels for a loss of place dimension and lower levels of eight other place attachment dimensions. Responses among visitors (n=452) to place attachment were collected by administering questionnaires at two separate reservoirs under jurisdiction of the Brazos River Authority in Texas (Lake Granbury & Possum Kingdom Lake). When analyzing data across the locations, results of confirmatory factor analysis supported the structure of the place attachment dimensions. Furthermore, crowding was found to be a significant predictor of place attachment dimensions (including loss of place). In contrast, multi-group comparisons of structural equation models across the study locations revealed no significant differences. These findings lead to an important crux in social science methods and theory. While managers have begun to adopt innovative models to allocate limits including those of place attachment, the link between attachment and crowding suggests that these emotional and cognitive perspectives are strongly linked. Particularly, of note and not previously empirically assessed, is that loss of place may occur as a result of gaining a perception of crowding. Managers who prefer to adopt place-based strategies should assess whether crowding is a prerequisite to preserve a visitor's attachment to their managed areas.

An evaluation of the British Columbia Land Use Plan Implementation Framework

Joseph, Chris
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A1S6

Thomas Gunton
School of Resource and Environmental Management
Simon Fraser University

J C Day
School of Resource and Environmental Management
Simon Fraser University

Email: cjoseph@alumni.sfu.ca

Keywords:

Abstract: A key to successful planning is effective implementation. This paper reports on an evaluation of the innovative implementation process used in British Columbia. The paper develops a best practices implementation model based on a survey of implementation practitioners and other research studies. The implementation evaluation model is used to evaluate the British Columbia plan implementation process. Keys to successful implementation are identified.

Implementing private property rights for shellfish aquaculture development: A spatial and temporal analysis of changing access rights in the Vancouver Island clam fishery

Joyce, Alyssa L
Resource Management
University of British Columbia
Vancouver BC Canada V6K 2G8

Email: aljoyce@interchange.ubc.ca

Keywords: GIS, fisheries, property rights, shellfish, clam harvesting, First Nations, coastal communities

Abstract: Geographical Information Systems (GIS) have increasingly been used to map local knowledge, and to resolve conflict over competing territorial claims and resource uses. In British Columbia, Canada, government mandates promoting leases for shellfish aquaculture development have resulted in many wild clam harvesting sites being converted to aquaculture sites, thereby privatizing access to wild fish resources and reducing the viability of the wild fishery through direct competition for habitat. This research analyzes temporal and spatial trends in the distribution of wild and cultured clam resources to determine how leaseholds are altering access to habitat for wild fisheries harvesting, and examines how various stakeholder groups, especially First Nations and coastal communities, are being differentially affected by these policies. GIS maps were produced using data on shellfish aquaculture tenures, wild clam fisheries, and water-quality closures in six study sites. These maps were used during interviews with key stakeholders in shellfish resources as a basis for discussion of user conflicts, environmental impacts, and socio-economic risks and benefits related to development of limited private property rights for shellfish aquaculture development. The spatial examination of changing access rights to shellfish resources provides insight into how policies promoting intensive aquaculture are altering wild clam harvesting patterns, and reveals a range of stakeholders perceptions of risk and opportunity in a transition to rights-based management.

Volunteering in British Columbian watershed-based community rehabilitation projects

Justice, Matthew
School of Resource and Environmental Management
Simon Fraser University
Vancouver BC Canada V6P 2B8

Email: mattjustice@yahoo.com

Keywords: Restoration; self-efficacy; stewardship; public-involvement; social-institutions

Abstract: My research explores the roles and participation of volunteers within community-based watershed rehabilitation projects in southwestern British Columbia. I investigate whether volunteering fosters greater community participation in the management of adjacent resources. The conclusions provide important data on the diversity of motivations of volunteers in watershed rehabilitation.

Specifically the research asks whether volunteers are retained at higher rates in relation to;

- a. Their level of decision making authority and/or involvement in a project.
- b. The capacity of the organization and activities to create a sense of community
- c. The importance of some resource outcome.

I first examined literature on watershed partnerships, collaborative-planning, co-management, and volunteering as well as interviewed several key volunteer coordinators. From this preliminary fieldwork, came the three alternative scenarios identified above (a through c). To identify the underlying reasoning, I formulated three sets of questions that probed on each. The three potential scenarios and their associated questions were then used in interviews with volunteer coordinators and volunteers from a sample of urban and rural watershed rehabilitation projects. Each individual was asked to rate, based on a likert scale, the most important factor in volunteer motivation. Each interviewee was then asked the set of associated probing questions for the preferred scenario. Ultimately this research allows the creation of a volunteer typology, which will aid project coordinators in attracting and retaining appropriate bodies of volunteers for specific projects.

Local responses to tourism development: Experiences from Denmark

Kaae, Berit C
Urban and landscape studies
Danish Centre for Forest, Landscape and Planning,
Hoersholm Denmark DK-2970

Email: bck@kvl.dk

Keywords: tourism impacts; social impact assessment; coping strategies; theoretical model; Denmark

Abstract: Local responses to tourism development – experiences from Denmark

As a global growth factor, tourism is increasing significantly and according to forecasts of the World Tourism Organisation (2001) global tourism is expected to double by 2020 compared to 1995 levels and to reach over 1.56 billion international tourist arrivals by the year 2020.

Local communities are affected in many ways by tourism development and experience both positive and negative changes. Many tourists are attracted to areas of high natural quality and beauty and this makes the issue of tourism growth highly relevant to natural resource management and local communities.

The paper discusses the impacts of tourism on local communities and how factors such as tourism intensity influence the local residents' perceptions of tourism. Furthermore, the paper explores the use of coping strategies among local residents aimed at reducing their feeling of impacts from tourism. It presents a short review of the existing theories and international knowledge on local resident reactions to tourism and their use of coping strategies.

The results of Danish empirical studies of personal coping strategies in destinations of different tourism intensity are presented and discussed. Based on the theoretical and empirical results, a new model of adjustment to tourism and use of coping strategies are presented.

The implications of residents' adjustments to tourism are discussed in relation to development and planning of tourism and to natural resource management.

Cultural diversity and biodiversity in the Amazon: Global corporate economy and evolving UN and international Indigenous legal protections

Kanady Stoker, Teresa N
Community and Regional Planning
University of Texas at Austin
Austin TX USA 78705

Email: stokertn@mail.utexas.edu

Keywords:

Abstract: Questions concerning cultural and biological diversity are critical to both cultures and biological species. Of the 8 million biological species found on earth, 1 million species are hypothesized to have become extinct by 2000 A.D. Different “endangered” cultures also face a similar threat of cultural extinction. Indigenous peoples, after traumatic historic colonial and imperial marginalization, continue to fight for autonomy, self-determination, sovereignty, and basic human rights. Indigenous cultures also confront a just as critical loss of traditional knowledge and intellectual property at the hands of the global corporate economy. Western intellectual property law does not protect, indeed threatens, indigenous communities. The United Nations has made many past attempts to protect the rights of indigenous cultures. The 1992 Convention on Biological Diversity and the resultant Rio Declaration on the Environment and Development made real attempts at addressing the issue. In 1982, the UN Working Group for Indigenous Peoples (WGIP) was formed within the Commission on Human Rights. The 23rd WGIP Session (July 2005) focused on, “Indigenous Peoples and the International and Domestic Protection of Traditional Knowledge.” The 23rd WGIP Report was issued February 2006 with comments currently being taken. Examples from Amazonia are utilized to illustrate key points.

An economic analysis of joint forest management in Gujarat, India: Shadow prices of social and ecological outputs and social, cultural, and organizational factors

Kant, Shashi
Faculty of Forestry
University of Toronto
Toronto ON Canada M5S 3B3

Dinesh Misra
Faculty of Forestry
University of Toronto

Email: Shashi.kant@utoronto.ca

Keywords:

Abstract: Joint Forest Management (JFM) program of India, or co-management in general, has been recognized as an institutional arrangement for addressing all the three dimensions – social, ecological, and economic - of sustainable forest management (SFM). However, no attempt has been made to include all these three dimensions of SFM in the economic analysis of village-level organizations responsible for JFM, understanding the value of social and ecological outputs to these organizations, and contributions of social, cultural, and other organizational factors to the JFM process. An output and input distance function approaches are used to analyze these three aspects of JFM on the basis of data from 50 village-level JFM organizations from Gujarat state of India. On an average, the whole society, of 50 villages, has positive preference for all the three JFM outputs – social, economic, and ecological, and valued ecological outputs higher than economic and social outputs. However, wide variation in the shadow prices of the outputs across villages suggests that no sweeping generalisations can be made. In 36 of the 50 villages, the shadow price of the economic output was lower than the shadow price of ecological output, which indicates that in these villages people are forest conservation oriented. On an average the whole society has placed highest value on homogeneity of the user group, next highest on village leadership, which is followed by dependence of user group on forest resource, and role of women in forest management. Similar to outputs, wide variation in the shadow prices of the factors across villages exists, and hence generalizations are possible. Some policy implications are discussed based on these results.

A typology for understanding property right diversity in environmental resources

Kauneckis, Derek
Political Science Department
University of Nevada, Reno
Reno NA USA

Email: kauneck@unr.edu

Keywords:

Abstract: Recent research has significantly expanded how we view the role of property rights in environmental resource management. The assignment of rights as a policy instrument for managing environmental resources has moved beyond the simple dichotomy of private and public properties. Numerous types of attenuated private rights, common properties, and mixed public, community and private right systems are increasingly recognized within the property rights literature, as well as being directly implemented within environmental policy instruments. This paper examines the diversity of property rights arrangements to environmental resources and develops a typology based on the combination of institutional components of a property rights system and the actions of the agent responsible for enforcement. The theoretical framework has important implications for how we view the effectiveness of various property rights arrangements and the mechanisms of property right security.

Encouraging landowners to protect and enhance biodiversity in New Zealand: A willingness-to-pay contingent valuation and social behaviour study

Kaval, Pamela
Economics
University of Waikato
Hamilton New Zealand

Terry Parminter
AgResearch

Email: pkaval@mngt.waikato.ac.nz

Keywords: New Zealand, biodiversity, willingness-to-pay, native species, private landholders

Abstract: Landscape corridors can enhance biodiversity by providing shelter, food, and breeding opportunities for animals as well as assisting with gene-transfer between plants. Private landowner contributions to biodiversity corridors are very important in this process and will be necessary if New Zealand's Biodiversity Strategy is to succeed. Landowner contributions can take the form of shelter belts, riparian strips, wetlands, woodlots, ecological-gardens, ecologically protected housing development and industrial screening.

In this project, we encouraged the establishment of biodiversity corridors across three regions of the North Island of New Zealand (Auckland, Bay of Plenty and Wellington) where indigenous vegetation in lowland areas is at risk. Within our project, we worked with Councils and Government Departments to develop and test policy setting frameworks and guidelines for encouraging people in their regions with a range of personal goals and values to voluntarily take steps towards establishing, protecting and enhancing biodiversity habitats in their own backyards and communities.

Our project had three objectives. The first two develop what we believe are the two most useful theories available for understanding and predicting human values and behaviour as a basis to policy interventions: Willingness-to-Pay Theory and the Theory of Reasoned Action. Willingness-to-Pay theory is an important economic tool for assessing public values for biodiversity assets. The Theory of Reasoned Action describes the factors motivating and demotivating behavioural change and predicting responses to policy. Finally, we used Action Research methodology to plan, adapt, and learn from policy interventions in each of the case study areas. This objective integrates the research results from the willingness-to-pay and reasoned action data with the

local knowledge and experience of Regional Council staff and regional communities. The project began in July 2005 and should continue until July of 2009. This paper is a result of our findings so far.

Attitudes and behaviors regarding recycling in southern Utah

Kay, Ryan M
Biology
Southern Utah University
Cedar City UT USA 84720

Britton L Mace
Psychology
Southern Utah University

Jedediah Hancock
Environmental Sciences
Southern Utah University

Email: kay4087@suuemail.net

Keywords: MSW; Waste; Resource Management; New Environmental Paradigm

Abstract: This study compiles the results of a self-report survey mailed out to residents in the municipalities of Iron County, Utah. The survey is designed to evaluate attitudes and behaviors of residents towards recycling. It will be used to guide efforts of the Southern Utah Recycling Coalition, influence policy, and encourage businesses to adopt recycling practices and/or invest in recycling. SURC was formed about one year ago. Members include the National Park Service, Iron County Landfill, Southern Utah University, Blue Sky Recycling, Xanterra and the Utah Department of Environmental Quality. SURC has been funded by an EPA Region 8 grant for municipal solid waste reduction in rural areas.

This survey compares environmental attitudes, using the NEP scale to actual recycling behavior. The survey will also evaluate how many people are currently recycling, what is being recycled, and how often those items are being recycled. This study will be valuable to SURC in evaluating what kind of recycling program will work best in our area. We have also added questions and/or statements to raise awareness about recycling and hazardous waste, such as a wide range of different recyclable materials and bringing to their attention whether or not they know how to properly dispose of hazardous waste.

There are 1,043 surveys being mailed out to random addresses selected from the 2004 Iron County tax database. We are currently waiting for data from surveys that will be evaluated using SPSS.

Visual Preference Surveys as a Guide to Land Use Planning and Natural Resources Management: Scenic Area Management.

Kearney, Anne
College of Forest Resources
University of Washington
Seattle WA USA 98195

Gordon Bradley
College of Forest Resources
University of Washington

Email: anne@alexanne.net

Keywords:

Abstract: Opponents of the scenic review ordinance for controlling development in the Lake Tahoe Basin argue that the regulations do not meaningfully reflect general public attitudes. Tahoe's federally mandated regional authority commissioned a study to assess public perception of the scenic resource. Included among the survey participants were members of local interest groups as well as tourists. Based on both photographs and written questions, the results strongly affirm the ordinance's basic criteria. Not only is there general support for preserving the scenic resource and reducing the visual impact of development, the data also show substantial agreement across different stakeholder groups. This work was done in the context of the Scenic Area Threshold requirements of the Tahoe Regional Planning Agency.

Interactions between community and forest health in Wallowa county, Oregon

Kelly, Erin C
Forest Resources
Oregon State University
Corvallis OR USA 97330

John C Bliss
Forest Resources
Oregon State University

Email: erinloverkelly@yahoo.com

Keywords: forest health; community well-being; rural development; community-based natural resource management

Abstract: Forest health and community health are inextricably intertwined in rural eastern Oregon. The forests rely on local expertise and infrastructure for careful stewardship, and the communities rely on the forests for employment, recreation, and a sense of place. The forests of Wallowa County, Oregon, have experienced deteriorating forest health due to over a century of fire suppression, excessive logging, and grazing. The communities of the county, meanwhile, have seen escalating unemployment, an exodus of young families, and a dearth of middle-income jobs. Powerful, multi-scale political and industrial forces have long influenced Wallowa County and its forests. Recent local grass roots efforts to positively affect the region's destiny and improve both forest and community health show potential to serve as a model for other regions. This paper is based upon two years of qualitative research in Wallowa County. The objectives of this paper are to: 1) document the knowledge and beliefs of local forest stakeholders regarding forest health; 2) analyze the relationships between the communities of Wallowa County and its forests; and 3) contextualize rural stakeholders' views of forest health within recent federal legislation, including the Healthy Forests Restoration Act (HR 1904).

Assessing visitor preferences for eco-efficient planning options in tourism destinations

Kelly, Joe
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Peter W Williams
School of Resource and Environmental Management
Simon Fraser University

Krista Englund
School of Resource and Environmental Management
Simon Fraser University

Email: jrkelly@sfu.ca

Keywords: destination planning; eco-efficiency; stated choice methods

Abstract: A significant portion of the dialogue concerning sustainable tourism development centres on creating greater eco-efficiency in tourism operations. Eco-efficiency is a measure of the relative ability of various strategies to reduce the amount of energy and natural resources used, as well as wastes and pollutants discharged in the production of goods and services. Numerous destination planning options for achieving greater levels of eco-efficiency have been suggested. These include using more environmentally friendly land use and building designs; innovative transportation infrastructure and service options; low impact energy generators; and enhanced solid waste management methods. While a few of these options have been assessed in terms of their overall technical effectiveness, none have been examined with respect to stakeholder responses to them. This paper identifies visitor perspectives of various eco-efficient planning options, using a discrete choice experiment (DCE). By having respondents evaluate and trade-off several attributes simultaneously, the DCE method provides a more comprehensive assessment of eco-efficiency options than would be possible using traditional opinion surveys that ask respondents about attributes one at a time. The study's results indicate that tourism destinations can potentially achieve significant levels of eco-efficiency without sacrificing overall levels of tourist support. However, it is likely that some market segments (e.g. motorized sports users) would not favour an eco-efficiency scenario.

Multi-use forests in northern Europe: forestry and reindeer herding cooperation and conflict over resources and legislation

Keskitalo, E. Carina H
Department of Political Science
Umeå University
Umeå Sweden 901 87

Email: Carina.Keskitalo@pol.umu.se

Keywords: Forestry; reindeer herding; multi-level governance; land use conflicts

Abstract: Forestry and reindeer herding in Sweden are largely practiced on the same areas, often resulting in conflicts over land use. While extensive legal and voluntary coordination exists, it is commonly perceived by reindeer herding – the less powerful actor – as insufficient. This paper analyses the forestry – reindeer herding relationship in the Piteå river valley, based on semi-structured interviews with actors in local and regional administration, industry and individual forestry workers and reindeer herders. It describes the legal, market and political organisation on reindeer herding, and the perception of the relationship, existing cooperation and coordination, and possible actions. The paper aims to in particular describe the multi-level governance framework perceived by actors, illustrating that both international policy (the ILO Convention No. 169) and the international market (forest certification) have a large impact on the local level. It thereby suggests that the forestry – reindeer herding conflict in the areas cannot be managed purely by a focus on state regulation or by a focus purely on local problem-solving. Rather, forestry – reindeer herding coordination is influenced by multiple factors including international policy and market measures, and requiring a broad understanding of coordination and influence systems.

Sustainable hunting: Connecting traditions, property rights, rural welfare, recreation and game populations

Kettunen, Juhani E
Socioeconomic and Aquaculture Research
Finnish Game and Fisheries Research Institute
Helsinki Finland 00620

Pekka Salmi
Socioeconomic and Aquaculture Research
Finnish Game and Fisheries Research Institute

Pekka Korhonen
Socioeconomic and Aquaculture Research
Finnish Game and Fisheries Research Institute

Pekka Helle
Game and Reindeer Research
Finnish Game and Fisheries Research Institute

Email: juhani.kettunen@rktl.fi

Keywords: Sustainability, resource management

Abstract: Hunting rights in Finland are bound to land ownership. Private and public landowners may sell hunting licenses to hunters without the property rights. There is, however, an exception in the law. The residents of the northern provinces of the country have free access to state owned hunting lands that are located in the area of their own municipalities. The exception of the hunting law originates from 1930's and it was motivated by giving the northern people an extra source of income during the periods in which other sources were few or completely lacking. Today, the exception is often debated and questioned by license buying hunters and other interest groups.

This presentation discusses about criteria of sustainable hunting. The exception of Finnish hunting law is used as a benchmark of an analysis and planning of hunting. Empirical material of the study comprises of four sources: a mail survey of hunting in both privately and state owned lands in the Northern Finland, the data that has been collected from the license buying hunters in the state owned lands, thematic interviews of the game managers in the northern districts and the data on game populations in the area.

The study shows up that there is a potential conflict between the interest groups. The state organization taking care of forest resources in the country motivates the hunting policy by ecological sustainability of land use whereas local hunters value their activities more within the social framework. Furthermore, the local

hunters see the free hunting rights as a part of northern culture that motivates the people to live in the area and a key force connecting the social communities. They also see themselves as an important part of game management and preservation and fear that an increase in license buying hunters arriving from Southern Finland would weaken the hunting opportunities of the locals. The analysis of both social and biological data shows that planning of the hunting in the area is a human-human rather than human-animal type of a problem.

**A review on the latest empirical works
associated with explaining differences in
energy efficiency among the different nations
in the world**

Khademvatani, Asgar
Economics
University of Calgary
Calgary AB Canada T2N 1N4

Email: akhademv@ucalgary.ca

Keywords: Energy efficiency; energy intensity;
convergence; impacting factors; microeconomics
foundation

Abstract: This study reviews the recent literature that has discussed energy intensity differences across regions as a measure of energy efficiency. The paper encompasses most of the debates around energy efficiency by using energy intensity measure such as energy intensity decomposition, differences of energy intensity changes. We offer some evidence from a hybrid theoretical and empirical contributions by three groups of the literature related to subject.

First, we expose the descriptive works that studied the historical energy efficiency policies in industrial countries, partly, in different sectors. Second, the applied econometric studies compared energy efficiency changes across nations. Finally, we review the energy efficiency literature related to data decomposition approach and data analysis methods. The main target of these studies is explaining gap of energy efficiency across nations and investigating whether the differences are becoming smaller or bigger.

Comparing empirical results confirms declining and convergence of energy intensity over last half century cross- nations, but existence of energy intensity gaps. This study reports the reasons such energy prices, technology, fuel mix, etc as impacting factors on energy intensity changes. It also states some potential areas of improving energy efficiency. We conclude energy intensity is a misleading and ad hoc engineering measure of energy efficiency in the literature. We claim without an appropriate economic indicator of energy efficiency any debate around energy efficiency and the economy are premature and non-reliable. We find out that it is our position to measure energy efficiency by incorporating a microeconomics foundation and environment concerns as a dissertation.

**Vegetation change analysis using multi-
temporal remote sensing technology at
Cadillac Mountain in Acadia National Park,
Maine**

Kim, Min Kook
Graduate Student, Department of Forest Management,
University of Maine
Orono ME USA 04468

Andrea J Andrea
Graduate Student, Department of Forest Management,
University of Maine

John J Daigle
Associate Professor, Department of Forest Manageme
University of Maine

Email: mkkim2@gmail.com

Keywords: vegetation change, trampling, impact, remote
sensing, geographic information systems (GIS)

Abstract: Acadia National Park is part of the U.S. National Park System, which has as its dual mission to conserve biological and cultural resources as well as provide for the enjoyment of people. The increased visitation since the establishment of Acadia National Park is not unlike many other national parks. In the last decade annual visitation levels have actually remained stable over the past few years at Acadia National Park, for example, in 2,760,306 visits in 1996 as compared to 2,431,062 visits in 2003. However, the small area of the park coupled with concentrated visitation during the summer makes Acadia among the most densely populated National Parks. Cadillac Mountain is easily accessible by road and is one of the most popular visitor destinations in the Park. Managing vegetation impacts is extremely challenging given the amount of visitor use and fragile environmental conditions.

Over the past few decades especially within the past five years a number of onsite (physical barriers) and visitor (signs with emphasis on Leave No Trace) management strategies have been employed to help to reduce the amount of vegetation impact on Cadillac Mountain. The purpose of this study is to detect vegetation change at Cadillac Mountain using multi-temporal remote sensing technology over multiple years starting in 1991. Through image processing steps under ERDAS imagine 8.7, and ESRI ArcGIS 9, major changes between dates were analyzed. Additionally, vegetation density analysis was performed to identify distribution of vegetation regrowth and reduction.

The result of study has shown detailed measurable changes in terms of vegetation regrowth and reduction. Since 1991, 1.9 acre of vegetation near the trail at the summit of Cadillac Mt. has been increased. On the contrary, 1.49 acre of vegetation has been decreased. In terms of reducing vegetation impacts, two management strategies were successful. However, more advanced satellite imagery such as IKONOS and SPOT will be required to assess vegetation change in Cadillac Mountain.

Factors influencing growth in wildland urban interface zones in the pacific northwest

Kirschner, Annabel R
Community and Rural Sociology
Washington State University
Pullman WA USA 99164-4006

Email: kirschner@wsu.edu

Keywords: wildland urban interface zones; retirement migration

Abstract: Population growth in wildland urban interface zones is particularly problematic for resource management since it increases the number of dwellings that are at risk during forest fires. However, the attraction of amenities is an important part of growth in rural areas in the Pacific Northwest and elsewhere. Wildland urban interface zones are usually characterized by the type of amenities that many persons find appealing. Using maps created at the University of Wisconsin that show the presence of these zones, this research will examine the factors that will influence growth in these zones in the Pacific Northwest in the next 10 years. These factors include changing age structures, recent high oil costs, and retirement migration. I will pay particular attention to the similarities and differences of this time period with the initial rural turnaround which occurred in the 1970s and generated a substantial amount of population growth in rural areas of the Pacific Northwest.

Institutions and incentives for grassroots conservation: Connecting protected areas with common property

Kitamura, Kenji
Department of Geography
Simon Fraser University
Burnaby BC Canada V5A 1S6

Email: kkitamura@sfu.ca

Keywords: grassroots conservation, protected areas, common property, Costa Rica

Abstract: Protected areas play an important role in nature conservation, although they have been criticized for various reasons, including the failure to address the interests of local people, and the lack of fair distribution of benefits and costs. These problems led to alternative approaches, such as buffer zones, co-management and community-based conservation. Self-governing capability of local communities has been well demonstrated in the literature on common property, although this literature tends to focus on consumptive uses of specific resources. Common property research has not paid much attention to protected areas, and when it does, it usually posits them as inefficient and ineffective government institutions. In order to foster a stronger and more positive linkage between protected areas and common property, this paper presents a concept of a common property protected area (CPPA), defined as a bounded area under common property governance that is managed for both nature conservation and improvement of local livelihoods. Based on the cases of grassroots forest conservation in Costa Rica, this paper discusses institutional and incentive conditions for CPPA, such as size, connectivity with surrounding areas, decision-making processes, stakeholder relationships, ecotourism and payments for environmental services. Since it is not considered feasible or ideal for governments to drastically increase their territories for conservation in a top-down manner, the question of how to support conservation outside state property is important. This study intends to contribute to a better understanding and exploration of diverse forms of conservation.

Land planning and sustainability of the natural resource base in Uganda

Kiwanuka, Ruth N
Environment and energy
Joint Energy and Environment Projects (JEE)
Kampala Uganda Uganda +256

Email: ruthkisa@yahoo.com

Keywords: N/A

Abstract: 1.0 Challenges in Land Planning

There is lack of a holistic, clear land policy and lack of a physical development Plan which would cover aspects of environmentally sound land management, including surveying, environmental conservation etc. Many policies are scattered in different government departments and are made independent of each other thus causing constant duplication of work and misuse of resources. It is difficult to implement a land Use plan if it is made without first amending the Constitution and the Land Act since it cannot be imposed with the current system of land ownership.

Due to constant political interventions in policy work, many policies are made for specific political intentions that do not necessarily take into consideration environmental protection and there is no clear line ministry to take charge of the policy e.g. (there is a minister for disaster preparedness, lands, agriculture, finance and planning and they are all responsible in one way or another for environmental issues. When it comes to implementation it is not clear who should take the lead.)

The yardstick for policy formulation in Uganda since 1998 has been PEAP which in itself is not clear enough on how agriculture modernization, industrialization and poverty eradication can be dealt with and the environment preserved without any controversies.

Uses of land are conflicting with conservation, where market oriented policies are required to be environmental friendly and yet these aspects are not clearly addressed. Agricultural modernization and development have seemed to take the upper hand over environmental conservation.

Policies in the above mentioned sectors are made independently, hence there are individualistic sector approaches that are pursued by each specific sector with little or no consideration of what the related and other relevant sectors are engaged in as far as environment and agriculture is concerned.

Visitor management in the National Parks in Germany, Austria, and Switzerland. Actor involvement, problem perception and the management of conflicts.

Klaphake, Axel
Department on Landscape Economics
Berlin University of Technology
Berlin Germany 10587

Email: klaphake@imup.tu-berlin.de

Keywords: Visitor Management, National Parks, Conflict Management,

Abstract: The paper aims to analyze the state of visitor management and, in particular, the dominating conflict management strategies in the National Parks in Germany, Austria and Switzerland. The effective implementation of appropriate conflict management strategies is of pivotal importance because of increasing pressures on the national resources within the borders of the parks. Increasing number of tourists, changing visitor behaviour and the extension of tourism-related infrastructure are the main important drivers that cause conflicts between nature protection and economic development objectives. The paper is organized as follows: First, we outline the analytical background of the analysis, which is based on theoretical concepts originating from institutional economics and political science. Second, the key results of a survey of all National Park administrations in Germany, Austria and Switzerland will be discussed. The survey approach was implemented to elicit the park administrations' problem perception regarding particular visitor management conflicts. The surveyed administrations were asked to describe how they deal with visitor management conflicts, and to assess the effectiveness of particular instrumental and institutional approaches. In addition, the survey aimed at examining how the park administrations interact with the many actors currently involved in the visitor management of the National Parks. Third, we present some results of four in-depth case studies that were realized in four German National Parks. Here, we intend to systematize the different conflicts in terms of conflict resolution strategies and actor involvement. Finally, we will ask whether the analytical tools mentioned above can help to better understand the drivers of visitor management conflicts and the effectiveness of conflict resolution strategies.

An overview of research methods and challenges in valuing ecosystem services

Kline, Jeffrey D
Pacific Northwest Research Station
USDA Forest Service
Corvallis OR USA

Trista Patterson
Pacific Northwest Research Station
USDA Forest Service

Email: jkline@fs.fed.us

Keywords: nonmarket values; public goods; public preferences; economics

Abstract: Growing human populations, incomes, resulting land use changes, and per-capita resource use all impact forest landscapes and influence the ecosystem services they provide. Values for ecosystem services generally are not reflected in market prices for land or natural resource commodities, and landowners have no financial incentive to consider them in their market transactions for land and commodities. Emerging policy interests advocate greater use of economic incentives to correct market failures involving ecosystem services to enhance their protection. Knowledge of the values of ecosystem services can aid in designing and evaluating the likely effectiveness of different policies. A range of techniques can be used to estimate the degree of improvement or decline in non-marketed services in both monetary and non-monetary terms. Techniques for eliciting preferences can be direct (e.g., contingent valuation and stated preference), indirect (e.g., from revealed behavior via travel cost and hedonic price approaches), or derived using benefits transfer techniques. Other techniques, such as use of multi-attribute analysis, can support decision-making without assigning monetary values at all. We will provide an overview of these methods, highlighting their strengths and weaknesses from both resource and ecological economic perspectives. We will summarize persistent challenges in using these methods to evaluate ecosystem services, including a lack of information regarding ecosystem services production in different settings, difficulties in describing marginal changes in production resulting from policy or management actions, and potential interactions between particular ecosystem services, among others. Implications of using different methods of valuation analysis over other methods will be discussed.

Planning for the future with our future: Engaging youth in land use planning

Kluwe, Joan
Environmental Services
URS Corporation
Anchorage AK USA 99503

Jon Isaacs
Senior Planner, Vice President
URS Corporation

Heather Coulehan
Training and Technical Services Coordinator
Akeela, Inc.

Email: joan_kluwe@urscorp.com

Keywords: public participation; Alaska; curriculum; leadership

Abstract: Many regional plans have a 10, 20 or even 30-year outlook. These plans are in effect as today's high school students become part of the workforce and local leadership. Engaging youth in land use planning can increase students' awareness of their role in local government, incorporate innovative ideas into the planning process, promote a sense of community, develop commitment to the well being of the community, and foster youth leadership capacity. The recent revision of the North Slope Borough Comprehensive Plan incorporated a youth involvement component. A specialized curriculum was written and implemented that integrated local school district goals, Alaska State Content Standards, and planning goals. Students initially had a high skepticism that their comments would be valued by managers or incorporated into the plan. The results of the youth involvement project were not only carried forward in the plan, but students have also been invited to share their findings at regional conferences. Students will likely be involved in future planning efforts in the region.

Contrasting experience orientations at Denali National Park and preserve

Knotek, Katie
USDA Forest Service
Aldo Leopold Wilderness Research Institute
Missoula MT USA 59801

Neal Christensen
USDA Forest Service
Aldo Leopold Wilderness Research Institute

Alan Watson
USDA Forest Service
Aldo Leopold Wilderness Research Institute

Email: kknstek@fs.fed.us

Keywords: recreation management

Abstract: Alaska's Denali National Park and Preserve is home to North America's highest mountain peak, 20,320-foot tall Mount McKinley. Mount McKinley and the surrounding mountains and glaciers in the southern portion of the park are considered a world-renowned destination for mountaineering and scenic airplane tours. Management of this area is under the responsibility of the National Park Service, as outlined by the Alaska National Interests Lands Conservation Act, the National Park Service Organic Act and other relevant federal guidelines. In an effort to assist park planners and managers in assessing and understanding visitor experiences in this mountain glacial portion of the park, a cooperative study between Denali National Park and Preserve, the Aldo Leopold Wilderness Research Institute, and the American Alpine Club was conducted in the 2004 summer use season. Because the experiences of visitors actively engaged on the mountains and glaciers, and visitors in the airspace over them, are quite diverse, the park staff is challenged with devising a management approach aimed at a diversity of experiences and influences on those experiences. Visitors actively engaged in the mountain environment are often oriented toward experiences of isolation, self-reliance, and personal risk. In contrast, visitors flying over the area are more oriented toward experiencing the scenic grandeur of Mount McKinley, creating memories, and taking photographs. The purpose of this presentation will be to highlight such contrasting experience orientations and the implications for establishing appropriate management direction and monitoring protocol to sustain this diversity of experience orientations at Denali National Park and Preserve.

An operational model of ecotourism development for Meishan community in Yusan National Park, Taiwan

Ko, Chia-Chun
Horticulture
National Chung Hsing University
Taiwan

Sheng-Jung Ou
Horticulture
National Chung Hsing University

Su-Mei Tsai
Horticulture
National Chung Hsing University

Email: doris846342@gmail.com

Keywords: community-based ecotourism; ecotourism program; operation standard

Abstract: Yushan National Park has thirty spectacular mountains which are listed on 'One Hundred famous Mountain' in Taiwan. She is not only the largest national parks of Taiwan, but also has the highest mountain in Taiwan. By reasonable use of her abundant natural and cultural resources, ecotourism is developed and promoted constructively. Meishan Community is one of the aboriginal communities in the area of Yushan National Park. According to on-site survey, inhabitants of the Meishan Community lack of the ecotourism development concept, therefore, it is necessary to help Meishan inhabitants have the correct ideas and operation process before starting ecotourism development.

The purposes of the study are to frame an operational model of community-based ecotourism development, and actually implement ecotourism activity in Meishan area. Through implementing the detailed ecotourism activity program (eg. learning aboriginal culture, observing natural environment, participating local art and dance exhibition, and using non-consumptive method) and discussing with participants, the study proposes pros and cons of the ecotourism operation in Meishan area. In sum, the study has set up a model, including criteria and operation standard of ecotourism development, for other areas in Yushan National Park to ensure sustainable ecotourism development, appropriate management and the use of environmental resource.

Paradoxes of place: creating a vision and plan for sustainability

Kohrman, Elaine
U.S. Department of Agriculture
Forest Service
Baker City OR USA 97814

Email: ekohrman@fs.fed.us

Keywords: Collaboration, sense of place, conflict management, land management planning

Abstract: Public land management planning potentially affects people's attachments to the land and the meaning they attach to their relationships with the land – their sense of place. Conflict often emerges in the planning process as potential land management changes threaten values, uses and benefits.

Incorporating sense of place information into the planning process allows the public to share their deeply rooted meanings for place. Simultaneously, incorporating sense of place information provides opportunities for diverse interests to work together and to collaborate with land managers to integrate competing desires into a shared vision.

Three national forests in the Blue Mountains of eastern Oregon, USA, have incorporated sense of place information for multiple purposes to support creating a shared vision in the new forest plans. These purposes include: gathering information about social values, creating a process for discussing shared and competing uses and determining suitable uses of the land, and describing geographic-specific, desired conditions for sustainability. This approach was primarily qualitative and based on collaborative community workshops, open houses, field trips, and a symposium occurring over three years.

The land management planning process reveals a paradox about sense of place. People do not find shared vision for sustaining the land until their sense of place is threatened. Connecting with each other around places creates new shared experiences and emerges opportunities for finding common ground. The Blue Mountains example offers insights into how sense of place may be used in the collaborative process to address social conflict and develop broadly-supported plans that contribute to sustainability.

Citizens, governments, and collaboration: A framework for analyzing government roles in collaborative environmental management

Koontz, Tom
School of Natural Resources
Ohio State University
Columbus OH USA 43210

Email: koontz.31@osu.edu

Keywords: collaborative environmental management; stakeholders; government; partnerships

Abstract: Citizen and stakeholder participation in management of natural resources has evolved over time. Communities and government agencies are increasingly using collaborative partnerships to address environmental problems. Collaborative Environmental Management (CEM) has been described as a new way of governing for environmental issues -- an alternative to government-centered processes that instead empowers stakeholders and citizens to play a dominant role in planning and decision-making. Much of the scholarly work on CEM has focused on describing its benefits and how it plays out in practice, rather than on developing analytical tools to understand what factors affect its processes and outcomes.

In this paper I describe a new theoretical framework for understanding how government roles affect CEM. This framework incorporates institutional analysis to illuminate government-stakeholder relationships. I summarize findings from a recent collaborative book project that employed the framework to investigate the channels through which government actors and institutions impact CEM initiatives. Results indicate that governments are a more dominant factor than previously thought in determining collaborative processes and outcomes, and that the channels of influence vary along several dimensions. These findings suggest important implications for public administrators and policy makers addressing environmental issues.

Mediation to settle environmental disputes: an assessment by participants-the Illinois Agricultural Mediation Program 1997-2005

Kraft, Steven E
Agribusiness Economics
Southern Illinois University
Carbondale IL USA 62901-4410

Email: sekraft@siu.edu

Keywords: chi square; logistic analysis; alternative dispute resolution

Abstract: In the Agricultural Credit Act of 1987, the U.S. Congress made provisions for the use of mediation to settle disputes involving credit issues between farmers and the U.S. Department of Agriculture. In the USDA Reorganization Act of 1994, the use of mediation as a means to settle disputes between farmers and the USDA was extended to wetland determinations, conservation compliance, rural water loans, grazing on National Forest lands, and pesticides. As a consequence, the USDA certified state mediation programs on a state by state basis. In 1998, President Clinton through an Executive Order greatly expanded the use of mediation in federal agencies as an alternative to the formal appeal process.

Using data from participants in the same mediations conducted during the period 1997 through 2005, we evaluate the effectiveness of the agricultural mediation program in Illinois from the point of view of those involved: the agency personnel and the farmers. Analysis is also broken out by type of mediation. Overall, the mediators are found to be unbiased and to be doing an effective job. Specifically, mediators should have greater familiarity with the resource problems they are dealing with and the USDA agencies need to participate with enough flexibility to actually permit a mediated solution to be achieved. Farmers had an increased understanding of USDA operating procedures as a result of participating in the mediations. Logistic regression analysis and Chi-square analysis are used. Recommendations are made for improving the USDA mediation program.

The Hammertown mechanism: cultural resistance and political marginalization

Krange, Olve
Human-Environmental Studies
Norwegian Institute for Nature Research
Norway

Ketil Skogen
Norwegian Institute for Nature Research

Email: olve.krange@nina.no

Keywords: social change, cultural resistance, autonomy, political marginalization

Abstract: Many resource dependent communities are going through extensive change. Employment in resource extraction and related industries has declined, while middle-class jobs have increased, e.g. in the public sector and in tourism. These far-reaching processes of social change are perceived as threatening by people with close ties to traditional land use practices. In particular, this is true of the rural working class. In combination with the problems rural people may experience, intrusive cultural influx tends to trigger cultural resistance. The concept denotes a situation where subalterns make use of cultural means to challenge domination. These conflicts are most visible at a cultural level, but there is an underlying material basis in an uneven distribution of economic resources and power. Cultural resistance is not necessarily launched openly against institutionalized power, nor does it necessarily imply a desire for fundamental social change. It should be seen as a struggle for autonomy. However, such autonomy does not entail influence outside the cultural realm. The opposite may be true: Those who reject hegemonic cultural forms may place themselves outside of the political arena. In this respect, current struggles to uphold traditional land use – for example by denouncing current wolf protection – could be understood in the same conceptual framework as Paul Willis employed in his studies of British working-class youngsters in derelict industrial areas in the seventies. Based on studies of the conflicts over wolf management in Norway, that is a parallel we are going to explore.

Forest management and community development under uncertainty

Krcmar, Emina M
Forest Economics and Policy Analysis (FEPA) Research
University of British Columbia
Vancouver BC Canada V6T 1Z4

Alison J Eagle
Department of Economics
University of Victoria

Cornelis G van Kooten
Department of Economics
University of Victoria

Email: ekrcmar@interchange.ubc.ca

Keywords: boreal forest, First Nations, forest planning, optimization, sustainability

Abstract: Traditional use of the provincial forestlands and resources surrounding First Nations' communities remains critical to their cultural sustainability, while forest resources are also keys to community development and economic sustainability.

We develop a strategic forest planning model that maximizes net present value of timber benefits subject to resource availability, harvest flow and ecological constraints. The model is employed to analyze the impacts of uncertain forest product prices on financial returns, harvest volumes and employment using, as a case study, forests under the management of the Little Red River Cree Nation in Northern Alberta. All other factors affecting outcomes of forest management – growth and yield, natural disturbances, forest policy and climate change – are assumed to be given and known in advance.

Due to market volatility, the prices of forest products are uncertain. Regardless of the stochastic nature of these data, statistical forecasting methods are not the best tools to handle this type of uncertainty because of the long horizons involved in forest planning. We suggest a novel approach that combines scenario analysis with fuzzy set theory. We generate distributions of the historic stumpage data for several products. The distributions of prices adjusted for inflation and other factors are then used to construct fuzzy membership functions for the stumpage values. Several scenarios of market conditions are considered: (i) No change; (ii) Increasing prices; and (iii) No change over short-term and increasing prices in the long-term.

Non-timber forest products, cultural diversity, and equity in the U.S.

Krishnaswamy, Ajit K
Director, National Community Forestry Center
National Network of Forest Practitioners
Providence RI USA 02903

Email: ajit@nnfp.org

Keywords: Multiculturalism, Social Justice, Workers, Harvesters, Traditional Knowledge, NTFP, Invasive

Abstract: Non-timber Forest Products (NTFPs) are often overshadowed by forestry's conventional emphasis on timber in the U.S.A. Yet NTFPs account for lucrative business opportunities, are often found on ecologically fragile landscapes, are harvested by culturally diverse and immigrant populations, and play a significant role in native cultures. The National Network of Forest Practitioners (NNFP) is a U.S. based grassroots alliance of rural people practicing community forestry. NNFP members include indigenous groups, forest workers and harvesters, such as those who plant trees, thin forests, gather mushrooms and floral greens. Their participation in the community forestry movement has helped broaden the definition of "community" to include all people that live and work in the woods, and helped bring issues of cultural diversity and social justice to the fore as this group includes working class people and people of color. The NNFP's NTFP Working Group is committed to raising awareness of social justice and cultural diversity. NTFP Working Group members are especially concerned around issues related to equity such as: the potential inequities associated with the U.S. Forest Service's new fee system for harvesting NTFPs (harvesters, for example, were not involved in the development of the regulations); the seemingly low priority accorded to NTFPs and associated local knowledge in some forest management plans; and the health and livelihood implications for gatherers of NTFPs, and Native American tribes of herbicide spraying as a tool for noxious- and invasive species management. This paper examines some of the cultural diversity and social justice issues around NTFP management.

Towards a sustainable Antarctic tourism industry

Kriwoken, Lorne K
School of Geography and Environmental Studies
University of Tasmania
Hobart Tasmania Australia 7053

Nick D Holmes
School of Geography and Environmental Studies
University of Tasmania

Email: L.K.Kriwoken@utas.edu.au

Keywords: environmental assessment; nature-based tourism; protected areas;

Abstract: Antarctica is a growing international tourist destination and marketed as a unique nature-base experience. Antarctica can also be cold, windy and dangerous. In the 2004-05 austral summer nearly 28,000 tourists visited the southern continent. Antarctic seaborne tourism activities, largely to the Antarctic Peninsula, included 207 voyages using 52 ships and sailing vessels. This paper will first discuss how international and national legislative and institutional arrangements shape the Antarctic tourism industry. Particular attention will be made to the self regulatory framework of the Antarctic tourism industry association. This is followed by an analysis of the scale of the industry and the technology used in shipborne, airborne, landed and cruise only Antarctic tourism. The types of associated environmental impacts are discussed along with problems related to mitigation, monitoring and protected areas. Additional means of supporting environmentally responsible Antarctic tourism are presented.

**Amenity migration and global climate change:
what might be ahead for communities in
Alaska?**

Kruger, Linda E
US Forest Service
PNW Research Station
Juneau AK USA 99801

Email: lkruger@fs.fed.us

Keywords: community change;

Abstract: Many small towns and outlying areas nestled against the dramatic landscapes of our national forests, parks, and other public lands, are experiencing an influx of new residents. These newcomers arrive for multiple reasons—often visiting first as tourists—but a common theme is their appreciation for the natural amenities provided by the public wildlands: stunning views, recreational opportunities, and an escape from the tribulations of urban life. One factor that has been identified as an influence is climate. This presentation will review what we know about amenity migration, suggest that amenity migration is occurring in southeast and south central Alaska and explore how climate change and other factors may affect migration patterns.

**Recreation-related values and beliefs of
visitors, landowners, and business owners in
the Saranac Lakes region of New York state's
adirondack park**

Kuehn, Diane M
Forest and Natural Resources Management
SUNY College of Env. Science and Forestry
Syracuse NY USA 13036

Mark Mink
Forest and Natural Resources Management
SUNY ESF

Email: dmkuehn@esf.edu

Keywords: Non-motorized and motorized boating;
recreation management

Abstract: Public forest management agencies often work with diverse stakeholder groups as they implement forest management policies. Within the Saranac Lakes region of New York State's Adirondack Park, stakeholder groups such as visitors, business owners, and landowners often have conflicting values and beliefs concerning the use of motorized and non-motorized boats on water bodies within the region's public forest areas. The main objective of this exploratory study is to identify forest managers' perceptions concerning the values and beliefs of these three stakeholder groups in the Saranac Lakes Region. Qualitative, in-depth interviews of 20 managers of public and private properties within the region were completed in 2005. Interview data were recorded (with the permission of interviewees), transcribed, and qualitatively analyzed using N6 qualitative software. Results indicate that managers perceive differences in the values and beliefs of the three stakeholder groups that are related to impacts on water quality and the natural setting of the area, conflicts between motorized and non-motorized boat users, controversies over boating access and regulations, and economic impacts on local businesses from boaters. Implications for the management of recreational areas utilized by diverse stakeholder groups will be discussed.

**Assessment of the secure rural schools and
community self-determination act (public law
106-393)**

Kusel, Jonathan P
Research and Policy
Sierra Institute for Community and Environment
Taylorsville CA USA 95983

Katie Bagby
Research and Policy
Sierra Institute for Community and Environment

Mark Baker
Research and Policy
Sierra Institute for Community and Environment

Hanna Cortner
Policy
Cortner and Associates

Nicholas Menzies
Research and Policy
Sierra Institute for Community and Environment

Email: JKusel@SierraInstitute.us

Keywords: Resource policy and legislation, community forestry, public involvement, collaborative planning

Abstract: This study examines the Secure Rural Schools and Community Self-Determination Act, the first legislation in the United States to require collaborative public involvement to fund natural resource projects that improve forest and watershed health on federal land. The focus of this study is on Titles II and III of the Act. Title II establishes Resource Advisory Committees (RACs), comprised of 15 members from industry, environmental groups, and government that make project recommendations to federal land managers. Title III provides funds for search and rescue activities, forest-related education, and fire prevention and county planning. A total of 16 case studies in nine states analyzed Resource Advisory Committee (RAC) functioning and funded projects for 15 RACs (one state had no RAC) and Title III projects in associated county areas. The study also includes analyses of the legislative history of the act, the institutional processes and entities that administered Title II and III, and a study of all California Title III expenditures.

This study shows how successful the legislation has been in developing collaborative relationships among RAC members, and between RACs, the counties, and the federal agencies. It also reveals how these relationships have helped to shape projects that are now improving

forest and watershed health on federal lands, and enriching education and services associated with the counties' natural resource endowments. Study findings highlight how well the legislation has met the intent of its framers, as well as revealing some of the problems encountered in its implementation to date.

Development of forest resource accounting using GIS - in case of Mt. Baek-un watershed, Korea -

Kwon, Dae-soon
Institute of Spatial Information & Technology
Ubi Systems Co., Ltd.
Seoul Korea (south)

Jong-hak Lee
Institute of Spatial Information & Technology
Ubi Systems Co., Ltd.

Jae-man Oh
Institute of Spatial Information & Technology
Ubi Systems Co., Ltd.

Yeo-chang Youn
Department of Forest Sciences
College of Agriculture & Life Sciences, Seoul National University

Email: hoony0541@ubi-sys.com

Keywords: Forest resource assessment; Green GNP; Timber Accounting; Carbon Accounting; Water Accounting

Abstract: The objectives of this study is to develop the assessment method of forest services, such as timber production, carbon fixation, and watershed conservation, which will be used as supporting tool of decision making for forest manager.

The case study area is Mt. Baek-un located in Jeollanam-do, South Korea. This area is a university forest of Seoul National University, which serves multiple functions to the society.

A spatial information sharing and publishing system was developed in alliance with GIS software so that users could manage spatial information effectively. It can be possible to share forest resource accounting information on the web and to print the result by users at distance. This system will be used to construct the forest resource accounting system, once the values of each forest service are determined by each valuation.

Community development and the politics of identity: Articulations of belonging in a transnational Kachin community in northern Thailand

Lahpai, Seng Maw
Faculty of Social Sciences
Regional Center for Social Science and Sustainable
Chiang Mai Chiang Mai Thailand 50200

Email: smlahpai@yahoo.com

Keywords: development, power relations, access to resources, ethnic identity, community, state/local relations

Abstract: The state remains a constant presence for Kachin in Thailand. Within the bounded geo-political boundary of the Thai state, representations and manifestations of state power is an everyday occurrence at the individual and community level. Such phenomenon is illustrated by and includes Royal Development Project, soldiers, checkpoints, restriction to movement, national development plans and access to resources. The major focus of this paper is on how the Kachin as a transnational community articulate their identity and belonging, and how they attempt to transcend state ethnic, cultural and social boundaries. Within the context of development policy and ethnic classification the issues of access to resources and community development are paramount in understanding the complexities of migrant border communities and their relationship to state and non-state actors. This inevitably raises the question of how they adjust themselves into new environments, and negotiate between “old” place and “new” place and articulate with different actors and networks. This results in tensions in maintaining their transnational culture and identity in the everyday life for the stateless Kachin. Such a process involves constant negotiation and adaptation with their homeland in Kachin state and their current position within the bounded entity of the Thai state “geo-body”. This is an ambiguous relationship and one that encompasses both traditional paradigms of movement of communities and their connection to a homeland, as well as demonstrating a contemporary situation of transnational migration to a new state and struggle for access to resources and rights.

A symbolic interactionist approach to understanding private landowners' property identity and regional identity in the Texas hill country

Lai, Po-Hsin
Recreation, Park & Tourism Sciences
Texas A&M University
College Station TX USA

C. Scott Shafer
Recreation, Park & Tourism Sciences
Texas A&M University

Email: pohsin@neo.tamu.edu

Keywords: place meaning; land fragmentation; landscape conservation

Abstract: Hill Country is a vernacular term for a region in Texas well known for its mild weather and scenic landscape. The region has gradually been changed primarily by ranching since the first significant settlement in the mid 1880s. The process of landscape change has accelerated in recent decades due to a conversion of traditional ranching to urban and suburban development. Land fragmentation, as a consequence of landscape change, dissects the habitat not only for wildlife but for traditional landowners. To alleviate adverse impacts of land fragmentation, supports from local landowners are necessary because most of the region is privately owned. This research adopts a case-study approach grounded in the symbolic interactionism of social psychology to explore landowners' place identity as an incentive for their participation in landscape conservation. Place meaning is considered the major constructive material of place identity and the guidance for behaviors based on symbolic interactionism. The purpose of the study is to explore (1) the place meanings which construct Hill Country landowners' place identity related to their properties and the region, and (2) the impacts of landscape change on place identity. Data were collected from in-depth interviews with local landowners and analyzed to identify the major themes. The result indicates that meanings of certain environmental qualities (e.g., water, wildlife, scenic beauty, rurality, and history) that landowners attributed to their properties are highly dependent on maintaining these qualities at the regional level. Resource management aiming at preserving these shared meanings is more likely to gain landowners' supports.

Cautious hope: sustainable development in the Mackenzie delta, from Berger to the Aboriginal Pipeline Group

Laidlaw, Victoria S
Rural Economy
University of Alberta
Edmonton AB Canada T6G 2H1

Email: vlaidlaw@ualberta.ca

Keywords: discourse analysis; public sphere; Beaufort-Delta; natural gas pipeline

Abstract: Since the 1970's oil and gas development has been a contentious issue in the Northwest Territories. Two factors are fundamental to this: the question of Aboriginal peoples' right to determine the scope and types of development occurring on their traditional lands and the extent to which the fragile Arctic ecosystem could be irrevocably damaged by development. This debate is still current and a new round of negotiations are occurring today between the proponents of the Mackenzie Gas Pipeline project and the peoples of the North. Despite socio-political and economic changes in the NWT, issues of the environment and Aboriginal self-determination are still as salient as they were thirty years ago.

This paper investigates the pipeline debate using the lens of the environmental sociological concepts of ecological modernization and sustainable development. The discussion begins with consideration of Justice Tom Berger's public inquiry that resulted in a moratorium on pipeline development. The notion of development at the time of Berger's inquiry is juxtaposed against contemporary resource development discourse which is used to convey information about the Mackenzie Gas Project (MGP). The MGP project's corporate website as well as both the Aboriginal Pipeline Group's website and their publicly spoken goals for the pipeline are examined for the discourses of ecological modernization and sustainable development. I argue that these, somewhat twin concepts, give cautious hope to the desire of the Aboriginal Pipeline Group to achieve their vision of a sustainable future for the present and future generations of the North.

Integrating community perspectives in incursion response biosecurity in New Zealand

Langer, E.R. (Lisa)
Forest Biosecurity and Protection
Ensis
Christchurch New Zealand

Joanna Goven
School of Political Science and Communication
University of Canterbury

Lieske van Santen
Formerly Forest Biosecurity and Protection
Ensis

Rob den Boer
Formerly Forest Biosecurity and Protection
Ensis

Email: lisa.langer@ensisjv.com

Keywords: community; biosecurity; dialogue; sustainability; aerial spraying; Btk; painted apple moth.

Abstract: New Zealand is vulnerable to pest invasions and undertakes biosecurity incursion response operations to protect indigenous flora and fauna. The Ministry of Agriculture and Forestry (MAF) in New Zealand has aeri ally sprayed areas where urban communities reside in an attempt to eradicate insects that have been found in low numbers, such as the white spotted tussock, painted apple and Asian Gypsy moths, 1996-2004.

A small minority within the communities affected by the spraying reported experiencing harmful effects, and among this minority and their supporters there developed a strong antipathy to the strategy and to the agencies involved. Although a sector of the community may strongly oppose aerial spraying whatever the situation, this does not negate the importance of acknowledging possible harms and public concerns and considering recommendations for improvement.

Social acceptance of eradication strategies is becoming increasingly important for the success of eradication campaigns, particularly for long-term sustainability. Integrating community perspectives in the decision-making process will be enhanced by being proactive and raising questions in anticipation of incursions. On-going 'anticipatory dialogue' could compensate for the fact that urgent decisions cannot allow sufficient time for the detailed identification of community knowledge and concerns. Response options could be explored and evaluated, and community perspectives considered well

in advance of a particular incursion event, enabling future incursion responses to correlate more closely with social needs and priorities. This would assist in bringing the community perspective into the decision-making process and engage the community in sharing the challenge of protecting indigenous flora and fauna.

Environmental awareness and perceptions among lay and expert groups: Responses to three-dimensional visual displays

Larson, Kelli L
Geography
Arizona State University
Tempe AZ USA 85287-0104

Email: kelli.larson@asu.edu

Keywords: environmental perception; water resources; urban heat island; public participation;

Abstract: Scientific understanding of environmental systems has improved with advances in computer technology that model and depict complex problems and possible approaches to mitigating them. Such models and related visual displays may be useful to communicating and facilitating environmental understanding and decision-making among a variety of stakeholders. Information technologies have aided participatory decision-making and negotiations in the past, yet cognitive understanding, trust in computer technology and other factors may constrain their utility. This research assesses human response to three-dimensional (3-D) visual displays that depict groundwater overdraft and urban heat island problems in metropolitan Phoenix, Arizona. The central question is: How do awareness and perceptions of environmental problems vary among lay people and experts before and after viewing 3-D visual information? The impact of the immersive, 3-D setting of Arizona State University's Decision Theatre is compared to a control, two-dimensional PowerPoint presentation among student (lay) and professional (expert) participants. Results of this research will be presented along with implications for the design and use of visual technological displays in environmental education and decision-making.

Impacts of an ecosystem management on landscape structure and harvesting costs: The Lake Duparquet research and teaching forest (ferld) case study

Latremouille, Charles
Industrial Chair in Sustainable Forest Management
Université du Québec en Abitibi-Témiscamingue
Rouyn Noranda QC Canada J9X 5E4

Osvaldo Valeria
Industrial Chair in Sustainable Forest Management
Université du Québec en Abitibi-Témiscamingue

Brian Harvey
Industrial Chair in Sustainable Forest Management
Université du Québec en Abitibi-Témiscamingue

Email: charles.latremouille@uqat.ca

Keywords: ecosystem approach, spatial analysis, simulation, wood procurement cost

Abstract: While the cumulative effects of harvesting on the forest landscape inevitably modify the natural forest mosaic, strategies for mitigating these changes have not generally been integrated into industrial forest management planning exercises in Quebec. This despite the fact that changes in spatial distribution of forest stands resulting from forest harvesting have been shown to influence distribution and abundance of indigenous flora and fauna. Natural disturbance-based management, a variant of forest ecosystem management, proposes maintenance of the historical forest cover characteristics in order to maintain ecosystem integrity.

This study proposes a comparative approach to evaluate the consequences of three different management plans for the FERLD (business as usual - BAU, ecosystem approach - EA and spatial ecosystem approach SEA). First, the temporal variations in the forest mosaic were measured using landscape spatial indices (LSI). These indices were determined for five forest cover maps of the forest, produced from aerial photography taken in 1945, 1965, 1972, 1983 and 1994. The LSI allows us to quantitatively describe the forest landscape and they are used as a target for establishing spatial management objectives for the SEA management plan. A stand level simulation model (FOREXPRT) is then used in order to forecast the effects of the different silvicultural treatments required to achieve the management plans objectives. Future characteristics of the stands are then put into the GIS in order to evaluate the evolution of spatial performance with LSI. Finally, a GIS tool (Wood Procurement Planning Tool) is used to estimate the consequences on wood procurement costs of different

management plans. Interpretations of each LSI used as a target, forecast simulation results and objectives of different management plans will be discussed and the preliminary results will be presented. The findings are of particular interest in light of recommendations of the Quebec's recent commission on management of the public forest.

Prerequisites for effective community-based collaboration in forested regions

Lauber, T. Bruce
Natural Resources
Cornell University
Ithaca NY USA 14850

Ashley L Wilson
Natural Resources
Cornell University

Barbara A Knuth
Natural Resources
Cornell University

Daniel J Decker
Natural Resources
Cornell University

Email: tbl3@cornell.edu

Keywords: collaboration, community-based management, conservation, development

Abstract: Small communities in forested regions often strive to develop or conserve local resources while considering social, economic, and ecological concerns. The complexity of these efforts may prevent local governments from carrying out development and conservation projects on their own. Both development and conservation require resources beyond those available to many small communities. Collaboration, or working with others, is therefore necessary for many communities to develop locally-tailored solutions to the challenges they face. We explored the prerequisites for successful community-based collaboration in the Northern Forest of the northeastern United States. We selected three communities, North Creek, NY; Warren, VT; and Randolph, NH that had successfully completed collaborative development or conservation projects in recent years. We: (1) studied the factors that promoted (or inhibited) collaboration in these communities; (2) identified the ways in which stakeholders interacted with each other; and (3) characterized the roles played by stakeholders in the collaborative process. The success of collaborative projects was heavily influenced by stakeholders' attitudes, the presence of key resources to be developed or conserved, serendipitous timing, and the involvement of stakeholders who could provide ideas, labor, funding, knowledge, and political influence. These findings were used to develop recommendations for small forest communities working on collaborative development or conservation projects.

Participatory science: providing reliable information for adaptive co-management of NTFPs in India and Nepal

Lawrence, Anna
Environmental Change Institute
University of Oxford
Oxford UK United Kingdom OX4 3AT

Giridhar Kinhal
Foundation for Revitalisation of Rural Health
Traditions, India

Harisharan Luintel
ForestAction, Nepal

Sarah L Gillett
Environmental Change Institute
University of Oxford

James Keirstead
Environmental Change Institute
University of Oxford

Email: anna.lawrence@eci.ox.ac.uk

Keywords: medicinal plants; participatory research; community forestry; experimental method

Abstract: Can non-timber forest products (NTFPs) provide communities with a reliable livelihood at the same time as conserving species and habitats? The impact of harvesting NTFPs must be assessed accurately in order to make decisions for adaptive management. This is a particular challenge where the forests are managed by, or in partnership with, rural communities. Whilst biometrically reliable data are essential for management, field-based researchers emphasise the need for methods which are simple, rapid, focused on species with high potential for livelihood improvement, scientifically valid but usable by non-scientific forest managers.

This paper addresses this challenge through collaborative experiments conducted by communities and scientists in co-managed forests in Nepal and southern India. Based on both local and scientific knowledge, community members and facilitators propose hypotheses about the effect on yield of biological, social and management factors, including harvest level and method. With the support of foresters and researchers, community members compare indicators, test correlations between indicators and make recommendations about useful proxies for measuring sustainable yield. Data from the Western Ghats of India, and middle hills of Nepal, allow comparison of stakeholder responses, and

prospects for incorporation of monitoring procedures into on-going adaptive co-management. The study enables the testing of hypotheses about management and yield, usability of indicators of sustainable yield, comparison of scientific monitoring with local monitoring, and the effect of such monitoring on local perceptions and action. The paper discusses the process used to develop this approach with forest-based communities and the effect of the approach on their forest planning and management.

Managing the 'commons' on Cadillac Mountain: A stated choice analysis of Acadia National Park visitors' preferences

Lawson, Steven R
Department of Forestry
Virginia Polytechnic and State University
Blacksburg VA USA 24061

Steven D Bullock
Department of Forestry
Virginia Polytechnic and State University

Email: lawsons@vt.edu

Keywords: state choice analysis; Acadia National Park

Abstract: High levels of visitor use, depleting resource conditions, increasing management restrictions and site hardening on the summit of Cadillac Mountain, an Acadia National Park 'icon' site, may be considered an example of the "Tragedy of the Commons" (Dustin & McAvoy 1980; Hardin, 1968). Hardin's (1968) proposed solution to the Tragedy of the Commons, "mutually agreed upon coercion", is defined as "social arrangements that produce responsibility" which are "agreed upon by the majority of the people affected". This study uses stated choice analysis to assess the tradeoffs that Cadillac Mountain visitors are willing to make among public access, resource protection, visitor regulation, and site hardening. Results indicate that Cadillac Mountain visitors consider protecting vegetation and soils to be a priority, and indicate a willingness to accept restrictions requiring visitors to stay on the paved summit trail and management structures such as signs and rock borders placed along the trail. While respondents did support visitor regulations and some degree of site hardening to protect vegetation and soils on the mountain summit, respondents preferred that the park maintain relatively unlimited public access to the summit and not install fencing along the summit loop trail. In summary, the results suggest that visitors to Cadillac Mountain are not willing to accept a degraded "commons" and that "mutually agreed upon coercion" may exist in the form of limiting visitor freedoms onsite and moderate amounts of site hardening, but not in limiting the freedom to visit.

Effects of 9/11 on U.S. National Park visitation

Le, Yen H
Conservation Social Sciences
University of Idaho
Moscow ID USA 83844-1139

Steven Hollenhorst
Conservation Social Sciences
University of Idaho

Margaret Littlejohn
Visitor Services Project-Park Studies Unit
U.S. National Park Service

Bret Meldrum
Conservation Social Sciences
University of Idaho

Marc Manni
Park Studies Unit
University of Idaho

Email: lenale@uidaho.edu

Keywords: National Parks, travel behaviors

Abstract: According to the U.S. Department of Commerce, the terrorist attack on September 11, 2001 had a significant effect on both the international and domestic travel behavior of U.S. residents. Fewer U.S. residents traveled abroad during 2001-2003 period. Similarly, domestic travel also declined. This domestic pattern can be seen in decreased visitation to the U.S. National Park Service (NPS) units during that period. Reasons for this declining trend are many, including safety concerns, generally higher travel difficulty, and increased fuel prices. This paper aims to explore the differences in U.S. visitor travel behaviors to NPS units before and after 9/11. Data used for analysis are based on the in-depth visitor studies conducted by the NPS Visitor Services Project and statistics from the NPS Public Use Statistics Office. Variables that will be compared include destination characteristics (i.e. travel distance, visitor familiarity with the unit, etc.) and visitor characteristics (i.e. visitor group type, group size, length of visit, preferences, satisfaction, etc.).

Place dependency among community members in the Kaskaskia watershed, Illinois

Leahy, Jessica E
Parks, Recreation & Tourism Program
University of Maine
Orono ME USA 04468

Mae A Davenport
Forestry
Southern Illinois University

Dorothy H Anderson
Forest Resources
University of Minnesota

Email: jessica_leahy@umit.maine.edu

Keywords: Place attachment; place dependency; multi-dimensional; trust; benefits; communities

Abstract: People's emotional bonds to public lands can be very strong, affecting attitudes and motivating behavior, yet these bonds are notoriously difficult to measure. Although place attachment scales have been established for use with recreation visitors, scales measuring community member dependency are lacking. This paper explores the usefulness of a multi-dimensional place dependence scale using a community member sample from the Kaskaskia Watershed in Illinois. The U.S. Army Corps of Engineers has a large presence in the watershed, managing two reservoir lakes and one navigation project. A random sample of 1,600 watershed community members living in the local (<15 miles) vicinity of a U.S. Army Corps of Engineers project was mailed a questionnaire. This paper is unique in that it tests a multi-dimensional place dependence scale with a community rather than a visitor sample. Also, this paper will analyze determinants of place dependency and the impact of dependency on attitudes and behavior. The attitudes and behaviors examined include satisfaction, trust, recreation use and level of public involvement. Results indicate that place dependency plays a significant role in agency-community relationships. Several options for U.S. Army Corps of Engineers managers to incorporate these place dependency results into their public involvement strategies, partnerships, and other interactions with local communities will be discussed.

Who are those users coming out for family recreation?

Lee, Bob D
School of Human Movement, Sport and Leisure Studie
Bowling Green State University
Bowling Green USA 43402

Alan Graefe
Leisure Studies
Penn State University

Robert Burns
Department of recreation, Park and Tourism Resourc
West Virginia University

Email: bobleedu@yahoo.com

Keywords: family recreation, motivation, outdoor

Abstract: Family recreation plays a vital role in the development of family health, functioning, and strength (Horning, 2005). Engagement in family recreation breeds many positive social, educational, and mental outcomes for participants (Smith, 1997). In the past few years, a considerable amount of attention has focused on family functioning and positive leisure behaviors (Kelly, 1997; Shaw, 2001; Zabriskie, 2000 & 2001). However, less attention has been devoted to family recreation in a natural setting. Identifying those users who come to nature for family recreation would help recreation resource managers in providing services or amenities for these visitors. Therefore, the purpose of this study was to investigate the characteristics of natural recreation resource users in relation to the motivation of family outdoor recreation participation.

Data were collected through a series of on-site interviews at representative scenic sites along the Columbia River Gorge National Scenic Area during the year 2000. A total of 1282 surveys were completed with a 96% participation rate. Results from a multiple regression analysis found that visitors who were married, had children under 16, traveled longer distances, or were repeat visitors placed more importance on family recreation as a motive for visiting the area ($f = 20.72$, $a < .001$). This model accounted for 17 % of the variance associated with the family recreation motive. The findings of the study identify unique characteristics of natural resource recreational users who expressed interest in family recreation versus other possible motivations for visiting the Scenic Area. Implications for management of nature-based recreational areas are discussed.

Motivations and preferred birdwatching facilities and setting among Korean birdwatchers

Lee, Jin-Hyung
Department of Tourism Management
Honam University
Gwangju Korea (south) 506-715

Email: jlee@honam.ac.kr

Keywords: Birdwatching, motivation, setting preference, market segmentation, cluster analysis

Abstract: The purpose of this study was to investigate the motivations and preferred birdwatching facilities and settings among Korean birdwatching tourists and segment Korean birdwatching tourist market based on the participants' motivations.

Data were collected from 429 participants from Chonsoonman Birdwatching Tour, which is the most popular birdwatching tour in Korea. The birdwatching tourists surveyed in this study were primarily in their 30s or 40s and college graduates who have high income. A factor analysis delineated four dimensions of motivation for birdwatching: Affiliation with other birders, affiliation with family, appreciations of birds, and achievement of birding knowledge and skills. Results also showed that there are three dimensions of preferred birdwatching facilities and setting: opportunity for observe birds/availability of interpretive activity, availability birdwatching related events, and availability of complementary activity.

Mean values indicated that affiliation with family is the primary motivation for the birdwatching tourists, followed by achievement of knowledge and skills, appreciation of birds, and affiliation with other birders. The most preferred facilities and settings is the opportunity to watch birds and availability of interpretive activity, followed by availability of birdwatching related events and availability of complimentary activity.

Results from a cluster analysis also indicated that there are three different segments of Korean birdwatching tourists markets: family seekers, multi purpose seekers, and birdwatching seekers. Based on the results from this study, several points were made from the perspectives of birdwatching tour planning and marketing.

Park satisfaction: Predicted by activities, experience, and quality

Lee, Joohyun
Recreation management
Florida state university
Tallahassee FL USA 32306

Cheryl Beeler
Recreation management
Florida state university

Rosie Keween
Recreation management
Florida state university

Email: jlee@coe.fsu.edu

Keywords: Park satisfaction, activity satisfaction, experience satisfaction, quality based satisfaction

Abstract: Parks are one of the fundamental components of the tourism industry—attracting state, national, and international visitors—but also an integral part of the quality of life for all citizens. Academics and park administrators have, therefore, focused their research on conceptualizing and measuring satisfaction as a sign of having achieved management objectives. Although a substantial body of literature has evolved around the issue of satisfaction, no studies have included variables of activity satisfaction in relation to park satisfaction among visitors.

The purpose of this study, therefore, is to conduct a comprehensive study of visitor satisfaction in a state park setting. It is hypothesized that park visitor satisfaction is comprised of satisfaction with types of activity, experiences, and quality of services. The survey was administered in twenty-five state parks in Florida to a total of 3,513 park visitors (response rate of 42.4%). Based on a factor analysis, three factors of activity satisfaction emerged: active, passive, and water-based activities. Also, three factors of quality-based satisfaction emerged: general features, specific features, and recreation areas. Experience-based satisfaction was obtained with five items. The results suggest that experience-based satisfaction explains the most variances of overall satisfaction followed by quality-based satisfaction. Activity-based satisfaction was significant but a relatively weak predictor of overall park satisfaction. The findings further suggest that water-based activity was important in gauging park visitor satisfaction. Within quality-based satisfaction, the quality of specific features including information, parking, and roads were important predictors of park visitor satisfaction.

Classification of natural settings: A sorting study of woodland landscapes

Lee, Mei-Fen
Department of Horticulture
National Chung Hsing University
Taichung Taiwan 402

Sheng-Jung Ou
Department of Horticulture
National Chung Hsing University

Email: mei_fen_lee@yahoo.com.tw

Keywords: visual quality, ecological quality, sorting task, cognition, empiricism

Abstract: Many researches proposed that the preference for scenic beauty and neat appearance of natural landscapes will significantly challenge to those wishing to promote the value of biologically diverse ecosystems (e.g. Williams & Cary, 2002; Daniel, 2001). Some criticisms stated that part of the conflicts come from what the individuals perceive and cognize the environments.

In order to uncover and clarify the criteria which people hold when they make their assessments of natural settings, we conducted a sorting task allowing participants to categorize settings according to their own concepts. 200 subjects were asked to do free sorting and directed sorting of photographs of various forest landscapes including different physiognomies, different management methods of settings and other special events.

The qualitative and quantitative analyses of the sort showed that respondents with ecological-learning background tend to group the settings according to the ecological meanings of settings, special species, physiognomies and succession series. However, the criteria hold by respondents with aesthetic-learning background to classify the setting were aesthetic elements (shape and color), disposition of components and their feelings. The results also indicated that acceptability for landscapes of relatively high ecological quality was associated with the ecological-related cognition of individual. Our study confirmed the effect of learning on landscape assessment. These suggested that it would be possible to coordinate and integrate the contrariety between ecological and aesthetic values of natural settings.

Do management actions affect park visitors? A twelve-year trend study of Chilkoot trail visitor characteristics and use patterns

Legare, Anne-Marie
Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada

Wolfgang Haider
Resource and Environmental Management
Simon Fraser University

Tom Elliot
Yukon Field Unit
Parks Canada

Email: alegare1@sfu.ca

Keywords: Trend study design

Abstract: Research on recreational use and users of protected areas has mostly been based on the cross-sectional study design (i.e., one study at one time). Such research provides useful information on current visitors, but lacks the longitudinal comparison that is necessary to understand the impact of changes in the market place, or in the managerial or physical setting of the resource. Repeated in-depth visitor surveys provide a way to monitor indicators and observe trends in both use and user characteristics over a period of time.

At the Chilkoot Trail National Historic Site of Canada (CTNHSC), visitors have recently experienced an increase in restrictive management policies. In 1997, a user fee, a use limit program, a reservation system, and a group size limit were introduced. To understand how these management policies have impacted park visitors, I investigated change in the visitor characteristics and use patterns from three visitor surveys over a twelve-year period during which the restrictive policies were implemented.

My research consists in the evaluation of the stability in the CTNHSC visitor profile using data from three visitor surveys undertaken in the summers of 1993, 1998, and 2004. I present underlying changes in the CTNHSC hiker population, assuming the introduction of several recreation regulations.

Soybeans in the amazon?: The role of environment and trade discourses in US farm policy debates

Lehrer, Nadine
Forest Resources
University of Minnesota
St. Paul MN USA 55114

Email: lehr0037@umn.edu

Keywords: globalization, industrial agriculture, international trade, sustainable development

Abstract: The next U.S. farm bill is likely to bring agricultural policy, natural resource conservation, and international trade into formal conversation and conflict. Calls for protectionism of U.S. agricultural interests and continued support to farmers have remained strong even as World Trade Organization pressure to reduce or eliminate American (and European) subsidies to agriculture has intensified. This paper will focus on the case of expanding Brazilian (and U.S.) soybean production to address the ways in which nation-state competition and rainforest conservation discourses shape the policy debates around reforming (or not reforming) U.S. agricultural subsidy policy. For instance, the popular notion that the U.S. and Brazil are racing to be the world's top soybean producer, while to some degree accurate, tends to privilege the role of the nation-state and downplay the role of multinational agribusinesses in driving agricultural production. This in turn tends to implicitly absolve agribusiness, which often operates across national borders, from assuming greater responsibility for local natural resource conservation as agricultural production increases. This idea of competition also contributes to a dichotomy in which increased agricultural productivity and environmental conservation are seen as mutually exclusive, obscuring the potential role of more sustainable local agricultural systems to contribute to economic, social, and environmental well-being in both Brazil and the U.S. This paper will examine some of the ways in which discourses of competition and environmentalism feed into the nascent 2007 Farm Bill debates, and will speculate as to the impacts of these discourses and debates on future sustainable agricultural development.

Understanding the value of natural capital: Water valuation project in Alberta

Leigh, Luis
Environment Canada
Government of Canada
Gatineau QC Canada K1A 0H3

Email: yves.bourassa@ec.gc.ca

Keywords: natural capital, water, economic, valuation, resource management

Abstract: In the absence of information about the values of stocks & flows of our Natural Capital, efficient management and decision-making is compromised, and opportunities to improve Canada's overall level of well being could be precluded. This presentation will help understand the importance of assigning economic values to support management decision making process, the factors that are taken into account, and the approaches used, as well as discuss opportunities to expand the implementation of this type of approach to other environmental assets such as forest, biodiversity, etc. Some results will be presented regarding an ongoing pilot natural capital valuation project for water in Alberta.

The perceptions of resource management, and the role of local ecological knowledge in northwestern Ontario, Canada

Lemelin, Harvey R
School of Outdoor Recreation, Parks and Tourism
Lakehead University
Thunder Bay ON Canada P7B 5E1

Email: harvey.lemelin@lakeheadu.ca

Keywords: Local ecological knowledge, resource management, wildlife

Abstract: Historiography (Berg 2004), oral histories, on-site observations (i.e., traveling to protected areas), and attendance at meetings pertaining to resource management were used to understand the events and patterns shaping the development and transformations in resource management in Northwestern Ontario. In total, thirty-four in-depth interviews were conducted with stakeholders involved in resource management. This included individuals associated with resource management agencies (federal and provincial), and long term members of the region. It also involved the collaboration of the Pays Plat First Nation and various other First Nation members.

While numerous themes were identified, this presentation examines the relative absence of local ecological knowledge (LEK) or traditional ecological knowledge (TEK) in the participant's discourse. While (LEK) and (TEK) are used as an alternative to existing dominant wildlife management strategies, very few participants in this study mentioned either concept. The relative absence of (LEK) and (TEK) from the narrative may perhaps be due to historical development strategies focused on the extraction of natural resources in the region, as well as the role of resource management agencies (Ontario Ministry of Natural Resources, Fisheries and Oceans Canada), and environmental groups (CPAWS) in the establishment of protected areas and wildlife management in Northwestern Ontario. The presentation will conclude by examining Tuhiway-Smith's (2004) concept referring to the passive acceptance of dominant discourses in resource management.

Forest dependency and its implications for protected area management: A case study from Kasane Forest Reserve, Botswana.

Lepetu, Joyce P
School of Forest Resources and Conservation
University of Florida
Gainesville FL USA PO Box 110

Janaki Alavalapati
School of Forest Resources and Conservation
University of Florida

P K Nair
University of Florida

Email: jlepetu@yahoo.com

Keywords: resource use; logit model; forest conservation; non-timber forest products

Abstract: The Kasane Forest Reserve (KFR) in Botswana is of great significance to the local people and environment of the region. Currently a comprehensive KFR management plan is being developed to meet the various needs and aspirations for the present and future.

Dependency of local communities on forest resources has been identified as a major obstacle in implementing forest protection programmes. Before a collaborative forest management programme can be introduced, there is clearly a need to understand the nature of forest dependency by the local communities. This study estimated forest dependency and identified factors influencing dependency for households living around KFR. Data collected from 237 households were analyzed using logistic regression model.

The results suggest that forest dependency is positively and significantly associated with family size and unemployment. All things considered wealthiest households collect fewer amounts. Thus, policy makers need to consider the needs and economic options with the above components as an alternative strategy for forest protection

The social-psychological impact of Uganda's Kibale National Park on the residents of Bigodi village and its effect on rural development

Lepp, Andrew P
Recreation, Park and Tourism Management
Kent State University
Kent OH USA 44240

Email: alepp1@kent.edu

Keywords: Park management; ecotourism; local participation; sustainable; sociology; psychology

Abstract: Uganda is an East African nation of tremendous ecological diversity. Uganda protects this diversity in ten national parks. While ecologically rich, Uganda is economically poor. Therefore, Uganda's national parks are managed for two purposes – conservation and rural development. Development opportunities stem largely from tourism. However, research reported below suggests Uganda's national parks might have a detrimental effect on the social-psychology of rural people which can stifle development.

In 2003, research was conducted in the village of Bigodi neighboring Kibale National Park (KNP). KNP was created in 1991. In the process, people were evicted from their homes, crops burnt and property destroyed. Since KNP's creation, crop raiding by wildlife has increased further straining local people. Using theoretical sampling, 50 of Bigodi's 385 adults were interviewed about rural development. Interviews were analyzed within a grounded theory framework using the method of constant comparison. Two important themes arose: 1) residents believe that development must originate from outside their community; 2) residents have an external locus of control (ELC), or a belief that control over life's events rests with powerful outside forces, not the individual or community. The ELC explains why residents believe that they cannot be the agents of their own development. Previous research shows an ELC can result from traumatic life experiences. Interviews with residents suggest that the creation of KNP, the continued presence of armed rangers and crop raiding have contributed to residents' ELC. This research provides evidence that national park management strategies can have social-psychological effects on neighboring communities thereby impacting rural development.

Reaching beyond the gate: Community outreach at Yosemite National Park

Lever, Christopher C
Environmental Science, Policy, and Management
University of California, Berkeley
Berkeley CA USA 94706

Email: clever@nature.berkeley.edu

Keywords: collaboration, federal lands, natural resource decision making

Abstract: National Parks have serious concerns regarding communities that surround them. Parks are deeply embedded in communities that can facilitate or hinder managers in achieving their objectives. Historically National Park Service planning procedures have embodied rational-comprehensive processes typically following a rather stultified notice and comment format and National Environmental Policy Act (NEPA) mandated public involvement. However, some parks have tried to change that. Academics, planning theorists, and practitioners have critiqued this one-way communication inherent in many legislated public participation strategies and for over 30 years have called for new paradigms in agency communications with the public.

In 2002, after years of paralyzing litigation and contentious relations with gateway communities, seemingly exacerbated by the formal public involvement process, Yosemite National Park (Yosemite NP) instituted an innovative public participation strategy. This strategy relies on continuous public outreach, independent of and in addition to NEPA requirements, in an attempt to initiate dialogue with the parks closest neighbors. Utilizing a multi faceted public outreach program, Yosemite NP hoped to decrease potential conflict, increase communication, and build trust and support with and among the gateway communities and the larger public.

In the study presented here, qualitative interviews of gateway community members and Yosemite NP staff were conducted for an in-depth case study of the "Yosemite Gateway Partnership Meetings." My question is to what degree is this new program effective.

Social impacts of coastal erosion in rural Alaska

Lewis, Amy C
Environmental Sciences
URS Corporation
Anchorage AK USA 99503

Jon D Isaacs
Planning
URS Corporation

Email: amy_lewis@urscorp.com

Keywords: community planning, social impacts, indigenous people, Alaska

Abstract: The village of Kivalina, Alaska is perched on a barrier island in the Chukchi Sea, 80 miles north of the Arctic Circle. Due to an increase in the frequency and intensity of sea storms, degradation and melting of permafrost, and accelerated erosion of the barrier island shoreline (factors that may be linked to global climate change), the village has been in a state of emergency for several years. The existing townsite is already limited in land, as it is surrounded by water on all sides. Temporary erosion control measures implemented in the area only slow the sea's impacts to the island. Limited land area and the rate of erosion has restricted investment in community improvements. If Kivalina is not relocated soon, the next large sea storm could end up displacing residents to nearby villages, leaving them without a home or community to return to.

Village residents have unsuccessfully pursued site relocation for the last 20 years. They have been working with federal and state governments planning for relocation, and selected potential village sites from the list of sites studied by the U.S. Army Corps of Engineers. However, the locations that are most favored by the community for subsistence, cultural, and quality of life reasons have been proven to be geotechnically inappropriate and strategically problematic with respect to the ongoing erosion of the coastline. This presentation explores the planning process, options available to the village, and discusses the social issues facing Kivalina that must be factored into the final relocation decision.

Environmental value orientations and preferences for landscape change in a northwest British Columbia community: The NEP-DSP continuum revisited

Lewis, John L
School of Planning
University of Waterloo
Waterloo ON Canada N2L 3G1

Email: j7lewis@fes.uwaterloo.ca

Keywords: Environmental Values, Preferences, Landscape Change, First Nations

Abstract: A key feature of the current policy environment in which decisions about landscape management are made is its increasing complexity. Whereas in the past, relatively few interests commanded attention in decisions about forest management, today a host of values and perspectives demand access and consideration in decision-making. There is a need to consider how this increasingly varied spectrum of interests can be taken into account, particularly where these interests are unfamiliar to land managers such as the preferences and values of First Nations communities. The central question underlying this aspect of preference, and which is the basis for the primary research question is – How and why do preferences for modified forest landscapes differ between and among First Nations and Euro-Canadians? A sample of First Nations and Euro-Canadian residents of the upper Skeena Valley in Northwest British Columbia were interviewed using a photo-elicitation technique for landscape preference evaluation. Photo-realistic simulations of alternative landscape changes in the upper Skeena Valley were presented to the participants, who provided preference rankings for different landscape treatments and commented at length on the rationale for their rankings. For several years, biocentric-ecocentric, or New Environmental Paradigm-Dominant Social Paradigm (NEP-DSP) value dimensions have been applied to the investigation of preferences and values towards forest management (e.g. Coufal, 1989; McQuillan, 1990; Schindler et al., 1993; Steel et al., 1994). However, the NEP-DSP continuum identified by Dunlap and VanLiere (1979) only partially accounts for the range of environmental value orientations and preferences expressed by the Upper Skeena Valley participants, and the First Nations participants in particular. Based on the pattern of findings from this research, I propose refining the NEP-DSP continuum using an additional scale that I have termed the 'hierarchy-interdependence' dimension, and discuss the implications of these findings for environmental planning research and practice.

Exploring the issue of ethnic homogeneity in park and recreation

Li, Chieh-Lu
Geography
The University of Hong Kong
Hong Kong Hong Kong

Garry E Chick
Recreation, Park, & Tourism Management
The Pennsylvania State University

Harry C Zinn
Recreation, Park, & Tourism Management
The Pennsylvania State University

Alan R Graefe
Recreation, Park, & Tourism Management
The Pennsylvania State University

James D Absher
Pacific Southwest Research Station
USDA Forest Service

Email: clli@hku.hk

Keywords: ethnicity; cultural values; cultural consensus analysis; Hofstede; forest recreation

Abstract: The purpose of this study is to examine the usefulness of ethnicity as a construct in park and recreation research. In particular, we are interested in the degree to which presumed ethnic groups exhibit internal cultural homogeneity. In 2002, the visitors to the Angeles National Forest (ANF) near metropolitan Los Angeles were surveyed. Using purposive sampling at sites known to be heavily used by visitors with diverse ethnic backgrounds, we obtained a sample of 444 whites, 312 Hispanics, and 319 Asians (overall $n = 1,174$). We examined whether the three ethnic groups, Anglos, Hispanics, and Asians were homogeneous in terms of Hofstede's (1980) measure of cultural values. We assume that if distinctive ethnic subcultures exist then they should be identifiable by specific measures of languages, religion, family structure, cultural values, and the like. We used cultural consensus analyses to test the homogeneity of the three ethnic groups. The results of cultural consensus analyses showed that none of the three ethnic groups and none of the subgroups splitting by nationality, gender, age, and the generation in the US within the three ethnic groups were homogeneous in terms of the cultural values. Discussion of the findings and research implications are suggested.

A study on management models of agricultural tourism and traditional tourism industry

Lin, Chien-Yau
Landscape Architecture
Chungchou Institute of Technology
Yuanlin Changhwa Taiwan 51003

Hung-Hsu Yen
Leisure Planning
National Formosa University

Sheng-Jung Ou
Horticulture
National Chung-Hsing University

Yu-Hsiu Huang
Horticulture
National Chung-Hsing University

Kun-Tso Chen
Landscape Architecture
Chungchou Institute of Technology

Email: jclin@dragon.ccut.edu.tw

Keywords: Agricultural tourism, Tourism industry, Co-opetition theory, Management.

Abstract: Agricultural tourism has been developed over twenty years in Taiwan. Under actively guiding and promoting by government, the development model of agricultural tourism tends to be more mature than previous time. During the period of agricultural tourism development, the quantity and quality of traditional tourism industry has also being improved and enhanced. As a result, there exists a competition between these two tourism industries. Therefore, this study tries to find out a win/win situation for both tourism industries. The study firmly believes that there must be a co-opetition relationship for agricultural tourism and traditional tourism industry to maintain their own potential and sustain their business in the future. This study firstly analyzes the positioning, strengths, and disadvantages for agricultural tourism and traditional tourism industry through depth interviews. From the depth interviews, this research develops 18 co-opetition strategies. Secondly, this study explores product images, attractions, and possibilities of co-opetition for both tourism industries through visitors' survey. This research obtains 616 valid questionnaires in flying-cow ranch, west-lake resortopia, and small-scale leisure farms in Tong-Xiao. This results show that most of the visitors agree the way how both tourism industries operate the business. The visitors also highly agree that the leisure farm and traditional tourism industry should cooperate

together. This research finds out that a co-opetition relationship does exist between two industries. Finally, this research suggests leisure farms should identify their own core-resources and develop their unique image; moreover, they also need to connect themselves with other nearby recreation resources to form a new local recreational market.

The relationships between place attachment and landscape preference among visitor and resident with case study of Lukang township, Taiwan

Lin, Chin-Ten
Department of Leisure and Recreation Management/De
DaYeh University/National ChungShing University
ChungHua County/Taichung City Taiwan 515/402

Email: ct_lin62@yahoo.com.tw

Keywords: Place attachment, landscape preference, Lukang Township

Abstract: Lukang Township of Central Taiwan has been a popular tourism destination owing to diversely cultural attraction and religious significance. However, the transformed townscapes, consequently because of the modernization and increasing tourism development, have been affecting visitor and/or resident's bonds of to this place. In order to preserve traditional landscape for locals as well as to provide quality of tourism settings for visitor, the prerequisites therefore will depend upon the realization of the relationships between place attachment and landscape preference. Three main purposes of this study are as following: firstly to explore the difference of place attachment between visitor and resident; secondly to identify the varieties of landscape preference between visitor and resident; and thirdly to understand the effects of place attachment on landscape preference.

The findings show that six types of landscape preference of visitor significantly differ from those of resident. Different dimensions of place attachment by factor analysis appear statistically correlated to a range of landscape types. In addition, the results of regression model indicate that place attachments affect landscape preference both from visitor and resident. Recommended strategies on resource/environmental management are suggested for managerial agency in order to enhance tourism settings as well as to preserve resource.

Volunteer interpreters in Taiwan's society of wilderness: Understanding the role of resource knowledge, place attachment, and activity involvement in interpretive specialization

Lin, Hui-Nien S
Forestry
Stephen F. Austin State University
Nacogdoches TX USA 75965-3543

J Mark Morgan
Dept. of Parks, Recreation & Tourism
University of Missouri-Columbia

Ju Chou
Graduate Institute of Environmental Education
National Taiwan Normal University

Ju Chou
Graduate Institute of Environmental Education
National Taiwan Normal University

Homer C Wu
Graduate Institute of Environmental Education
National TaiChung University

Email: linh@titan.sfasu.edu

Keywords: Volunteerism, stewardship, connection

Abstract: The Society of Wilderness (SOW) is a non-governmental organization that uses volunteers to promote natural resource preservation in Taiwan. Volunteer interpreters participate in one of forty Environmental Monitoring Teams (EMTs), strategically located across the island. They are responsible for restoration, clean-up, and public education activities at the sites. Despite the fact that volunteers play a significant role in preserving natural resources, SOW has little information on their reasons for participation. During the winter of 2005, mail-back surveys were used to measure the degree of activity involvement, place attachment, and resource knowledge for the volunteer interpreters at the Er-ge Mountain EMT, the oldest and largest EMT in Taiwan. Forty-five of 48 questionnaires were returned, yielding a 93.8% response rate. The resource knowledge and place attachment scores of interpreters were combined into a 2 x 2 volunteer orientation matrix, thus providing one explanation for their activity involvement in SOW. A continuum of interpretation specialization was developed using all three factors. Volunteer interpreters were distributed among each of the four levels. This study suggests that a procedure based on interpretation specialization can be useful to strengthen SOW's volunteer recruitment and retention efforts.

An evaluation on economic benefit of Taroko National Park ecological resources conservation

Lin, Yann-Jou
Horticulture Science
National Taiwan University
Taipei Taiwan

George L Peterson
Rocky mountain Research Station
USDA Forest Service

Patricia A Champ
Rocky mountain Research Station
USDA Forest Service

Bau-Show Lin
Horticulture Science
National Taiwan University

Email: d92628011@ntu.edu.tw

Keywords: Non-Market valuation; Contingent valuation method; Willingness to pay

Abstract: Taroko National Park of Taiwan is unique for its high cliffs and deep valley. Most areas of Taroko National Park are undisturbed; the flora and fauna within the park is diverse. These ecological resources play important role on environmental conservation and recreational use. In order to know the value of Taroko National Park, the purposes of this study were to develop a framework of the holistic values and economics analysis associated with Taroko National Park, and further to evaluate ecological economics via non-market valuation.

In this study, contingent valuation method was used to evaluate the ecological benefit of Taroko National Park. The residents living in Taipei and Hualien and visitors visiting Taroko National Park were chosen as sample group. The economic values were estimated by the Interval Model. The results show that average mean WTP of household in Taiwan is 1,283 NTD. The 95% confidence interval value is between 1,214 NTD and 1,352 NTD. The total value of Taroko National Park ecological resources conservation in Taiwan is 9.05 billion NTD. In the 95% confidence interval, the total value is between 8.57 billion NTD and 9.53 billion NTD. Based on the results of this study, we also suggest some long term and short term management strategies to Taroko National Park Headquarter.

Unexpected pleasures: Qualities of life of Wisconsin dairy farmers

Lloyd, Sarah E
Rural Sociology
University of Wisconsin-Madison
Madison WI USA 53706

Michael M Bell
Rural Sociology
University of Wisconsin-Madison

George W Stevenson
Center for Integrated Agricultural Systems
University of Wisconsin-Madison

Thomas Kriegl
Center for Dairy Profitability
University of Wisconsin-Madison

Email: slloyd@ssc.wisc.edu

Keywords: quality of life, dairy farming, grazing, sustainable agriculture

Abstract: Numerous surveys and studies of Wisconsin dairy farmers have included questions and investigation of satisfaction or quality of life. Past research is inconclusive as to any difference in the “amount” of perceived quality of life improvement in farmers using different dairy farming systems. In this paper I argue that quality of life is a complex construction including; ecological, biological, psychological, ideological, cultural, social, political, and economic factors. The data collected in this research show that different farm systems and different people involved in these systems have different reactions and associations with system control and the “unexpected” that may arise in farm operation and every day life as a farmer. Ideological differences also play a role in farmer satisfaction. Quality of life is neither an amount nor a singular substance that can be counted and weighed farm versus farm, like profitability. Rather “qualities” of life, in the plural must be considered. This paper reports on data gathered from a 2006 mail survey of 1600 Wisconsin dairy farmers. The survey test six hypotheses on satisfaction which were developed from focus groups carried out in the winter and spring of 2005.

Cooperative research the management of marine fishery resources in New England: How important is trust?

Lord-Fonseca, Fabienne Y
Natural Resources and Earth System Science
University of New Hampshire
Durham NH USA 03824

Robert A Robertson
Department of Resource Economics and Development
University of New Hampshire

Troy Hartley
Resource Economics and Development
University of New Hampshire

Andrew Rosenberg
Natural Resources/Earth, Oceans and Space
University of New Hampshire

Email: fyh2@cisunix.unh.edu

Keywords: trust; cooperative research; fishery management, regression analysis; trust

Abstract: Cooperative research has been held up by some advocates from the fishing, scientific, management and policy making communities as a way to incorporate the knowledge of commercial fishermen into the scientific assessments of marine fisheries. Cooperative research seeks to promote partnerships between fishermen and researchers to improve the quality of data used in fisheries management and to improve the relations between the fishing industry and the scientific/management communities. The success of cooperative research initiatives in achieving these goals depends, at least in part; on the extent degree to that individual “trust” each other at an individual or group/agency level. The President’s Ocean Commission and other recent fishery management publications serves to stress the importance of “trust” to fishery management, with no real or clear sense of what trust means or how it can be produced, maintained or restores.

The primary goal of this exploratory study is to theoretically and empirically define the “concept of trust” relative to the collection and application of scientific research to the management of marine fishery resources. Data for this study was collected from a total of five mailings of three different questionnaires (originally a long version was sent out, which was followed by a series of shorter versions) distributed to 1,024 members of the fishing community in the summer/fall 2002-2003. Addresses were obtained via a

mailing list provided by the New England Fisheries Management Council, which had originally come from the NMFS permit holders list. A total of 558 surveys were returned for a response rate of 54 %. Of the 558 surveys returned, those respondents' whose occupation was not commercial fishing or a commercial fishing vessel owner were eliminated, leaving a total sample size (n=392). The six item measure of "trust" captures the multi-dimensional nature that represents these extremes. It also has high inter item reliability and approximately a normal distribution. The examination of the proportion of variance explained by the various models suggest that individual, behavioral and engagement attributes explained the greatest proportion of the total variance explained by the total model. The fishing industry is diverse—no two survey respondents were alike as demonstrated by the many significant interaction terms in this model.

Matching intellectual property protection with traditional ecological knowledge.

Loring, Philip A
Anthropology
University of Alaska, Fairbanks
Fairbanks AK USA 99775

Email: ftpal@uaf.edu

Keywords: IP; TEK; TK; commons; open source; indigenous knowledge;

Abstract: Traditional ecological knowledge has been identified as a productive source of guidance when designing and managing for sustainability in socioecological systems. With increased attention, comes increased concern regarding the possible exploitation of these knowledges by commercial interests, and how communities might protect themselves against such misappropriation and commodification. The current "western" intellectual property regime, e.g. copyright and patent law, is proving incompatible with indigenous notions of property and the fundamental nature of TEK. There are also epistemological questions as to whether traditional ecological knowledge is something that can or should be owned at all. There does exist, however, a kind of protection that can ensure the integrity of TEK while not secluding it from fair use and further innovation: the copyleft.

Most famous for the open-source software movement and the ultra-successful computer program Linux, the copyleft frames notions of property within the right to distribute, not the right to exclude. It has a proven ability to keep intellectual property safe from exploitation, while keeping it open for innovation and maintaining value for both private and commercial interests. I suggest that the best way to safeguard TEK is through the application of a copyleft licensing strategy analogous to that leveraged by Linux. Adoption of such a strategy by academic institutions and journals, organizations such as the SAA, indigenous, national and global political entities, will keep this valuable information safe for everyone investigating alternative, equitable and sustainable ways to live.

**Vicarious experience vs. scientific information
in climate change risk perception and
behaviour: a case study of undergraduate
students in Norwich, UK**

Lowe, Thomas D
Tyndall Centre for Climate Change Research
School of Environmental Sciences, University of East
Anglia
Norwich United Kingdom NR4 7TJ

Email: t.lowe@hotmail.com

Keywords: Climate change, affect, visual imagery, The
Day After Tomorrow, communication, perceptions

Abstract: Climate change is being increasingly
communicated and discussed in the context of extreme
events and dangerous impacts in an effort to highlight
its importance and scale. The notion of climatic change
has transformed from a gradual and linear “weak signal”
towards non-linear and catastrophic representations,
particularly related to the possibility of abrupt or sudden
climate change. However, recent studies challenge this
strategy, suggesting that whilst the lay public have
increased concern over climate change, overall,
behavioural reactions are not affected. In some cases, a
distancing from the causes and effects of climate change
may result. A controlled experiment examined this
conflict of opinion by exposing a sample of subjects to
two different experiences; the film ‘The Day After
Tomorrow’ and a compendium of scientific literature
relating to climate change and abrupt climate change.
Findings indicate that the majority of respondents from
all treatments perceive climate change as a violent and
catastrophic threat. Whilst in general neither treatment
results in a significant difference in response between the
groups, some evidence for a distancing effect does
emerge. This suggests that when the perceived threat is
greater than the ability to cope, fear reactions can
instigate message rejection through defensive responses.
This study contributes to emerging theory on the roles
of experiential processing, affect, and imagery, in risk
perception and decision-making and, it is hoped, to the
development of climate change communication towards
a more effective end.

**Community forestry and indigenous people:
The Taiwan context**

Lu, Dau-Jye
School of Forestry & Resource Conservation
National Taiwan University
Taipei Taiwan Taiwan 106

Mei-Hui Chen
Department of Forestry
National Pingtung University of Science & Technology

Huei-Hsin Chang
School of Forestry & Resource Conservation
National Taiwan University

Email: djlu@ntu.edu.tw

Keywords: community forestry, indigenous movement,
mountain policy, community development, Taiwan

Abstract: We had community forestry program in
Taiwan since 2002 which was not only influenced by
the paradigm shift of forestry in the world but also a
response to domestic policy that gave indigenous people
more political support. The objective of the community
forestry is to empower local communities by three stages
with the aim to co-manage forest lands with local
communities, especially the indigenous tribes. Almost
those over 400 projects of the community forestry
program belonged to the first stage up to the end of
2004. Then only 3 cases have been involved in the
secondary stage of it, and none at the third stage.
Although it initiates shortly and still is very preliminary
for the development of the community forestry
program, its implementation has greatly improved
relationships between the Forestry Bureau and the
indigenous tribes. There are several challenges for the
community forestry program applying in the indigenous
tribes in Taiwan. The first is that it needs more support
for the community forestry program at all levels within
the Forestry Bureau. The second is that there are many
relevant programs initiated by different government
agencies with bigger money which community forestry
program needs to compete with. The third is that the
objective of co-management for the community forestry
program may not match with the enquiry of indigenous
movement on self-ruling. The fourth is that there is a
debate among land conservation, development of
indigenous tribes and forest management in the
mountain areas which the community forestry program
need clarify first before it draws the view for the
indigenous tribes to join this program.

Framework of PA Highlands: Initiative and methodology

Luloff, Al E
Human Dimensions Unit
Pennsylvania State University
University Park PA USA

James C Finley
Human Dimensions Unit
Pennsylvania State University

Alexander L Metcalf
Human Dimensions Unit
Pennsylvania State University

Email: aeluloff@psu.edu

Keywords:

Abstract: The Highlands Region of New York, New Jersey, Connecticut and Pennsylvania is a rugged forested land just west of the eastern seaboard metropolis. This nationally significant landscape provides clean water, forest products, important habitat, historic farmland, and recreational opportunities. Given its close proximity to large urban centers, this region of the east is under enormous development pressure.

The Highlands Conservation Act of 2004 (cite) mandated a comprehensive assessment of five conservation values throughout the Highlands (i.e., biodiversity, farmland, forestland, recreational/cultural, and water). An important component of this assessment was garnering public input to identify places of high conservation value and threats to those places.

In 2002, New York and New Jersey completed their assessments as required under the original 1992 Highlands Act (cite). These assessments fell short of including public input and the identification of important places was driven solely by secondary data pertaining to the five conservation values. The implementation team in Pennsylvania chose to design a process that would engage the public in the assessment of places with significant conservation value.

Urban cliffs: reconciling human ecology with ecosystem functioning

Lundholm, Jeremy
Biology/Environmental Studies
Saint Mary's University
Halifax NS Canada B3H 3C3

Email: jeremy.lundholm@smu.ca

Keywords: habitat template, green roofs, urban ecology

Abstract: Conventional approaches to urban ecosystems emphasize the differences between cities and the natural habitats they replace. The Urban Cliff Hypothesis suggests that the built environment replicates a set of habitats that are close analogs to natural rock outcrops. I review evidence in support of this view. Both spontaneously colonizing nature and designed habitats have value in a revitalized urban ecology that seeks to understand humans as part of functioning ecosystems. This concept reconciles urban ecosystems with the human evolutionary past yet emerges as compatible with progressive environmental programs such as bioregionalism. I review some of the green building initiatives, including living roofs, that work with the hard-surface template provided by buildings to increase beneficial ecosystem functioning. I end by articulating a continuum of ecological novelty and habitat replication for urban ecology. This work suggests a major role for planning, design, and technological development in improving urban environments. On the other hand, it also provides conceptual resources for valuing spontaneous and wild urban habitats.

The family map – an unbiased approach for documenting Cree land-use information and knowledge

Lussier, Catherine
Social Anthropologist
Waswanipi Cree Model Forest
Montreal Canada H3Y 1X7

Email: lussierc@sympatico.ca

Keywords: Aboriginal-Sustainable forest management-traditional knowledge

Abstract: The Waswanipi Cree Model Forest is developing a process - the Ndoho Istchee Conservation Process - that aims to help Cree users take a meaningful part in the search for sustainable forestry practices on their hunting territories. Methodological tools are put together by a multidisciplinary research team, and the resulting guidelines will be applicable in other contexts.

The Family Map is the first step in the Ndoho Istchee Conservation Process that leads to the production of a Forest Conservation Plan. The objective is to produce a map that reflects the Cree families' own perspective on land use, by documenting their vision, experience, values, aspirations, and concerns regarding the land. The Family Map forms the knowledge base from which conservation values can be extracted at the subsequent stage. Mapped information is collected and validated through in-depth interviews, and relates to past, present and future land use. Once the Conservation Process is completed, it remains a sensitive and private document destined for the exclusive use of the families. The information therein contained may go over and above data required for the development of management strategies at later stages. Hence the "unbiased" approach to land use mapping, in that it is users who determine the extent and range of information to be mapped. Inter-disciplinary work ensues; liaising on a continuous basis with other team members to ensure that information gathered at the Family map stage is understood and accurately interpreted at further stages.

Practicing deliberative consultation: Using small groups to discuss health risks and uses of recycled water

Lux, Colleen A
School of Social Sciences, Media and Communication
University of Wollongong
Wollongong NSW Australia 2522

Email: clux@uow.edu.au

Keywords: public participation;water reuse

Abstract: As part of the multidisciplinary project Oz-AQUAREC, researchers from the University of Wollongong held a series of small discussion groups in Australian communities with existing non-potable water recycling schemes. This paper focuses on sessions held with residents of a new dual-reticulation suburb in southeast Queensland. Sessions were designed to provide participants with an open forum to discuss quality standards and potential health risks, and to raise questions and concerns.

Too often water recycling consultation programs rely heavily on one-way communication from scheme sponsors to the community, with few opportunities for dialogue and deliberation to promote understanding. Examples of potentially problematic one-way communication are education materials that present a list of approved and unapproved uses of recycled water, with only a footnote mention of precautionary public health measures for explanation. A list of unapproved uses inevitably raises, but fails to answer, questions of – why can't I use it for that?

This paper illustrates our intent to design a program for information provision and group discussion that thoroughly examines the rationale for allowing or prohibiting certain uses for recycled water. We explore how participants responded to the information through their discussion. Our findings indicate that participants can thoughtfully consider and grapple with the uncertainties of health risks associated with water recycling, when information is provided and discussed in a small group forum with the opportunity to deliberate. Water recycling scheme sponsors should consider adopting similar deliberative strategies to promote better understanding and more meaningful community involvement.

Six years of mandatory shuttle use in Zion National Park: A longitudinal analysis of the visitor experience

Mace, Britton L
Psychology
Southern Utah University
Cedar City UT USA 84720

Joshua D Marquit
Psychology
Utah State University

Ryan Kay
Biology
Southern Utah University

Email: mace@suu.edu

Keywords: Transportation Systems, Visitor Studies, Management of Parks and Protected Areas

Abstract: Zion National Park in Utah instituted a mandatory alternative shuttle transportation system in May of 2000 because of the sheer magnitude of visitors (3 million annually) and the impact they were having in the main canyon of the park. Specific attributes of the shuttle (such as crowding, accessibility, efficiency, preference, and overall success) as well as park attributes (such as scenic beauty, naturalness, freedom, and solitude) were assessed in 2000, 2003, and 2005. One-hundred and ninety-one visitors to Zion National Park completed a 25-item survey in May of 2000 at one of three shuttle stops. Follow-up data was collected in May and June of 2003 from 202 visitors. In 2005, data was collected from over 600 visitors during three different seasons. While visitors initially had a few reservations about the mandatory shuttle system, by 2003 the vast majority were pleased with the shuttle and consider it very successful. All variables directly related to the shuttle system, except for crowding, significantly improved in 2003 compared to 2000. The largest differences between these two data sets were shuttle accessibility and efficiency. In 2005, visitors again reported a very positive experience. Differences were apparent between 2005 and the previous samples, however the visitor experience with the shuttle system continued to be positive. Multiple regression results show success of the shuttle system to be mediated by preference, accessibility, and efficiency. The observed differences between the data sets illustrate both productive formative planning and adaptive management in Zion National Park. While many research questions remain to be addressed, the success of the alternative shuttle system in Zion should serve as a

model for other parks around the world considering new or improved transportation systems.

Congruency between interpreter goals for and visitor responses to interpretive talks.

Machnik, Lisa K
Parks, Recreation, and Tourism Management
Clemson University
Clemson SC USA 29634

Email: lmachni@clemson.edu

Keywords: interpreter expectations; results of interpretive talks; park ranger

Abstract: Interpreters aim to provide opportunities for visitor education, enjoyment, and inspiration that lead to appreciation, understanding, and stewardship. To encourage the development of effective interpretive talks, the National Park Service Interpretive Development Program (NPS IDP) offers peer evaluation based on established professional standards for interpretation. This study explored the congruence between visitors' responses to interpretive talks and NPS IDP peer evaluations of those talks. Objectives were first to identify what aspects of the talks were memorable and important to visitors and what visitors intended to do as a result of attending the interpretive talk. The second objective was to explore the congruence between visitors' responses and the NPS IDP peer evaluators' identification of opportunities for personal connections.

Four interpreters presented a total of fourteen interpretive talks at Glacier National Park during one week in August, 2005. All adult visitors in attendance were invited to complete a survey immediately after the talk (n=92, response rate=70%). Each talk was recorded on DVD. Four experienced NPS peer reviewers reviewed each interpreter's talk and created a conceptual scheme describing potential visitor responses (such as the development of personal connections to natural resources) and the interpretive techniques used. Content analyses of visitor responses to five open-ended questions and the peer review results were conducted and compared. Patterns in the reported results suggest interpretive techniques vary in effectiveness. This study demonstrates one method for analysis of the effectiveness of interpretive talks in providing opportunities for visitors to connect with park resources.

Visitor experience and conservation in the Antarctic: an (un)easy partnership

Maher, Patrick T
Resource Recreation and Tourism
University of Northern British Columbia
Prince George BC Canada V2N 4Z9

Email: maherp@unbc.ca

Keywords: Polar Regions; resource sharing; outdoor recreation; resourcepreservation

Abstract: Antarctica may be the epitome of conservation. An area the size of the USA and Mexico combined, with very little permanent human presence, which is set aside for the good of humankind. However, one could also think, "wait a minute, it's just all rock and ice anyway", but for all the biodiversity Antarctica lacks, it makes up for in "biodensity", whereby entire species are found in huge numbers, but found only in one place.

At present, tourist numbers aboard cruise ships in the Antarctic are steadily growing, in excess of 27,000 people in 2004/2005. These ship-based tourists from around the world are flocking to this "untouched wilderness", seeking to see the unique fauna and re-live the heroics of exploration. However, in reality visitors are not such a homogenous group. There are also those who visit with National Programs; those who arrive by ship, but do not land; those who fly over the continent; but all have come to experience Antarctica.

With conservation managed under an international regime, in combination it would seem like allowing the visitor to have the best possible experience, while conserving the nature of the place is an uneasy partnership, a dilemma of great magnitude. How can we conserve the Antarctic, but at the same time showcase its uniqueness and account for a variety of visitors?

This presentation is going to examine some of the realities of the partnership and ask: What are present visitor's experiencing? What are they seeking to experience? Does the current partnership work? Can it work? How? What next?

Perceptions towards water exports: A case study of the Gisborne lake water bottling and export project

Mailloux, Julie
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada

Email: jmaillou@dal.ca

Keywords: Water trade; ideology; political ecology; conflicts in water management; Newfoundland

Abstract: Water exports have been controversial for a long time in Canada. However, it has been observed that the way water is proposed to be exported has an effect on a given project's reception. While the Canadian bottled water industry, a net exporter, flourishes without systematically causing public concern, proposals to export water in bulk always give rise to strong reactions. This paper intends to explore the perceptions underlying these diametrically opposed responses, through the study of the Gisborne Lake Water Bottling and Export Project. This scheme, proposed on the South shore of Newfoundland at the end of the 1990s, combined bulk water exports and bottling operations. Key informants involved either in the support or the opposition to the project at the local, provincial, and national levels were interviewed. Data gathered were analyzed qualitatively along four main themes: the perceived potential economic benefits, environmental risks, and political implications of water bottling and bulk water exports, and the meaning of water. The results show that the opposition to the Gisborne Lake development was directly linked to its bulk water export component, all parties being favourable to water bottling: bottled water is seen as more beneficial, bulk water sales are deemed more risky. Still, beyond the differences in perceived risks and benefits of these two types of water sales, the study permitted to establish that it is the way actors conceptualize water that changes whether it is in bulk or bottled form.

Stakeholder attitudes towards the use of historical disturbance as a guide for forest management in Oregon's central cascades

Mallon, Angela L
Forest Resources Department
Oregon State University
Corvallis OR USA 97331

Bruce Shindler
Forest Resources Department
Oregon State University

Email: Angela.Mallon@oregonstate.edu

Keywords: adaptive management; historic range of variability; social acceptability

Abstract: Growing emphasis on ecosystem and landscape-level forest management across North America has spurred an examination of alternative management strategies which focus on emulating dynamic natural disturbance processes, particularly those associated with forest fire regimes. This topic is the cornerstone of research in the Blue River Landscape Study (BRLS) taking place in the Central Cascades Adaptive Management Area, located in the McKenzie River watershed of western Oregon. As scientists and managers involved with the BRLS work to unravel the ecological and economic implications of disturbance-based forest management, they must also consider the level of public acceptability for such an approach. This presentation examines the perceptions of disturbance-based management held by members of the attentive public in the McKenzie watershed. Our analysis is based upon responses to a mail questionnaire distributed to this group in the summer and fall of 2005. This questionnaire covered three broad categories: participants' knowledge of forest management and ecosystem processes, their opinions about citizen-agency interactions, and their judgments about the use of disturbance-based management practices, including perceived risks and uncertainties associated with this approach. Our findings indicate members of the attentive public in the watershed have high levels of knowledge with respect to general forest management terms, and lower levels of knowledge with respect to landscape-level disturbance processes. Furthermore, they display cautious support of disturbance-based management, but emphasize the importance of projects based on sound science, transparent planning processes, and clear management objectives.

Shoreline protection value and social dimensions of mangrove ecosystems in coastal villages affected by the 2004 tsunami in Sri Lanka

Mamiit, Rusyan Jill
Natural Resource and Environmental Management
University of Hawai'i - Manoa
Honolulu HI USA 96848-1711

Kaushalya Wijayaweera
IUCN-The World Conservation Union, Sri Lanka

Email: rusyan@hawaii.edu

Keywords: Mangroves; Fisheries; Tsunami; Shoreline Protection; Damage Cost Assessment; Sri Lanka

Abstract: Sri Lanka is an island bordered by 1,562 km of coastline. The country encompasses a high diversity of coastal vegetation, specifically mangroves. These ecosystems have provided a wide array of goods and services, ranging from fishery, forest products and tourism to shoreline protection. The protective function of mangroves at the event of natural disasters, however, is hardly recognized. The need to assess the economic value of this function became more eminent to assist decision-makers and funding agencies in integrating environmental rehabilitation in the tsunami reconstruction process.

The districts of Hambantota and Tangalle are two of the largest coastal districts in southern Sri Lanka that experienced severe damage caused by the Indian Ocean tsunami. The disaster demonstrated the natural protection afforded by coastal ecosystems. This study estimates the value of mangrove ecosystems as shoreline buffer at the event of extreme disasters. The availability of household damage cost information allowed the use of a comparative damage cost assessment approach to estimate the value of ecosystem conservation and wise management in mitigating natural disasters such as tsunamis. The methodology assessed the socioeconomic impacts of the tsunami disaster on coastal livelihood at two sites—Kapuhenwala and Waduruppa. The first site is characterized with well managed and functioning coastal ecosystems; and the latter exhibits a disturbed and degraded ecosystem.

The assessment estimated a higher incidence of damage costs in areas with degraded mangrove vegetation. Results indicate that costs of damages to livelihood and property in Waduruppa (US\$ 1,377,975) are approximately ten times the costs of damages in Kapuhenwala (US\$ 173,555). The damage costs avoided appraisal suggests that threatened mangroves

reduce the protection afforded to inland properties, community infrastructures and livelihood by US\$ 2,109/household. The estimate shows that areas with intact mangrove ecosystem generate greater economic benefits. The findings also indicate the economic rationale of including mangrove rehabilitation efforts in the post-tsunami reconstruction and rebuilding programs.

Are wildlife values changing in the United States?

Manfredo, Michael J
Human Dimensions in Natural Resources Unit
Colorado State University
Fort Collins CO USA 80523-1480

Tara L Teel
Human Dimensions in Natural Resources Unit
Colorado State University

Ashley Dayer
Human Dimensions in Natural Resources Unit
Colorado State University

Email: manfredo@cnr.colostate.edu

Keywords: values; value shift; human dimensions of wildlife; cultural materialism; environmental attitudes

Abstract: Note: This abstract is part of a proposed joint presentation (2 talks). The other talk (proposed as the first of the two) is entitled "Wildlife value orientations in the United States" (authors: Teel & Manfredo). The abstract for the latter has already been submitted.

Cultural change theorists contend that human values change in a predictable way as society moves through agrarian, industrial and post industrial phases. We apply this notion in proposing an explanation of wildlife value shift in the United States. This is part 2 of a paired proposal that will describe a micro-macro level conceptual model, empirical findings, and on-going efforts of a research program directed at understanding wildlife values. Theorists suggest that human values shift in response to changes in mode of economic production, demography, technology and environmental forces. More specifically, it has been proposed, and empirically tested, that as societies move from industrial through post-industrial phases, values shift from focus on material well being, safety and security to emphasis on belongingness, environmentalism, quality of life and actualization needs. We argue that wildlife value orientations have shifted in a pattern that is consistent with those trends, i.e., there is a shift from utilitarian to mutualism value orientations. Using data described in presentation 1, we examine the relationship between 1) wildlife value orientations and overall materialist values, 2), wildlife value orientations and environmentalism and 3) wildlife value orientations and variables representing driving forces of shift (education, urbanization, income). Hierarchical linear analysis revealed significant effects supporting these proposed relationships.

Visions of nature: Participatory research and outreach with minority youth

Mangun, Jean C
Department of Forestry
Southern Illinois University Carbondale
Carbondale IL USA 62901

Mae A Davenport
Department of Forestry
Southern Illinois University Carbondale

Corliss W Outley
Division of Recreation and Sports Studies
University of Minnesota

John C Davis
College of Education and Human Services
Southern Illinois University Carbondale

Eunice M Buck
Department of Forestry
Southern Illinois University Carbondale

Email: mangfor@siu.edu

Keywords: environmental education; minorities; participatory democracy; human dimensions

Abstract: One of the biggest challenges facing natural resource professionals and educators lies in serving the needs of traditionally underserved populations and ensuring the inclusion of different voices in planning and decision making. A need exists for coordinated, collaborative partnerships between the natural resource community and minority populations. This paper reports on a project aimed at building partnerships between minority youth in southern Illinois and Southern Illinois University Carbondale (SIUC) faculty and students through participatory research and outreach. The SIUC Department of Forestry has teamed with schools in rural communities to explore how youth view and interact with nature through autophotography. Middle-school children are provided with disposable cameras and asked to take photos of nature in their communities. Encouragement and guidance is provided by SIUC undergraduates through interactive workshops. Each young photographer is subsequently interviewed; interviews and photographs will be analyzed using qualitative analysis procedures to identify prominent themes, relationships, and patterns. Themes that emerge will serve as the foundation for recommendations to the local natural resource community and educators. Participating youth will showcase their photographs in an SIUC student led seminar also including community officials and residents. The goal of this project is to

create an opportunity for Forestry undergraduates to encounter and respond to the racial, ethnic, and economic diversity of southern Illinois residents. The project also aims to bring rural minority residents and their natural environment together, by establishing youth's visions of nature and highlighting community development opportunities for expanded environmental learning and nature-based tourism in the area.

Beach access policies in the South Atlantic region: Are local governments up to the challenge?

Mangun, William R
Political Science and Coastal Resources Management
East Carolina University
Greenville NC USA 27858

Amy F Blizzard
Political Science
East Carolina University

Email: mangunw@ecu.edu

Keywords: beach access, program evaluation, social indicators, coastal management, outdoor recreation

Abstract: This paper addresses the role of local government in the implementation of state beach access policies in the South Atlantic region of the United States. The paper specifically addresses whether local response can be predicted by an examination of local policies, budgets, and regulatory tools for public access. Conditions were examined in 45 local governments in North Carolina, South Carolina, and Florida (an insufficient number of Georgia local governments had programs to be included in the study). Although local governments only have those powers granted to them by state legislatures, local jurisdictions ultimately determine the quality of shoreline beach access. Local budgets provide the majority of funds and staff for public beach access policy development, enforcement, and daily maintenance of public access sites. A reciprocal relationship exists between local and state governments. Local governments receive grants and technical support from state governments while states gain policy implementation at the local level. Knowledge of reciprocal relationships between state and local governments is critical for a better understanding of the delivery of public beach access programs and to examine their success or failure effectively. Although no single indicator was found that fully explains program success or failure, statistically significant differences among economic, political, and demographic variables and beach access were identified. The analysis provides insight into incentives that affect local implementation and provides a basis for recommendations that can help improve beach access policy development and program administration in other coastal regions.

Understanding and managing soundscapes in the National Parks: Part 2 – standards of quality

Manning, Robert
Rubenstein School of Environment and Natural Resou
The University of Vermont
Burlington VT USA 05405

Peter Newman
Warner College of Natural Resources
Colorado State University

Ericka Pilcher
Warner College of Natural Resources
Colorado State University

Jeffrey Hallo
Rubenstein School of Environment and Natural Resou
The University of Vermont

William Valliere
Rubenstein School of Environment and Natural Resou
The University of Vermont

Michael Savidge
National Park Service

Daniel Dugan
Dan Dugan Sound Design

Email: Robert.Manning@uvm.edu

Keywords: Soundscapes; standards of quality; norms; park management

Abstract: A growing body of research has documented the potential impacts of outdoor recreation in national parks and related areas. These impacts apply to multiple components of the landscape, including soil, vegetation, water, and wildlife. Moreover, there are often aesthetic implications of these impacts that can degrade the quality of the visitor experience. Research and management attention is now being extended to include aural impacts of outdoor recreation, and natural quiet – the sounds of nature undisturbed by human-caused noise – is now being recognized as an important and endangered resource in national parks and related areas. In particular, human-caused noise can mask the sounds of nature and detract from the quality of the visitor experience.

Research at Muir Woods National Monument (California) was designed to enhance understanding and management of the park's soundscape. An initial survey of visitors found that the park's soundscape was

important to many respondents. For example, some respondents reported that hearing the sounds of nature added to the quality of the visitor experience, while other respondents reported that human-caused noise detracted from the quality of the visitor experience. Based on these findings, two subsequent phases of research were designed and conducted in the summer of 2005. This research was designed using the framework of indicators and standards as developed in contemporary park management frameworks, including Limits of Acceptable Change and Visitor Experience and Resource Protection. The first phase of research was conducted to measure and analyze the natural and human-caused sounds that visitors hear in the park. This study is described in a companion abstract by Pilcher et al. Based on resulting data, a second phase of research was designed to explore normative standards of quality for human-caused noise in the park. Five tape recordings were prepared that included an initial recording of natural quiet only and four recordings of increasing levels of human-caused noise. These tape recordings were incorporated into a survey administered to 296 park visitors. Respondents were asked to rate the acceptability of each tape recording, record the types of sounds they found pleasing and annoying, and identify the tape recording that best represented the conditions of the park during their visit. Resulting data provide an empirical basis to help formulate standards of quality for the soundscape of the park.

Compatibility and conflict as a conceptual basis for outdoor recreation planning

Marcouiller, David W
Urban and Regional Planning
University of Wisconsin - Madison
Madison WI USA 53706

Ian Scott
Urban and Regional Planning
University of Wisconsin - Madison

Jeff Prey
Bureau of Parks and Recreation
Wisconsin Department of Natural Resources

Email: iscott@wisc.edu

Keywords: conflict/dispute management, complements, supplements, competitive, antagonistic

Abstract: Outdoor recreation planning is taking on an increasing sense of urgency as open and publicly accessible lands experience increased demand pressures. As rural landscapes become fragmented by private residential and commercial developments, the extent and quality of accessible public recreation lands becomes increasingly scarce. This is exacerbated by fairly dramatic change in patterns of recreational use. With technological progress and increases in disposable incomes, the last twenty years have witnessed a dramatic increase in alternative recreational uses of land including All-Terrain-Vehicles and jet-skis. With this alternative set of recreational activities come increased levels of crowding, displacement, and antagonism. Recreation activities interact with different degrees of compatibility resulting in various levels of recreational use conflict. In this work, we forward an approach to recreation planning that focuses on managing for relative compatibilities and involves maximizing those uses thought to be complementary and supplementary while segregating those uses that are competitive and antagonistic. We report on recent empirical work that assesses relative recreational use compatibility.

How to save the world - a proposition: Promoting the development of world wide unsubsidized free trade

Marshall, Fred W
Bauer Creek
Marshall Forestry Services
Midway, BC Canada V0H 1M0

Email: fmarshall@sunshinecable.com

Keywords: Health & Safety; Traditions; Historical Heritage Values; Alternate Land Use Services;

Abstract: The world is embarked on an irreversible path towards “unsubsidized, world-wide free trade”. There is virtually nothing anyone can do to stop this from happening; the best modus operandi is to take active, aggressive measures to ensure that the process and the end result remain within the control of the various levels of government and the inherent freedoms and rights due all members of the human race are respected and upheld.

The transition from the present situation to global free trade will be extremely difficult and vigorously opposed by many, especially the ever-expanding mega businesses, organized crime and the richer, western economies that will be faced with learning to live at a standard that is much less consumptive and destructive than at present. Such a “happening” has the best potential of any efforts so far undertaken to resolve the many social and environmental problems and inequities present throughout the world today; all legitimate efforts that support this phenomenon should be supported.

Achievement of the state of “unsubsidized, global free trade” will resolve the major world problems which include the following in priority:

1. Destruction of the earth's ecosystems and all life forms contained therein.
2. Poverty and its inherent and contributing factors: lack of food, clean water, housing, education and medical services.
3. Crime and Corruption.
4. Over-consumption by the rich and oppression of the poor.

Backcountry food storage, or why I don't want to share my dinner with a bear

Martin, Steven R
Environmental and Natural Resource Sciences
Humboldt State University
Arcata CA USA 95521

Kate McCurdy
Environmental and Natural Resource Sciences
Humboldt State University

Steve Thompson
Yosemite National Park
National Park Service

Email: steven.martin@humboldt.edu

Keywords: Yosemite; wilderness visitors; bear-resistant canisters; Theory of Planned Behavior

Abstract: In 1998, Yosemite National Park initiated a low-cost rental program to promote voluntary use of bear-resistant food storage canisters. In the years since, canister use has gained widespread acceptance by Sierra Nevada Mountains backpackers, although conflict between humans and bears continues at an unacceptably high level in Yosemite National Park and elsewhere in the region.

In 2004, Yosemite National Park officials instituted a requirement mandating that backpackers store their food in approved bear-resistant food storage canisters anywhere within seven miles of a park road and anywhere above 9600 feet; this constitutes a large majority of the park area. In 2005 we evaluated the effectiveness of this requirement.

From June to October, visitor use surveys were conducted to examine use of bear-resistant food storage canisters. Based on the Theory of Planned Behavior, trailhead and internet-based surveys were used to identify wilderness visitors' beliefs, attitudes, norms, value orientations and behaviors regarding black bears, backcountry food storage and use of bear-resistant food storage canisters. On-site backcountry food storage checks were performed to determine food storage compliance rates. A bear incident survey documented wilderness bear encounters. We will highlight key findings regarding influences on backcountry food storage and use of bear-resistant food storage canisters.

Recreation demand analysis under truncation, overdispersion, and endogenous stratification: An application to Gros Morne National Park

Martinez-Espineira, Roberto S
Economics
St Francis Xavier University
Antigonish Canada B2G2W5

Joe Amoako-Tuffour
Economics
St Francis Xavier University

Email: rmespi@stfx.ca

Keywords: endogenous stratification, consumer surplus, overdispersion, recreation demand, travel cost method

Abstract: Using on-site survey data from Gros Morne National Park in Newfoundland, this paper estimates and compares several truncated count data models of recreation demand. The model that not only accounts for the truncated and overdispersed nature of the data but also for endogenous stratification due to the oversampling of avid users, while allowing for flexible specification of the overdispersion parameter dominates on the basis of goodness of fit. The results are used to estimate the users' value of access to the park.

Care about nature and people: The interaction of area values and visitor flow in the New Forest and Peak District

Marwijk, van, Ramona
Forest and Nature Conservation Policy Group
Wageningen University
Wageningen Netherlands 6700 AA

Birgit Elands
Forest and Nature Conservation Policy Group
Wageningen University

Email: ramona.vanmarwijk@wur.nl

Keywords: "monitoring" "visitor management" "national park" "outdoor recreation"

Abstract: Large visitor numbers in nature areas threaten the sustainability and create problems to the management of these areas. Both in Peak District and the New Forest (UK), over the last three decades the numbers of visitors walking, riding and cycling in the forests have swelled enormously which poses a serious threat to the ecology of the area. Moreover, high numbers of visitors can negatively affect recreational experiences. In both areas projects were launched with the main aim of helping to reconcile the needs of conservation with those of recreation. Park managers are concerned about the distribution of visitors inside the ecological sensitive areas and they acknowledge the relevance of visitor flow monitoring tools. Based on estimates of visitation volume and descriptions of visitor characteristics and opinions managers take decisions concerning visitor management. Managers would like to keep visitors away from ecological sensitive areas, for which they need to know the key variables in guiding visitors. In general the area's use value (instrumental, refers to functions and activities such as attractions, catering, trails) and the experiential value (aesthetics such as open/closed, quiet/busy, and narratives such as local and commonly known stories (Loch Ness)) influence visitors time-space behavior. However, guiding techniques are more effective on new visitors compared to repeaters, who may have developed routinised behaviors. This paper analyses the use and experiential qualities of the two national parks, and discusses the usefulness and necessity of visitor monitoring

Social impacts of marine protected areas: A global review

Mascia, Michael B
Conservation Science Program
World Wildlife Fund
Washington DC USA 20037

Email: michael.mascia@wwfus.org

Keywords: income, participation, coral reefs, displacement, health, poverty alleviation, fish catch

Abstract: Marine protected areas (MPAs) are one of the primary policy instruments used to conserve marine ecosystems. Relatively little research has examined the positive and negative social impacts of MPAs, yet social "performance" often determines the extent of local, national, and international political and financial support for MPAs. Based on a literature review and analysis of unpublished field data, this study reviews current social scientific knowledge regarding MPA social impacts. Numerous patterns and trends emerge, including:

- MPAs transfer the benefits of resource use within and among resource user groups.
- Fishermen with fixed gear or informal fishing territories are more significantly affected by MPAs than transient fishermen employing mobile gear;
- MPAs often induce community-level demographic change;
- The social performance of MPAs subsequently shapes MPA evolution. "Successful" MPAs frequently spur site expansion, while "unsuccessful" MPAs often fuel efforts to revoke MPA designations.

Four aspects of MPA governance— decision-making arrangements, resource use rights, monitoring and enforcement systems, and conflict resolution mechanisms – appear to play pivotal roles in shaping the social impacts of MPAs. These findings provide (1) a framework for designing MPAs that deliver positive social and biological outcomes; and (2) the foundation for more sophisticated research on the social impacts of MPAs.

Participatory/community forestry in Malawi

Masupayi, Patricia E
Department of Forest Resources Management
University of British Columbia
Vancouver BC Canada V6T 1Z4

Michael J Meitner
DEPARTMENT OF FOREST RESOURCES
MANAGEMENT
UNIVERSITY OF BRITISH COLUMBIA

Email: pmasupayi@yahoo.co.uk

Keywords: community forestry; participatory planning

Abstract: Malawi like many other African countries is experiencing a demand for wood and land that exceeds the supply which has lead to rapid losses in natural woodland cover. This problem is exacerbated by the fact that an estimated 55% of Malawians are living below poverty line and as a result are predominately focused on short term survival rather than long term issues of sustainability. This, coupled with population growth, paints a fairly bleak picture where increased demand on available natural resources will likely exceed the replenishment capacity of the environment. Given that at present wood fuels provide 93% of primary energy consumed in the country proper forest management is critical to future well being Malawi's citizens.

In February 1996, cabinet approved a new forestry policy which provides for on-farm and off-farm forestry activities. In 1997 a new forestry act was approved which allows for all citizens to have regulated and monitored access to some forest products. The underlying goal of this forest policy is to enhance the quality of life in the country through conservation measures that will ensure sustained access to forest resources in the future. In addition this policy also attempts to provide an enabling framework for the participation of local communities, nongovernmental organizations and the private sector in forestry conservation and management.

The decision to move to a more participatory/community-based framework is underpinned by two facts; 1) the dwindling of financial resources in government coffers has made it extremely difficult to centrally protect and control forest resources and 2) the government's conviction that decentralization of the management and utilization of forest resources would lead to a more sustainable solution to prevent and control the depletion of forest resources because of the shared responsibilities and benefits among stakeholders. This paper will summarize the current state of affairs

related to these issues in the development of a national strategy for the evolution of forest management in Malawi and will provide a critical analysis of the issues that must be dealt with if this new approach is to succeed.

Community participation in rapidly growing communities

Matarrita, David
Agricultural Economics and Rural Sociology
Pennsylvania State University
University Park PA USA 16823

Albert E Luloff
Agricultural Economics and Rural Sociology
Pennsylvania State University

Donald R Field
Department of Rural Sociology
The University of Wisconsin-Madison

Richard S Krannich
Department of Sociology
Utah State University

Email: dxm370@psu.edu

Keywords: Social interaction, seasonal and permanent residents

Abstract: Amenity-rich locations have become attractive to individuals searching for places to recreate, live, or retire. High amenity-areas, many of which are in the West, have experienced changes related to population immigration. Past research has shown how extensive immigration of people with different values and perspectives contributes to social conflict within community. Two main types of community members are studied here – seasonal and permanent residents. Differences among such residents can contribute to problems of community social interaction and affect overall participation in community affairs. Participation in community, after all, is a central aspect of fostering local community development. In this study, structural and interactional differences between permanent and seasonal residents were found. Both factors were stronger predictors of community participation for permanent than seasonal residents. This study adds to the literature on newcomers and long-term residents and their structural and interactional differences.

Is network governance possible? The case of local sustainable development in Polish Drawieski National Park area.

Matczak, Piotr
Institute of sociology
Adam Mickiewicz University
Poznań; Poland 60-568

Email: matczak@amu.edu.pl

Keywords: network governance; local sustainable development; national parks; social norms, social institutions

Abstract: For poor areas dealing with economic decline, finding growth engines is a crucial issue, and natural resources are often the only asset communities have. Sustainable development involves a combination of social and economic development with protection of environment. In the paper it is argued that concept of the network governance can be applied to understand the situation, where local sustainable development is desirable. In a qualitative case study of Polish Drawieski National Park area, four barriers for the establishment of network governance were found: weakness of legal institutional framework including ambiguities about property rights; lack of bridging social capital; persistence of informal norms undermining public and formal operations; difficulties with undertaking multilateral collective action. It was argued that although first three barriers could be overcome by communities, the fourth one is outside the direct competences of communities. As a result governance structure would take market or hierarchical form. Providing that institutional framework is going to be improved, communities must build institutional infrastructure to cope with other problems in order to establish network governance and take advantage of it.

Public preferences for open space: A contingent choice application to conserving natural areas in Florida

Matta, Jagannadha Rao
School of Forest Resources and Conservation
University of Florida
Gainesville FL USA 32611-0410

Alan W Hodges
Food and Resource Economics Department
University of Florida

Janaki RR Alavalapati
School of Forest Resources and Conservation
University of Florida

Email: raojm@ufl.edu

Keywords: public choice; choice experiment; environmental values; internet survey; nested logit modeling

Abstract: Recent years have seen an increased interest in conserving natural areas with several state and local governments committing billions of dollars for open space preservation. Especially in Florida, where these areas contribute significantly to the economy and the environment, conserving them through market-based instruments such as conservation easements has received considerable attention. Yet, public preferences for various types of lands or their choice of attributes for structuring incentive payments is poorly understood. In this study, we examine the role of these dimensions in public willingness to pay (WTP) for land conservation using a stated contingent choice experiment survey. Employing a multinomial logistic (MNL) regression analysis, we also analyze how respondents' socio-economic characteristics and their attitudes toward environmental protection and conservation influence their willingness to pay estimates. Results of this study provide valuable insights to understand variation in public motivation for land conservation as well as present enhanced opportunities to design optimal conservation programs that serve diverse public interests.

The social capital relations of resource workers in British Columbia's coastal communities

Matthews, Ralph
Sociology
The University of British Columbia
Vancouver BC Canada V6T 1Z1

Nathan J Young
Sociology
The University of British Columbia

Dennis Wells
Sociology
The University of British Columbia

Email: ralphm@interchange.ubc.ca

Keywords: networks; involvement; trust; community; embeddedness; occupations

Abstract: The Resilient Communities Project (RCP) is a multi-phase study examining the social capital relations in resource communities in British Columbia's coastal region. Most such communities owe their existence to the once abundant fishing and forest resources of the region. However, most are now in severe economic decline.

Data for this presentation are taken from a mailed questionnaire that was sent to 4,386 randomly chosen households in 23 communities, themselves chosen using a stratified random sample. Four reminder letters ultimately produced a 60.0 percent response rate, providing a sample of 2,632 completed questionnaires.

While the study does not focus on issues of resources and sustainability, many of those who completed this survey work in resource related industries – notably fishing and logging. This paper will examine the pattern of social capital relations of resource workers, focusing on issues of their informal and formal involvement in their communities, their levels of trust, and the extent to which they have access to persons in key local and outside positions.

While the paper is largely exploratory, the underlying focus is on determining whether involvement in resource occupations and level of participation in the labour force (e.g employed or unemployed) leads to differences in the extent to which resource workers develop social ties to their community and outside compared to other members of the community.

Towards sustainable tourism planning: A case study of the blue ridge national heritage area

Mawhorter, Julie H
Forestry, Wildlife & Fisheries
University of Tennessee
Knoxville TN USA 37919

Email: jmawhort@utk.edu

Keywords: ecotourism, community development, land use planning, cultural preservation, recreation

Abstract: Rural communities face many challenges in trying to promote economic development while also preserving natural, social, and cultural values. Tourism has been touted as a promising strategy for balancing these interests, but has had mixed results for local people, economies, and environments. The notion of “sustainable tourism development” – which integrates ecological, economic, and social concerns – has been discussed and debated as a goal that is both vitally necessary and confoundingly elusive. As researchers and practitioners work to establish criteria for sustainability in tourism, it is important to also study the process by which communities move toward this elusive balance. This paper contributes to that knowledge base by offering results from a preliminary investigation of recent tourism planning efforts of the Blue Ridge National Heritage Area (BRNHA) in western North Carolina. Through key informant interviews with project leadership and document analysis, information was gathered on sustainability concerns including: the balance of social, economic, and environmental interests, the role of social capital, and the challenges and lessons of effective public participation. Themes related to community-based tourism planning, the unique niche of heritage tourism, locally-based and diversified economies, and regional collaboration emerged through the interview process. The specific strategies, challenges, and lessons gleaned from the BRNHA leadership offer valuable insight for those interested in the “how” of sustainable tourism development.

Integrating marine tourism and shellfish aquaculture into a proposed multiple-use marine protected area (mpa): Stakeholder attitudes, perceptions and values.

McCallum, David E
Geography
University of Victoria
Victoria BC Canada V8W 3P5

Rick B Rollins
Recreation and Tourism Management
Malaspina university-College, Nanaimo, BC

Email: david@bcsga.ca

Keywords: surveys; LAC; stakeholder opinions; coastal management

Abstract: Recent concerns about the well-being of marine environments have lead to the worldwide creation of new marine conservation initiatives. Multiple-use marine protected areas (MPAs) are one potential solution; however, they may be perceived by some as “economic sterilizers” and threats to certain livelihoods, such as marine tourism and shellfish aquaculture. Shellfish growers may perceive MPAs as exclusive to tourism activity, attracting recreational boaters who may inflict a negative environmental impact through sewage or chemical discharge. Conversely, recreational boaters may perceive shellfish aquaculture as a threat to safe navigation and desirable anchorages. One significant challenge for resource managers then, is to design MPAs in ways that are acceptable to different stakeholder groups. This research, a theoretical application of the “Limits of Acceptable Change” (LAC) framework, examines acceptability of recreational boating and shellfish aquaculture within a proposed MPA, from a community stakeholder perspective.

This project samples the attitudes, perceptions and values of a random selection of Gulf Islands (Thetis, Salt Spring and Saturna) residents during the summer of 2004. This research applies respondents’ values towards the marine environment as an independent variable in the analysis of:

1. Perceptions of threats towards the marine environment;
2. Attitudes towards the visual impact of, and potential solutions to the problem of sewage from recreational boating;
3. Attitudes towards the visual impact of, and perceptions of benefits and concerns associated with shellfish aquaculture; and
4. Attitudes towards different strategies for zoning the marine environment.

Human dimensions of Puerto Rico's fishery management schemes

McClendon, Kristin M
Natural Resource Conservation, Human Dimensions
University of Massachusetts
Amherst MA USA 01002

Dave K Loomis
Natural Resource Conservation, Human Dimensions
University of Massachusetts, Amherst

Email: kmcclelland@forwild.umass.edu

Keywords: allocation, equality, regulations, propositions, subjectivity, neutrality

Abstract: Most communities found throughout the islands of the Caribbean have a long and close relationship to the ocean and its assets. With the advent of national governments, regional conservation programs, and international funding sources, systematic responses to fishery harvest declines have become less traditional and more governmental in approach. However, as communities and individuals lose the cultural ability to steward marine resources, many have questioned the validity of current resource allocations schemes. This paper will present a case study on Puerto Rico, an island nation located in the Caribbean, in which current fishery management methods and regulations are discussed from the perspective of procedural justice. Defined as the perceived fairness associated with the procedures used to decide the allocation of particular resources, procedural justice theory offers a framework and ground rules (Leventhal 1980) with which to implement authoritarian resource management programs in order to reduce potential user group conflict (both between groups and with the government). In addition, a related line of thought, distributive justice and its theoretical components of equity and deprivation (Loomis and Ditton 1993) will also be used to examine how, if at all, Puerto Rican fishery managers can better allocate access to, and benefits derived from, marine resource in the future.

Personal trust and trust in abstract systems: A study of forest stewardship council-accredited certification in British Columbia

McDermott, Connie L
Yale Program on Forest Policy and Governance
Yale University
New Haven CT USA 06511

Email: constance.mcdermott@yale.edu

Keywords: market-based incentives, non-state governance, forest policy, conflict resolution

Abstract: Forest Stewardship Council-accredited certification in British Columbia arose out of distrust in government and the forest industry as stewards of the province's forest resources. The initiative for forest certification emerged among environmentalists and other interest groups that have been marginalized in mainstream forestry decision-making. Forest certification is a system of green labeling for products that come from environmentally, socially and economically well-managed forests. In other words, certification attempts to redefine appropriate forest management, and build trust where other forestry decision-makers have failed. This dissertation examines how trust is (or is not) built amidst widely divergent interests.

Building trust amidst diversity is a common challenge in an era of globalization. In response, modern decision-making systems are often built around abstract concepts, such as pluralist democracy and impersonal, rationalistic systems, that are presumably disembedded from social bias. Likewise, the Forest Stewardship Council has developed a pluralist system of standard-setting and an impersonal accreditation system as a means to win trust among diverse forestry interests.

The results of this research, based on five years of participant observation and forty in-depth, semi-structured interviews of key BC interest groups, suggest that the Forest Stewardship Council's "abstract systems" increased trust among some interests. However, these abstract systems did not serve to bridge group differences. Instead, decision-making processes became enmeshed in existing dynamics of distrust. The pluralist standard-setting process empowered previously marginalized interests while exacerbating distrust among some other groups. At the same time, impersonal accreditation procedures did not win adequate trust because they did not address the socially embedded causes of distrust. In conclusion, the research suggests that building trust amidst diversity may require institutional formalization to the degree necessary to

redress power imbalances, however it also necessitates opportunities for on-the-ground policy learning and flexibility.

Validity and reliability of an internet-based survey conducted simultaneously with a mail survey.

McMullin, Steve L
Department of Fisheries & Wildlife Sciences
Virginia Tech
Blacksburg VA USA 24061-0321

Karen Hockett
Conservation Management Institute
Virginia Tech

Julie McClafferty
Conservation Management Institute
Virginia Tech

Email: smcmulli@vt.edu

Keywords: Internet, survey, validity, reliability

Abstract: Interest is growing in conducting surveys via the Internet due to increasing availability of the Internet to survey subjects, ease of implementation, and cost savings of Internet-based surveys compared to traditional mail and telephone surveys. However, social science researchers have expressed concerns about the validity and reliability of Internet-based surveys. Chief among those concerns is how representative respondents to Internet-based surveys are of the public at large. We conducted simultaneous mail and Internet-based surveys of U.S. citizens to determine their attitudes toward environmental stewardship. In this paper, we compare results of those two surveys and comment on validity, reliability, bias and relative costs of the two survey methods.

Building resilience through internationalized co-management: Case studies of walrus and polar bear management in the Bering straits region of Alaska and Chukotka

Meek, Chanda L
Department of Natural Resources Management
University of Alaska Fairbanks
Fairbanks USA 99775

Martin D Robards
Department of Biology and Wildlife
University of Alaska Fairbanks

Gary P Kofinas
Institute of Arctic Biology
University of Alaska Fairbanks

Amy L Lovecraft
Department of Political Science
University of Alaska Fairbanks

Email: chanda.meek@uaf.edu

Keywords: policy; common-pool resources; Alaska Native

Abstract: Since the mid-nineties, indigenous organizations representing polar bear and walrus hunters of Alaska (USA) and Chukotka (Russia) have collaborated on cultural exchanges and biological research; in doing so they have begun building the foundations for internationally coordinated management of these two important marine mammals. The authors detail the development of these interlocal relationships and argue that strong horizontal linkages between local organizations of resource users in both Alaska and Chukotka have enhanced resilience of local social-ecological systems by expanding the information base upon which management decisions are made and developing an actor network for collective action to conserve walrus and polar bears. This network in turn has impacted international resource management. The authors explore internationalized collaborative management as a broader consequence of walrus and polar bear resource co-management regimes in Alaska.

Visualizing natural disturbances: Implications for assessing public perceptions of salvage and recovery operations.

Meitner, Michael J
Department of Forest Resources Management
University of British Columbia
Vancouver BC Canada V6T 1Z4

Ryan Gandy
Department of Forest Resources Management
University of British Columbia

Clive Welham
Department of Forest Sciences
University of British Columbia

Julian Gonzalez
Department of Forest Resources Management
University of British Columbia

Brent Chamberlain
Department of Forest Resources Management
University of British Columbia

Email: mike.meitner@ubc.ca

Keywords: forest management; natural disturbances; environmental visualization; public perception

Abstract: By making it possible to construct a visual representation of alternative management scenarios, modern forest visualization techniques are proving to be an invaluable forest management tool. We will showcase techniques for generating near photo-realistic imagery of proposed landscape-level changes due to impacts from the mountain pine beetle (MPB) epidemic currently underway in British Columbia. These visualizations are also a part of a series of structured perceptual experiments designed to increase understanding of the social dimension of this problem in terms of the acceptability of management actions as it relates to salvage logging and ecosystem recovery efforts. Whether it is informed or not, public opinion is a major driver of public policy and understanding public perception of the current MPB epidemic and its management is essential for devising and implementing appropriate management strategies. Knowledge of how the public perceives these issues will help guide management efforts aimed at maximizing the overall social benefits to be derived from the possible alternatives.

Framework of PA Highlands: Mapping exercises

Metcalf, Alexander L
Human Dimensions Unit
Pennsylvania State University
University Park PA USA

Al E Luloff
Human Dimensions Unit
Pennsylvania State University

James C Finley
Human Dimensions Unit
Pennsylvania State University

Email: alm450@psu.edu

Keywords:

Abstract: The Highlands Conservation Act of 2004 (cite) mandated a comprehensive assessment of five conservation values throughout the Highlands (i.e., biodiversity, farmland, forestland, recreational/cultural, and water). An important component of this assessment was garnering public input to identify places of high conservation value and threats to those places.

Pennsylvania's public assessment used a mixed method approach that included key informant interviews, facilitated group discussions, and cognitive mapping exercises. Over a three month period, nearly 300 individuals contributed to our understanding of conservation concerns in the Pennsylvania Highlands.

The Pennsylvania Highlands spans west from the Delaware River across ten counties and 181 municipalities to the Susquehanna River in the southeastern portion of the state. For the purpose of the assessment we considered this large geographic area a single unit; however, our research design ensured even distribution of public participation and representation across the region.

Building on key informant interviews and in conjunction with facilitated group discussions, three cognitive mapping exercises were used to gather spatial data on areas of important conservation value. Participants were asked to place stickers on a large wall map identifying conservation areas important to them. They were also asked to draw areas (polygons) on small, individual paper maps identifying areas of high conservation value. Last, participants used a simple computer interface to click on points within the highlands they considered important. This last exercise

also involved answering a few questions about the place they had selected.

Density analysis was performed on all three sets of spatial data and revealed a common pattern of conservation value across the region. There was consistency across mapping exercises showing clear areas of high conservation value. Information gathered through the computer exercise added an important narrative to the final map of high conservation areas

Facilitating connections of care among puget sound shoreline residents: Exploring how we come to 'care for' those resources we 'care about.'

Miller, Daoud Neil
Education & Interpretation
People For Puget Sound
Seattle WA USA 98104

Theresa G Coble
Arthur Temple College of Forestry
Stephen F. Austin State University

Email: Daoud_Miller@comcast.net

Keywords: environmental concern; nearshore residents; place attachment; activity involvement; meaning-making

Abstract: Our world's natural resources have experienced increased development and use by growing human populations. People adopting environmentally beneficial actions can mitigate resource impacts to threatened ecosystems and habitats; yet behavioral change is complex and subject to interactive psychological and social factors. The communications field of resource interpretation as implemented in federal land managing agencies (e.g., National Park Service, U.S. Fish & Wildlife Service), state and local public sector service providers (e.g., Houston Arboretum & Nature Center), and private non-profit organizations (e.g., People For Puget Sound) strives to facilitate relationships of care through the provision of opportunities to visitors and stakeholders to form intellectual and emotional connections with the meanings and significance inherent in site resources.

Through opportunities for connections to resource meanings, people come to care about natural and cultural resources and, over time, to care for those (and other) resources in their lives. The emerging field of conservation psychology seeks to better understand the process by which people come to care about the natural world and engage in conservation behaviors. This presentation will introduce a model that integrates interpretive and conservation psychology frameworks and elicit audience feedback regarding efforts to place the concept of care at the center of multidisciplinary research efforts. Further, to better understand how an ethic of caring contributes to the stewardship of natural resources, a study involving residents of Puget Sound shoreline communities will be outlined.

Policy and institutional context for research on landscape and public participation, in the European Union

Miller, David
Landscape Change Science Area
Macaulay Institute
Aberdeen UK

JG Morrice
Landscape Change Science Area
Macaulay Institute

Email: d.miller@macaulay.ac.uk

Keywords: landscape structure; landscape aesthetics; quantifying visual change; indicator criteria

Abstract: Increasing public participation in processes of landscape planning and the empowerment of local administrations to determine resource exploitation and development are trends throughout Europe, underpinned by regulation or international conventions, such as:

- 1) the European Landscape Convention, which states that landscape plays "...an important public interest role in the cultural, ecological, environmental and social fields, and constitutes a resource favourable to economic activity and whose protection, management and planning can contribute to job creation;"
- 2) the Aarhus Declaration, which promotes environmental education and environmental awareness among the public, especially on how to obtain access to information, to participate in decision-making and to obtain access to justice in environmental matters.

This paper presents the policy context for a multi-disciplinary project (VisuLands) on the development of tools and methods to contribute to increasing public participation in local decision making and landscape planning, with approaches adopted for use at the policy level and that of the local land manager. It also introduces the infrastructure for undertaking multi-national research project, co-funded under the European Commission, into the analysis of rural situations, changes and trends, including the development of scenarios and landscape management. The paper concludes with a discussion of the structure and roles of international advisory groups, and local stakeholders, and the incorporation of knowledge transfer activities between researchers, policy advisors, land managers and the general public into a programme of research

Barriers and motivators to adoption of environmentally sustainable and food safe practices in Alberta, Canada

Mitchell, Ross E
Sustainable Ecosystems
Alberta Research Council
Edmonton AB Canada T6N 1E4

Marke Ambard
Sustainable Ecosystems
Alberta Research Council

Email: mitchell@arc.ab.ca

Keywords: extensionists, farmers, direct farm marketing, training, satisfaction, methods

Abstract: Until now, very few studies have investigated the barriers and motivators to the adoption of conservation and best food safety practices in the Canadian agricultural sector, and particularly in Alberta. Most research has attempted to explain or predict conservation adoption based on a limited set of explanatory variables. Using a more holistic approach rooted in a theoretical framework sensitive to issues of place, Bourdieu's "habitus" and "field", actor-network theory and traditional diffusion theory, this paper will explore how a more comprehensive understanding of barriers and motivators is crucial to explaining adoption of conservation practices.

This paper is based on an ongoing study, "Identifying Rural Sociological Barriers and Motivators to Adoption of Environmentally Responsible and Food Safety Best Practices." The Alberta Environmental Farm Plan Company, Alberta Agriculture, Food and Rural Development, and Agriculture and Agri-Food Canada, commissioned the Alberta Research Council (ARC) in 2005-06 to examine rural social needs in Alberta's agriculture communities. The expectation is that this research will eventually assist in the development, improvement and/or delivery of effective extension programs in Alberta and elsewhere. If extension is to enhance sustainable practices in agriculture, then improved understanding of the social issues inherent to farming and adoption of environmental technologies is required.

This paper examines early findings from a rural sociological and mixed-methods approach relatively uncommon to the study of Alberta's agriculture sector. Such an approach allows for a deeper investigation into an issue that has too often been guided by empirical studies that have been unable to account for the complexity inherent to this question. The researchers

have attempted to create measures sensitive to the diversity of relevant variables – including institutional, farm structural, ecological and socio-psychological variables – and it is argued that this approach is necessary if adoption and non-adoption is to be adequately explained. These variables do not work in exclusivity, but instead through complicated and possibly competing interactions. By utilizing both qualitative and quantitative data, it is argued that extension interactions and their relation to the decision-making process for the adoption of conservation and food best safety practices in agriculture can be better understood.

Climbers' attitudes toward resource impact in the Adirondack wilderness

Monz, Christopher A
Environmental Studies
St. Lawrence university
Canton NY USA 13617

Email: cmonz@stlawu.edu

Keywords: resource impact; rock climbing; attitudes

Abstract: There is a growing recognition of the importance of integrating social and biophysical research approaches to fully understand and manage recreation in parks and protected areas. Relatively few recent studies have examined visitor perceptions of recreation resource conditions, particularly for some specific recreation activities. This study examined rock climbers' attitudes toward resource impacts commonly found at climbing areas. Climbers at popular climbing areas in the Adirondack Park, NY were surveyed as to the type and extent of resource impacts that they found to be offensive. Climbers rated impacts such as erosion, trampled vegetation, litter, and multiple trailing on a Likert scale as to the degree of offensiveness. Climbers were also asked to rank the impacts that most detracted from their experience in an open ended format prior to receiving the questionnaire. The survey also assessed the importance solitude, group size, use and placement of permanent anchors, and noise.

In open-ended questions, results show that 53% of climbers surveyed indicated the presence of trash near the climbing site particularly was a primary concern, while 28% reported erosion around the climbing site and 27% reported damage to trees from climbing practices as concerns. Quantitative results suggest that crowding is more important to climbers than resource impact, but impacts to trees and noise were also of some importance. For the majority of climbers (72%) the presence of fixed climbing anchors did not affect their experience. Results suggest that resource assessments of attributes most important to climbers' experience may be most useful to managers.

Evaluating the effectiveness of 3d visualizations for public involvement in forest management planning

Moore, Jeff
Centre for Parks, Recreation & Tourism Research
Lakehead University
Thunder Bay ON Canada P7B 5E1

Norman McIntyre
Centre for Parks, Recreation & Tourism Research
Lakehead University

Mark Robson
Centre for Parks, Recreation & Tourism Research
Lakehead University

R H Lemelin
Centre for Parks, Recreation & Tourism Research
Lakehead University

Len M Hunt
Centre for Northern Forest Ecosystem Research
Ontario Ministry of Natural Resources

Email: jeff.moore@lakeheadu.ca

Keywords: computer simulation; citizen involvement; Recreation Opportunity Spectrum

Abstract: Outdoor recreation in Crown, or public, forests is an important part of the lives of many residents of northwestern Ontario. However, since there is no regional or sub-regional recreation planning process and since recreation is not a formal part of the forest management planning process, the issue of integrating recreation with forest management planning defaults to input from public involvement. While public participation is increasingly recognized as an essential means of incorporating multiple values in forest management planning, this participation is often hindered by difficulties in effectively communicating complex information about the likely impacts of various forestry practices. Traditional communication media such as maps and tables require that lay individuals develop sufficient expertise to comprehend the implications of proposed actions on their activities. Because of its potential to clearly represent complex information, computerized visualization appears to be particularly appropriate for presenting alternate scenarios to citizen groups. However, there is limited research on practical applications of computerized visualization in forest management planning and there is no experimental research comparing the effectiveness of traditional media and 3D computerized visualizations. The ability of people to interact with computerized

visualizations is also limited by the time and computer resources required to create visualizations for all parts of the land-base. Research in the study area (Dog River – Matawin Forest) has shown that those places valued for their recreational opportunities are concentrated in relatively few, specific locations (e.g. campsites, access points). The previously developed Spatial Recreation Planning Framework provides a means of identifying valued places, which, in turn, provide appropriate foci for the advance preparation of visualizations for use in public participation. These visualizations representing alternative forest management scenarios for valued places can help the various publics better evaluate the potential impacts of forestry activities and provide more meaningful input into forest management planning. The project currently underway involves an experimental comparison of the effectiveness of computerized visualizations versus traditional communication media in the two public involvement contexts used in forest management planning in Ontario: open houses and Local Citizens Committees.

The dilemmas of determining indicators and standards for tourism impacts in protected areas

Moore, Susan A
School of Environmental Science
Murdoch University
Murdoch Western Au Australia 6150

Email: S.Moore@murdoch.edu.au

Keywords: tourism; recreation; protected areas; indicators; standards; Australia

Abstract: In today's environment of accountability and performance reporting, protected area managers require practical indicators and standards. Such measures are essential if recreation and tourism are to be monitored and managed as sustainable land uses in protected areas. Visitor questionnaires have traditionally provided these much-needed data. They have proved to be an efficient means of collecting information, especially when data collection has had to rely on a small number of field staff or volunteers, often with a limited skill set. More recently, photo and computer-based simulations have been used to obtain responses from visitors.

This paper uses recent survey work in Western Australia to explore the dilemmas and opportunities facing data collection and analysis associated with the determination of indicators and standards. Visitors to Cape Range National Park, the gateway to the iconic Ningaloo Reef, were surveyed using a questionnaire, to determine their preferences for indicators and standards at a number of sites across the Park. Important preferences included presence of wildlife and access to the beach. Negative indicators were the presence of litter and inadequate disposal of human waste. Standards were derived for facility provision (such as parking bays) and for negative environmental impacts, such as littering.

These results provide a basis for discussing the dilemmas created by questionnaires administered on-site. Biased sampling (e.g. only sampling those at the site at the time of survey), and the effects of information processing heuristics on how respondents report are discussed, and comparisons made with other methodologies (e.g. using computer-generated scenes to evoke responses). Using questionnaires also creates opportunities, by producing data that are readily usable by managers where management resources are limited and research staff non-existent.

An overview of the privatization of public lands in the us.

More, Thomas A
Northern Research Station
USDA Forest Service
Burlington VT USA 05403

Email: tmore@fs.fed.us

Keywords: privatization, public parks, outdoor recreation

Abstract: This paper presents five land management models ranging from fully public to fully private. Five key questions are raised about privatization including: Why is efficiency so important? And aren't non-market resources (sunsets, etc.) just as productive as market resources, just in a different sense? Answers to these questions form the key intellectual basis for understanding the current emphasis on privatization.

The state of the trapline – evaluating the health of the forest with a Cree land-use perspective

Morel, Steve
Forestry/environment
Groupe Conseil Nutshimit
Mashteuiatsh Canada G0W 2H0

Email: smorel@nutshimit.ca

Keywords: aboriginal forestry; forest management planning process

Abstract: The Waswanipi Cree Model Forest (WCMF) is an aboriginal-led partnership located in the western part of the Quebec boreal forest. It has developed the Ndoho Istchee Conservation Process to allow the meaningful participation of the Cree in the forest management planning process. The first phase of Ndoho Istchee consists in collecting Cree land-use information in such a way that it explains to forest managers the Cree conservation values linked to the forest. The last step of this first phase is the State of the Trapline assessment. It is a diagnosis for which we estimate the health of the forest in relation to these conservation values. Using the Quebec forest database, the state of every land-use areas identified by the Cree is evaluated in function of a set of criteria. These criteria, established by the WCMF partnership through its research program, describe the “desired forest conditions” in relation with each Cree value. The resulting “observed forest conditions” help to identify what are the preoccupying trapline issues, with regards to Cree land-use, which will need a special consideration during the forest management planning process. It shall help the Cree to present their concerns and shall guide the forest managers in considering them during further consultations. This presentation will describe the State of the Trapline assessment methodology and illustrate it with the results obtained for three pilot traplines of Waswanipi.

Climate change and coastal tourism: Vulnerability and impacts

Moreno, Alvaro
ICIS
International Centre for Integrative Studies and S
Maastricht Netherlands 6221AM

Email: a.moreno@icis.unimaas.nl

Keywords: Vulnerability; Coastal tourism

Abstract: Generating more than 10% of global GDP and employment, tourism is arguably one of the world's largest and fastest growing industries. A majority of last year's 808 million international tourists indulged in "sun and sand" holidays in coastal zones. This type of tourism appears to be vulnerable to climate change, as coastal zones are among the regions that are projected to suffer most from climate change.

To date, most vulnerability assessments for coastal zones are of limited value for tourism, since they focus almost exclusively on sea-level rise. This paper takes a more holistic approach by analysing each of the three components of vulnerability as defined by the Intergovernmental Panel on Climate Change (IPCC): sensitivity, exposure, and adaptation measures. Sensitivity to climate change is addressed by comparing scores on a tourism-specific climate suitability index to (proxies for) visitation levels in Europe's coastal zones. Information on possible future exposure is available from the IPCC climate scenarios. Adaptation options are known to vary widely among actors, and will therefore be assessed separately for tourists, the tourist industry, and the local population. The paper provides a synthesis of the findings in the form of a Coastal Tourism Vulnerability Index that is calculated for a range of European coastal destinations.

Social and ecological structuration

Morse, Wayde C
Conservation Social Sciences
University of Idaho & CATIE
Moscow ID USA 83843

Steven Hollenhorst
Conservation Social Sciences
University of Idaho

Dietmar Stoian
Department of Natural Resources
CATIE

Email: mors7758@uidaho.edu

Keywords: social ecological systems; theory

Abstract: The ability of ecosystems to provide services is declining at the same time as demand for those services is increasing. Understanding the processes that link social and ecological systems is critical for managing human impacts on the environment that provide these services that support human well-being. A theoretical model was developed as a heuristic device to explain the dynamic social and ecological process as they change over time. Structuration theory was used as a theoretical foundation to explain the interaction of the individual making decision situated in a particular context. The theory of patch dynamics was used to frame the process of ecological interactions from the individual 'patch' level within the larger patch mosaic. Both of these process exhibit qualities of structuration, or the dynamic process of catalyzing their own future context. A spatial analysis of the social and ecological aspects of land use change in turn provided the bridge between the dynamic social and ecological systems. Variables identified from the Livelihoods Analysis framework were used to guide a micro, or agent level analysis, while variables identified in a model developed from a meta-analysis of land-use change were used to for an institutional level analysis. The framework was used to guide an investigation into the impacts of a policy of Payments for Environmental Services in Costa Rica. The model, its development, and a review of the final results of the study will be discussed.

Enclosure, agriculture and the environment

Most, Michael T
Environmental Resources and Policy
Southern Illinois University Carbondale
Carbondale IL USA 62901

Email: mtmost@siu.edu

Keywords: Property Theory, Common Pool Resources, Genetic Engineering, Genetically Modified Organisms

Abstract: Between the 16th and early 18th centuries, the European gentry widely engrossed common pool lands. This was the "first enclosure movement." The "second enclosure" is the contemporary conversion to private property of historically uncommodifiable goods. This ongoing circumstance shares with the original enclosure an institutionalized drive to acquire and "fence-off" a commons, though of information and ideas rather than land. With respect to agriculture, the second enclosure refers to the appropriation, privatization and commodification of genetic sequences in the creation of genetically engineered or genetically modified organisms. Researchers have noted in the first and second enclosure movements similarities in evolving property rights. However, the extent of this correlation, particularly with respect to agriculture and related environmental impacts, has not been fully articulated.

According to Leigh Raymond, "[e]nvironmental issues are distributive issues" (Private Rights in Public Resources, 2003, 1) and, because the distribution of property and allocation of corresponding rights and responsibilities are governed by institutional constructs, environmental problems are closely associated with, even inextricably inhered within those socially sanctioned artifices we refer to as "property rights." Through comparative analyses of the outcomes of shifting entitlements and obligations during the first and second enclosures, it is possible to explore, through the lens of property theory and within the context of the sanctioning economic and political institutions, the agricultural and environmental implications of the rights and responsibilities of ownership.

Citizen involvement & participation in tourism development: A comparative study in Botswana

Moswete, Naomi N
Tourism, Recreation & Sport Management
University of Florida
Gainesville FL USA 32603

Brijesh Thapa
Tourism, Recreation & Sport Management
University of Florida

Joseph E Mbaiwa
Tourism and Park Management
Texas A & M University

Nelson E Toteng
Environmental Science
University of Botswana

Email: nom1996@ufl.edu

Keywords: community tourism; village tourism; ecotourism strategy; domestic tourism

Abstract: The purpose of this paper is to offer a comparative evaluation of tourism development of two areas, Maun and Gaborone located in northern and southeastern Botswana respectively. More specifically, to identify the principal stakeholders in tourism development and subsequent differences with respect to natural resources management in both these areas. Data were collected via household survey and key informant interviews between June 2003 and April 2004. The sample size was (N = 1000 households) with 500 sampled from Maun and Gaborone respectively. Findings indicate that both study sites bear some similarities in terms of rapid population growth since the country's independence in 1966; availability of tourists related infrastructure and superstructure, and differences in stakeholder involvement in decision making regarding tourism. Other findings denote that a small proportion of the local populations have jobs within the tourism sector, and the prospect for local involvement and participation is evident. Additionally, the vast majority of tourism related enterprises are foreign owned. Based on the results various recommendations have been outlined to increase local participation in tourism development, most notably in cultural tourism and ecotourism as such assets have been underutilized. However, commitment and support of all stakeholders are needed if local communities are to benefit from cultural tourism and ecotourism.

Values and attitudes toward old-growth forest: a narrative study of leaders in Canada's forest sector

Moyer, Joanne M
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada B3H 1R2

Peter Duinker
School for Resource and Environmental Studies
Dalhousie University

Fay Cohen
School for Resource and Environmental Studies
Dalhousie University

Email: jmoyer@dal.ca

Keywords: old-growth forest; values and attitudes; Canada; forest management; conflict

Abstract: Old-growth forest (OGF) is a highly contentious feature of the forest landscape in Canada. In recent decades, disagreements over OGF management and use have developed into lengthy and expensive conflicts (e.g. Temagami, Ontario, and Clayoquot Sound, British Columbia). While these disputes tend to be simplistically portrayed as a clash between economic and conservation values, in reality, the situation is more complex. This study explores values and attitudes toward OGF within society to provide insight into how OGF can be managed in a sustainable and socially acceptable manner.

To capture the complex nature of OGF values, an in-depth, narrative study on a small sample of opinion leaders representing a range of perspectives in the forest sector was undertaken. The study's research questions focus on the leaders' values and attitudes toward OGF, forests in general and forest management, how these values and attitudes have both changed over time and been translated into action, and the personal and contextual factors that influenced them.

Early findings suggest that there are more interests at play in the OGF debate than simply industry and conservation, and that within these groups, value profiles are highly nuanced. Many objects of value or concern are held in common and there are similarities among more general values (e.g. sustainability, stewardship) but differences of opinion as to how these values are best translated into action. Finally, a distinct difference is emerging in the way that the opinion leaders from different parts of Canada value OGF.

Examining the role of individuals and context in private forest stewardship: Toward a theory of socio-physical mutualism

Munsell, John F
Forest and Natural Resources Management
SUNY College of Environmental Science and Forestry
Syracuse NY USA 13210

Rene' H Germain
Forest and Natural Resources Management
SUNY College of Environmental Science and Forestry

Email: jfmunsel@syr.edu

Keywords: private forests, private forestland owners, NIPF

Abstract: Descriptions of private forest stewardship are typically individualistic and based on observable traits among subsets of owners. This approach works well when universalizing stewardship attitudes and intentions, but it ultimately leaves much unanswered about the mutual interplay between society, forest, and individual owner during management activities and how this merger ultimately shapes the spectrum of future stewardship potential. We believe stewardship discussions regarding private forestland should seek to situate individual owner intentions and actions within a temporal framework defined by changing social and forested contexts. Only then will the association between individual owner characteristics and the future range of possible stewardship activities be adequately addressed.

As a foundation for our discussion, we will reference empirical research investigating private forestland harvests in Mississippi and New York. This study is using a phone survey based on the Innovation-decision Process and Theory of Planned Behavior models, a field survey to measure harvested areas, and an analysis of regional secondary data. The diffusion model measures owner disposition and decision prior to harvesting, while the planned behavior model gauges attitudes and intentions concerning future stewardship. Field measurements were designed to recreate each forest's pre-harvest characteristics and assess its post-harvest condition. The results of these measurements will be placed in sequential order and juxtaposed with the secondary data analysis in order to enrich our understanding of the mutual relationship between owner, society, and forest and its bearing on the future of private forestland stewardship.

Climate change awareness of forest-dependent communities in the BC Interior

Murphy, Siobhan
Collaborative for Advanced Landscape Planning
University of British Columbia
Vancouver BC Canada

Howie Harshaw
Collaborative for Advanced Landscape Planning
University of British Columbia

Stephen RJ Sheppard
Collaborative for Advanced Landscape Planning
University of British Columbia

Email: Stephen.Sheppard@ubc.ca

Keywords:

Abstract: This presentation will review recent survey research results on community perceptions of climate change in the Interior of British Columbia, addressing levels of awareness, attitudes on climate change response, and behavioural intent. Random-sample mail-surveys have been conducted in six BC resource-dependent communities (Prince George, Quesnel, Fort St. James, Fort Nelson, Houston, and Radium/Invermere); these form part of a government-funded initiative by Canadian Forest Products (CANFOR) to inform the activities of Public Advisory Groups providing input to divisional forest management planning. The surveys for the first time included several questions on climate change, enabling quantitative and qualitative analysis of public perceptions on global warming in these communities. Preliminary results indicate quite high levels of public concern over climate change and recognition of local effects, including changes in weather patterns. Many participants expressed willingness to respond to climate change, though also there appeared to be much uncertainty about actions that individuals and forest managers should take. The presentation will also comment on regional difference between communities.

Putting urban ecology into planning practice: applications across spatial scales

Murphy, Stephen D
Environment and Resource Studies
University of Waterloo
Waterloo ON Canada N2L 3G1

Email: sd2murph@fes.uwaterloo.ca

Keywords: urban ecosystems; sustainable communities; ecological planning

Abstract: My presentation will serve two purposes. I will first address the long-standing challenges in using urban ecological knowledge for planning purposes. The first purpose will be to incorporate and discuss the previous three presentations in this session in terms of lessons for planning. I will then extend my colleagues arguments in order to add my contribution and focus on the problems of reconciling incomplete ecological information with legal and planning demands in urban systems. I will argue that an absence of complete data should not be viewed as a permit to assume there will be little ecological impact, while acknowledging many disagree with this perspective as too much a part of the precautionary principle. Further, there is sufficient knowledge at both micro and landscape ecological scales to indicate that many spatial ecological processes will be damaged without adequate natural heritage planning. Finally, I will discuss how ecological principles apply to an often neglected urban area, i.e. the cores or more generally “downtowns” where ecology is applied to the expected (greenroofs and their constraints in core planning, restored parks and riparian zones) to the unexpected (bioremediation of brownfields, alternate uses of power transmission corridors, nurseries for soil flora and fauna where restoration is not possible but some form of nursery is possible).

The psychology of visual imagery in communicating conservation

Myers, Gene E
Env. Studies
Huxley College of the Environment, Western
Washington University
Bellingham WA USA 98225-9085

Email: gmyers@cc.wvu.edu

Keywords: conservation psychology, communication, photography, imagery, media

Abstract: Historical examples and opinions of contemporary conservation communicators offer anecdotal evidence that still photographic images can positively influence an audience's attitudes and behavior. Little empirical work, however, has directly accessed this possible influence, nor have findings from psychology been used to inform theory of the processes involved. This paper will provide steps toward the latter task only, with an eye to application.

How do still visual images differ from other message media? What factors influence the salience of an image? How does imagery interact with narrative or other media elements? What psychological variables influence how a viewer responds to an image? Are there any special considerations about images of natural objects and scenes--either pristine or damaged; and charismatic or not?

To begin answering these complex questions, this paper will first summarize recent work on neurological, sensory and perceptual processes relevant to still image processing. Key cognitive variables such as attention, intention, and conceptual schemas (frameworks), affect visual perception from a "top-down" direction. Another body of research relates visual experience, emotion, and memory. Relevant to images of degraded nature is the corpus of work on threat appraisal and coping. For each of these variables, individual differences may be significant. The socio-moral context of visual communication may have a large influence on its reception, depending on audience attitudinal variables. Finally, there are implications of the preceding variables for the links between a mix of media (e.g., images and text).

This paper will offer a user-oriented overview of these highly relevant findings from psychology for conservation communications, and some steps toward their theoretical integration.

Quebec's forest advisory committees: how do they look to different stakeholders

Nadeau, Solange
Canadian Forest Service
Resources Natural Canada
Fredericton NB Canada E3B 5P7

Catherine Martineau-Delisle
Sociologie
Université Laval

Email: sonadeau@nrcan.gc.ca

Keywords: public participation

Abstract: Public participation has become integral to forest planning and policy development. It is portrayed as a means to facilitate interaction between forestry professionals and the public at large. In Quebec, where most forests are publicly owned, important changes have occurred in the last 10 years that reflect efforts to integrate a wider range of public interests and values in decision-making. At the local and regional levels, forest advisory committees have become the cornerstone of the provincial public participation policy. Only a few studies to date have looked closely at these committees: a couple of case studies provide in-depth descriptions of specific committees, but a general understanding of the strength and weaknesses of the selection process is lacking. Our study used a mail survey to collect information on some 43 committees spread across the province. It elucidates the motivations of various groups of stakeholders as members of advisory committees, and records their assessment of the process they're engaged in, of the quality of deliberation taking place in those committees, and of the committees' impact on forest management. The results show some important variations among stakeholders, which confirms the importance of disaggregating the assessment data to take a closer look at groups who have less power over a committee's operation, and the implementation of recommendations emerging from the committees.

Paradise disputed: An evaluation of decision-making and moral authenticity in Hawaii's land use commission

Nagle, Fiona A
Conservation Biology Program
University of Minnesota, Twin Cities
St. Paul MN USA 55108

Email: finagle@umn.edu

Keywords: public participation; capacity building; arena-building; land use planning; environmental policy

Abstract: Disputes between conservation and development regarding land use are often chronic, complex, value-laden, and difficult to resolve. Further, the arenas used for resolution, such as courts or roundtables, can be dysfunctional or ineffective in their processes and results. Arenas for environmental dispute resolution that successfully exhibit functionality and effectiveness are therefore instructive to conservation practitioners and policymakers. One such functionally effective arena is Hawaii's Land Use Commission (LUC). The LUC is a state-institutionalized decisionmaking body that has resolved environmental disputes for 45 years and preserved 96% of Hawaii's land base while promoting economic growth. The LUC's ethical foundation was the focus of my research into the reasons for this functional effectiveness. Using in-depth interviews, archival overviews, and surveys, I analyzed the LUC's history, structure, process, and four decisions from 2000-2002. My theoretical lens was Moral Authenticity, a component of Authentic Arena Theory. Authentic Arena Theory is a new, interdisciplinary, and diagnostic framework I developed for building and evaluating environmental decision-making arenas. I concluded a critical ingredient of the LUC's long-term functional effectiveness was the depth and solidity of its moral foundation. An arena with a strong moral foundation therefore appears to be one of the factors that supports more sound, wise, and enduring conservation decision-making.

Career challenges for certified Canadian foresters

Naomi, Krogman T
Rural Economy
University of Alberta
Edmonton AB Canada T6G 0N4

Trena Allen
Rural Economy
University of Alberta

Peggy Smith
Forestry
Lakehead University

Email: naomi.krogman@ualberta.ca

Keywords: environmental ethics, forest decision-making, forestry education, gender discrimination

Abstract: This paper summarizes the findings to an open-ended question on a web based survey to all certified professional foresters in Canada, i.e., : "What is the greatest challenge of your career?" The greatest challenges reported by 965 survey participants are job insecurity, pressure to conform to institutional norms, thereby at times violating personal ethics, adapting to abrupt policy changes, communication across sectors, and gender discrimination in job opportunities and promotions.

Exploring global climate change and regional development impacts on residential water demand scenarios in the Okanagan Basin, British Columbia

Neale, Tina L
Adaptation & Impacts Research Division
Environment Canada
Vancouver BC Canada V6T 1Z4

Stacy Langsdale

Jeff Carmichael

Stewart Cohen

Email: tneale@ires.ubc.ca

Keywords:

Abstract: Water resources in the Okanagan Basin of south-central British Columbia are under stress from a variety of factors including rapid population growth and development. Climate change is also recognized as an influential factor, yet it has not been widely incorporated into water management plans in the region. This work integrated studies of climate change impacts into regional development scenarios, resulting in a tool allowing experimentation with different combinations of scenarios and adaptation responses.

We developed scenarios of residential water demand for three communities by incorporating population growth, housing density, climate change, and demand side management into a simple mathematical model. This information was then integrated with scenarios of agricultural water demand and aquatic ecosystem needs in a basin-scale systems model. Given medium population growth and moderate climate change and in the absence of additional demand side management or changes in housing density, the residential demand scenarios show that the region can expect, at minimum, a doubling of urban water demand by 2069. However, these community level scenarios also suggest that demand side management could reduce the sensitivity of water demand to the affects of population growth, changes in housing density and climate change. The integrated basin-scale model elucidated that, for the recent historical time period, residential demand played a relatively minor role in the overall demand profile, which aggregates agricultural, urban and ecological needs. This suggests that, in the current context, residential demand side management has limited potential to reduce total basin water use. However, as the region's population grows, the proportion of residential demand within the basin's demand profile is

expected to increase. The intensity of this trend could be reduced with the implementation of a variety of demand side management options. Unlike agricultural water demand and basin hydrology (inflows to Okanagan Lake), residential water demand was found to be less sensitive to climate change than to population growth and demand side management measures. Both small-scale and basin scale analyses are important for providing information to water professionals so that they can make decisions that will ensure continued reliable and sustainable water resource systems

Hunters' responses to chronic wasting disease: Perceived similarity, social trust, and personal risk

Needham, Mark D
Department of Forest Resources
Oregon State University
Corvallis OR USA 97331

Jerry J Vaske
Human Dimensions in Natural Resources Unit
Colorado State University

Email: mark.needham@oregonstate.edu

Keywords: Hunting; Human Dimensions of Wildlife;
Salient Value Similarity

Abstract: Theory suggests that risk perceptions are influenced by trust in managing agencies. Shared goals, values, and opinions are foundations of this trust. This presentation examines the extent to which hunters perceive personal risks associated with chronic wasting disease (CWD) and the influence of perceived similarity and trust in state wildlife agencies as determinants of this risk. Data were obtained from surveys ($n = 9,567$) of resident and nonresident deer hunters in eight states and elk hunters in three states. On average, hunters perceived slight to moderate similarity with and trust in the agencies, but still perceived some risk associated with CWD. Structural equation models showed that across all strata, hunters' perceptions of similarity with the agencies positively influenced trust in the agencies to manage CWD, explaining up to 49% of the variance in trust. Hunters who trusted the agencies perceived less risk associated with CWD, but trust only explained up to 8% of the variance in risk. Perhaps hunters trusted the agencies to manage CWD, but felt that there were limits to how much agencies knew and that potential risks associated with the disease were beyond agency control. To mitigate risk perceptions, agencies may need to do more to: (a) inform and educate hunters about CWD management strategies; (b) increase trust by fostering positive relationships and dialogue with hunters; and (c) emphasize differences between CWD and related diseases, and lack of scientific evidence showing connections between CWD and human health. Implications for theory and future research are also discussed.

Neighborhood associations make a difference in homeowner wildfire preparedness

Nelson, Kristen C
Forest Resources
University of Minnesota
ST Paul MN USA 55108

Martha C Monroe
University of Florida

Holly J Shiralipour
University of Florida

Michelle Payton
Forest Resources
University of Minnesota

Email: kcn@umn.edu

Keywords: homeowners, wildfire preparedness,
neighborhood associations, defensible space, risk

Abstract: Homeowners in the wildland-urban interface play a key role in the nation's efforts to reduce the impact of wildland fire, but how important are neighborhood associations in providing a critical social contract for helping homeowners take action in wildfire preparedness? In six communities across the U.S.—Anchorage, AK, Colorado Springs, CO, Spearfish, SD, Bastrop, TX, Berkeley Township, NJ, Ormond Beach/Volusia, FL—homeowners were surveyed in areas with and without neighborhood associations and that had the potential for a wildfire. Homeowner, neighborhood association and wildfire preparedness relationships were explored with a three contact mail survey, resulting in 2,195 respondents. Homeowners who actively participated in the community, in general, were more likely to participate in actions to reduce wildfire risk than less active homeowners. There was a strong positive relationship between the number of activities a homeowner participated in within a neighborhood organization and the number of fire preparedness activities they had done. Proximity to potential wildfire areas, perceived risk of a wildfire occurring nearby or on the homeowner's property, and neighborhood association membership alone were not related to wildfire preparedness activities. These findings have important implications for communities and public land managers interested in encouraging homeowners to reduce their wildfire risk.

Planning for a visitor program on Midway Atoll National Wildlife Refuge

Newman, Christian M
Environmental Programs
Pandion Systems, Inc.
Gainesville FL USA 32609

Christine B Denny, M.S.
Environmental Programs
Pandion Systems, Inc.

Karen C Hill
Environmental Programs
Pandion Systems, Inc.

Email: cmnewman@pandionsystems.com

Keywords: Ecotourism, Pacific, Public Lands, Marine,
Coastal, Economic, Market
Analysis, Feasibility

Abstract: Midway Atoll National Wildlife Refuge (Midway) is a remote coral atoll managed by the U.S. Fish and Wildlife Service (Service) 1,250 miles from Honolulu, Hawaii. Midway has remarkable wildlife and marine resources. Midway also has historical importance that includes its pivotal role in World War II. A visitor program on Midway poses many unique challenges for the Service. Any visitor program on Midway is constrained by regulatory, logistical, physical, and financial factors. Midway was open to visitors from 1996 to 2002 but abruptly ended in 2002.

In 2004-2005, the Service commissioned a study to look at feasibility of re-opening Midway to the public. The study analyzed the past visitor program, including a market analysis of similar destinations. It identified applicable market segments for a visitor program and made recommendations for an economically sustainable visitor program.

The study concluded that an economically sustainable visitor program is feasible if it targets visitors, ecotourists, which are seeking opportunities to view and interact with abundant and unique wildlife. Current facilities were adequate for the potential market segments and there were concessionaires that specialize in providing tour packages to Midway's target market segments. It was recommended that the Service implement a proposed Visitor Program where a Service Coordinator works with multiple concessionaires who in turn bring visitors to Midway.

This presentation will present the unique challenges for a visitor program on Midway and report the findings that lead to the recommendations in the report. It will also update the status of recommendations from the study.

Greenways as multifunctional integrative resource management tools in achieving local and regional sustainability: The Norwottuck Greenway case study

Newman, Mirela I
Geography and Regional Planning
Westfield State College
Westfield MA USA 01086

Email: mnewman@wsc.ma.edu

Keywords: greenways; sustainable regional development; New England; Norwottuck Trail

Abstract: Many studies have examined planning tools and strategies in achieving local and regional sustainability. This paper examines greenways and their functions in the context of local and regional resource management by focusing on a New England case study centered on the Norwottuck Rail Trail Greenway. Developed as a recreational greenway in 1993, the Norwottuck Rail Trail replaced the old Massachusetts Central Railroad Line that used to connect Northampton and Boston. This 8.5 miles nature rail trail connects three New England towns (Amherst, Hadley, and Northampton) and is located in the fertile agricultural Pioneer Valley micro-region, at the northern edge of a larger region commonly referred to as the "New England Knowledge Corridor."

The paper argues that greenways are effective, multifunctional integrative resource management tools in achieving local and regional sustainability. The author examines several key functions performed by the Norwottuck greenway within the Pioneer Valley micro-region, while also integrating in her analysis several Pioneer Valley regional sustainability data, indicators and trends provided by local and planning agencies.

This research-based analysis points to the multifunctional character of the analyzed greenway corridor and discusses the role of at least four main functions fulfilled by the Norwottuck Greenway within the region including the: 1) alternative modal transportation; 2) outdoor recreation and tourism; 3) community connectivity; and 4) nature and biodiversity protection. Based on the findings stemming from her regional case study the author summarizes the role of greenways as multifunctional integrative resource management tools in achieving local and regional sustainability.

Conservation in the Kaskaskia corridor: Understanding landowner perceptions of incentive programs

Newman, Tami C
Department of Forestry
Southern Illinois University Carbondale
Carbondale IL USA 62901

Jean C Mangun
Department of Forestry
Southern Illinois University Carbondale

Mae A Davenport
Department of Forestry
Southern Illinois University Carbondale

Robert D Benford
Department of Sociology
Southern Illinois University Carbondale

Email: newt@siu.edu

Keywords: human dimensions; triangulation; conservation easement; grassroot stakeholder organization

Abstract: In 1992, landowners in the forested Kaskaskia Watershed of southwestern Illinois rejected a U.S. Fish and Wildlife Service initiative to establish a new wildlife refuge. The collective response and subsequent actions of landowners led to the formation of multiple stakeholder organizations; the largest of these is the Kaskaskia Watershed Association. Landowners voiced their intentions to retain private ownership and to develop restoration and protection goals for this important remnant riparian forest. Over a decade later, the success of forest restoration and conservation easement enrollment programs appears mixed. The purpose of this study is to gain a better understanding of varying perceptions held by landowners and agency personnel, not only about the present situation but also about prior events. A qualitative research design was utilized that included collection and analysis of in-depth personal interviews, facilitated focus groups, as well as secondary analysis of an existing quantitative data set. Landowner motivations to participate (or not) in conservation easements or other incentive programs emerged from the analysis. The motivations identified hold multiple implications for landowner acceptance of and participation in conservation easements /incentive based programs via a collaborative process. The study findings expand on current conceptualizations of collaborative partnerships involving land management agencies and non-industrial private forest landowners. This research provides a conceptual model of landowner

motivations that can be used to guide both public agencies and land trust alliances seeking to build similar conservation partnerships.

Household's social capital and attitude toward conservation: A case study of Cat Tien National Park, Vietnam

Nguyen, Thuy N
School of Natural Resources and Environment
University of Florida
Gainesville FL USA 32603

Janaki RR Alavalapati
School of Forest Resources and Conservation
University of Florida

Email: nnthuy@ufl.edu

Keywords: social bonds, norms, reciprocity, connectedness, indigenous, participation, forest protection

Abstract: This paper explores the relationship between household's social capital and conservation attitude for people inhabiting or living near the bufferzone of the Cat Tien National Park (CTNP), Vietnam. This park is one of the last remaining lowland jungles, which holds the last surviving population of Javan Rhinoceros on mainland Asia. Household data were collected using a structured questionnaire and a face to face interview method. A stratified sampling approach was followed to account for spatial and ethnic diversity of households living around the park. Approximately 270 households were selected from 9 villages through a stratified sampling design, including 30 women and 240 men. Using factor analysis, we have identified 8 attributes for social capital (social trust, social cohesion, community solidarity, community support, voluntary action, mutual respect, socialization, and ethnic interaction) and 4 attributes for conservation attitude (conservation benefit, conservation awareness, conservation resentment, and conservation ownership). Based on these attributes, we have computed social capital and conservation attitude indices for each household. A logistic regression was employed to determine the effect of social capital, other socioeconomic characteristics, and spatial variables on household's attitude toward conservation of CTNP. Results suggest that social capital has positive and significant impact on household's attitude toward conservation. Other socio-demographic variables such as ethnicity, religion and length of residency also have significant impact on household's attitude toward conservation. Policy relevance of these findings are discussed.

Community-based tourism: A case study on the fond Gens Libre community in St. Lucia

Nicholas, Lorraine N
Tourism, Recreation & Sport Management
University of Florida
Gainesville USA 32608

Brijesh Thapa
Tourism, Recreation & Sport Management
University of Florida

Email: lnicholas@hhp.ufl.edu

Keywords: local involvement; cultural tourism;

Abstract: Tourism development has been for the most part executed with little or otherwise minimal input from the local community. Further, in most cases, due regard is not paid to the potential impacts of the development and management of cultural heritage sites on the local community and vice versa. As such, it is critical that local communities partake in the management and development of cultural heritage sites in order to ensure the sustainable development of the site. One of the communities that have embraced community-based tourism is the remote rural community of Fon Gens Libre. This community is widely acknowledged as the base of the first settlement of freed black slaves in St. Lucia – the Brigands. Fond Gens Libre is situated within the Piton Management Area (PMA), which was designated as a World Heritage Site in 2004. The PMA is essentially a volcanic complex that encompasses two primary tourist attractions – The Pitons and the Sulphur Springs. While the PMA is categorized as a Natural site by UNESCO, the site is also endowed with historical and cultural value. A major attraction to the community of Fond Gens Libre is the Gros Piton nature Trail that is co-managed by the Department of Forestry and the descendants of the Brigands. The The Gros Piton Nature Trail is a unique attraction endowed with a blend of the natural, cultural and historical resources. In addition to the tours and group hikes, a visitor and interpretive center is located in the community to educate domestic and international visitors about cultural and natural resources. The purpose of this study is to delineate the dynamics of community-based tourism in a small remote community of Fond Gens Libre. Specifically, the study seeks to highlight the impacts of tourism development on this community by juxtaposing the pre and post-tourism state of the community.

Governing the Tongass: National Forest conflict and political decision making

Nie, Martin A
College of Forestry and Conservation
University of Montana
Missoula MT USA 59812

Email: martin.nie@cfc.umt.edu

Keywords: Policy; Public Lands; Governance; Alaska; Planning; Law; Collaboration; Reform;

Abstract: The paper examines one of the most enduring and intractable environmental conflicts in the United States: forest management on southeast Alaska's Tongass National Forest. It analyzes the Tongass by asking three broad questions: what factors drive this conflict? how has it been dealt with in the past? and how might it be dealt with in the future? The Tongass is used as a springboard to investigate more inclusive issues about public lands governance; thus, many of its lessons are applicable elsewhere. The analysis shows that conflicts on the Tongass are driven by multiple factors, from overlapping and problematic statutory language to the adversarial processes in which they are governed. It shows how political disagreement and the resulting nature of public land law moves conflict about forest management onto alternative decision making paths: resources planning, administrative appeals, executive involvement, appropriations, science, and litigation take up where Congress left off. Though often beneficial, it demonstrates that many of these processes are simply not well-designed for conflict resolution and problem solving. Certainly things could be improved, but the analysis demonstrates that changes to these venues and processes will likely re-channel rather than resolve the underlying conflicts because of the stakes involved and their irrepressible nature. Nonetheless, part of the paper is devoted to sketching a few possible ways that we might move forward in the future, and this section draws heavily from some of the most intriguing ideas and developments in public lands management. Legislative reform, public participation and collaboration, and community forestry are briefly outlined in this context.

Indigenous voices on community-based conservation in the Mesoamerican biological corridor

Nielsen, Erik A
Environmental Science Department
Alaska Pacific University
Anchorage AK USA 99508

Email: erikn@alaskapacific.edu

Keywords: public participation, respect, trust, communication competence, planning, NGOs, biodiversity

Abstract: The global conservation community recognizes the importance of integrating and enhancing community based participatory conservation processes for effective protected area and biodiversity management. However much remains to be learned about how to enhance local governance regimes with indigenous peoples in and around protected areas. This study presents the voices of indigenous participants in four Community-Based Conservation (CBC) projects and their recommendations to improve conservation practice. These projects operate in two important Biosphere Reserves of the Mesoamerican Biological Corridor that overlap with indigenous territories. Findings obtained through a mixed methods comparative case study indicate that key areas for improvement are not technical in nature but reflect unique interpersonal and organizational dynamics and contexts of these CBC projects. Patterns across these cases demonstrate reciprocal trust, transparency, respect, communication and organizational issues that need to be enhanced for all stakeholders involved in these processes. Recommendations for intermediary NGOs include increased focus on addressing these issues through stakeholder training, personnel management and strategically planning for collaboration.

The nuts and bolts of attachment to landscape-scale places: Three case studies of social values in a landscape context

Nielsen-Pincus, Max
Department of Forest Resources
University of Idaho
Moscow ID USA 83843

Email: niel9897@uidaho.edu

Keywords: mapping values; place-based; GIS; conflict resolution; resource management; land use

Abstract: Contemporary natural resource conflicts are often described as wicked problems, meaning they are in part characterized by a lack of understanding of the multiple and competing values and goals for land management. Understanding the diversity of values for landscapes can help land managers and planners craft more acceptable plans in both conventional and collaborative planning processes. We conducted a mail survey map exercise in three rural counties of Idaho and Oregon, USA to empirically collect geographically referenced data about social values at the landscape scale. We use this data to test the hypothesis that place-specific social values are related to biophysical (e.g. topographical relief) and social (e.g. place meanings) characteristics. The three counties provide case studies to examine differences in the relationship between people, landscape, and values. The methodology should prove useful for land managers and land use planners to engage in planning processes that include social values data. This data can be compared with other geographically referenced biophysical and economic data sets. I suggest that proactively collecting and utilizing geographically referenced values data may help to reduce the potential for wickedness to emerge in resource management and land use planning processes.

Exploring carbon sequestration as a climate change mitigation option for Scotland

Nijnik, Maria
Socio-Economic Research Programme
the Macaulay Land Use Research Institute
Aberdeen Scotland United Kingdom AB 15 8QH

Email: m.nijnik@macaulay.ac.uk

Keywords: Carbon sequestration, climate change mitigation, policy, regional development

Abstract: Since the Kyoto Protocol (1997) climate change has become one of the most important environmental policy issues. Carbon sequestration through land-use and forestry projects has been studied for many countries, including Scotland. Many policy and research initiatives that focus on carbon uptake are directed toward both woodlands expansion and using wood as a substitute for fossil fuels. However, there is a knowledge gap with respect to the socio-economic aspects of climate change mitigation. The potential benefits of forestry projects in environmental, economic and social terms could be substantial. However, there is still a great deal of uncertainty on how to define sustainability of afforestation and biomass production in a broadly acceptable and controllable way; how to translate sustainability requirements into policy guidelines; how to overcome market limitations of carbon sequestration projects and where to place biomass production in the general context of land use, where reform of CAP and contemporary agricultural change will likely be influential. The purpose of this paper is therefore to highlight these social and economic problems of using forestry projects for moderating of carbon emissions, as well as to provide some indication of whether Scottish forestry can offer a socially acceptable and a low-cost opportunity for carbon uptake.

Mapping local landscape values to promote conservation

Norwood, Carla M
Curriculum in Ecology
University of North Carolina at Chapel Hill
Chapel Hill NC USA 27516

Gabriel B Cumming
Curriculum in Ecology
UNC-Chapel Hill

Stacy J Guffey
Macon County Planning Department
Macon County, NC

Ben Brown
Freelance Writer
Chair, Macon Tomorrow

Susan Ervin
Macon County Planning Board
Macon County, NC

Email: carla333@email.unc.edu

Keywords: GIS; public participation; scenic beauty; land use planning; landscape change; private property

Abstract: Macon County, North Carolina, is experiencing rapid amenity-driven, second-home development that threatens its high quality waterways, diverse forest ecosystems, and longstanding rural communities. Yet, attempts to enact land use planning by the local government have repeatedly failed in the face of opposition from property rights activists. Bitter disagreement and inaccurate information about planning and growth have hampered public discussions of these critical and timely topics. The county's landscape—which is not only the foundation of a strong tourist economy but is highly valued by residents—remains unprotected from floodplain, mountainside, and other inappropriate development patterns.

This presentation details the mapping component of Little Tennessee Perspectives, a project designed to engage residents in an inclusive, informed, and ongoing discussion about shared values and the changing landscape. Mapping exercises and visualization techniques were employed to encourage consideration of the long-term results of unplanned growth on common resources, such as viewsheds and water resources. Through interviews and focus groups, residents shared their concerns about the landscape, which then guided geospatial analyses that were relevant to local concerns and targeted to the needs of local land use decision

making. Further, residents have participated in several facilitated mapping exercises to investigate growth trends and map areas of importance to the community.

The objectives of my research are to (1) study the how these participation strategies and visualizations affect knowledge about common resources or attitudes regarding land use planning and (2) to gain insight into how researchers can better work with communities to harness the power of geographic visualizations for local land use decision making. The results thus far suggest that mapping, when utilized within an iterative, participatory process, can be a valuable tool for encouraging communities to more seriously consider regulations and incentives to protect landscape features they collectively value.

Exploring the predisposition of travellers to qualify as ecotourists: The ecotourist predisposition scale

Nowaczek, Agnes M
Recreation and Leisure Studies
University of Waterloo
Waterloo ON Canada N2L 3G1

Bryan Smale
Recreation and Leisure Studies
University of Waterloo

Email: anowacze@ahsmail.uwaterloo.ca

Keywords: ecotourists, scale, predisposition, profiling

Abstract: Several efforts have been made over the years to develop profiles of ecotourists. Those efforts, however, have typically relied upon classifying travellers a priori as ecotourists based simply on the locations they visit or the behaviours they exhibit (e.g., birdwatching) while travelling. However, these individuals may not in fact be ecotourists when one considers, for example, their preferences for and attitudes towards natural environments – aspects key to ecotourism. In other words, it remains unclear the extent to which people are predisposed to be ecotourists irrespective of where they travel or what they choose to do. In this study, the development and validation of a multidimensional scale for identifying travellers' predispositions to qualify as ecotourists, the Ecotourist Predisposition Scale (EPS), is described. Following a comprehensive literature review of definitions of ecotourism, six dimensions underlying the concept were identified: Ethics, Education, Culture, Nature, Specialization, and Contribution. Just under 100 items were developed measuring each dimension and these were reduced to 71 items following expert review and face validity checks. The items were subjected to empirical testing (i.e., factor analysis of dimensions, reliability tests, convergent validity tests) and subsequently reduced to a 30-item scale with 5 items per dimension. Application of the scale shows high correlation with related constructs such as the New Environmental Paradigm (NEP) Scale and remains stable across different demographic characteristics of a general sample. The EPS is conceptually grounded and has the advantage of profiling tourists' propensity to be ecotourists which in large degree is responsible for shaping their nature-related interests and commitment to protecting and maintaining these interests.

Dynamic forest relationships and livelihood stability as obstacles to co-management: A Sri Lankan case

Nuggehalli, Roshni K
Forestry and Natural Resources
Purdue University
West Lafayette IN USA 47907

Linda S Prokopy
Forestry and Natural Resources
Purdue University

Email: rnuggeha@purdue.edu

Keywords: Community forestry; Participation; South Asia

Abstract: Community participation and involvement in decision making are extremely important components of resource management. Among South Asian countries, Sri Lanka has high levels of biodiversity and has recently ventured into community based management of its forests. This paper focuses on a qualitative exploration of two communities in one such rainforest conservation project in Sri Lanka. We analyze the effects of rural agricultural and economic stability on the dynamics of human-forest relationships and on non-timber forest product (NTFP) dependencies. Our study highlights a tea-crop driven economy around the rainforests that places much higher value on the forest as a source of cultivable land rather than a source of consumptive goods. Our findings suggest that this increasing disconnect with the forest as an actual resource presents obstacles for stakeholder buy-in and participation in co-management. Additionally, we show that rising opportunity costs of forest harvesting coupled with increasing income from stable tea based livelihoods contributes to an erosion of common ground and interest for forest protection. In this context, rural infrastructure development is more important than forest protection in communities surrounding the forest. We analyze the Sri Lankan project as a case in which dynamic project implementation approaches and flexible institutional roles compensated for these obstacles to co-management. Adaptive implementation strategies contributed to establishing strong social networks and structural organizations within the forest boundary communities. We therefore propose that an intervention addressing the articulated needs of stakeholders, rather than focusing on perceived problems, allows for increased participation and success.

Trees and woods in inner London: Residents from two social housing estates and their perspectives on Peabody Hill wood

O'Brien, Elizabeth A
Social Research Group
Forest Research
Farnham Surrey United Kingdom GU10 4LH

Email: liz.o'brien@forestry.gsi.gov.uk

Keywords: urban forestry; place and community identity; quality of life; social housing; social values.

Abstract: Urban trees and woodlands provide a wide range of benefits to local people in densely populated areas: as places to use, view and enjoy, and as part of their local community identity. There is increasing interest in woodlands and green spaces and their impacts on people's quality of life and well-being. The work described in this presentation involved a partnership project between Peabody Trust (a social housing association), the Forestry Commission (the government department responsible for forestry in Britain) and Trees for Cities (an environmental charity). The research focused on gaining an understanding of how the residents of two social housing estates in South London viewed and experienced their local woodland called Peabody Hill Wood. Peabody Trust owns and manages the housing estates and the woodland.

Qualitative and quantitative data collection methods were used including focus groups, a questionnaire and observations were made at two community events in the wood. There was a complex mix of both positive and negative attitudes towards Peabody Hill Wood by local residents. This research highlights as a number of other studies have that woodlands near to where people live are valuable spaces and play an important role by providing opportunities for contact with nature in the urban environment. The work suggests that housing associations can have an important role to play in green space management particularly in deprived inner city areas. Partnership working with the housing sector, environmental sector and active community engagement and participation can help to improve woods and green spaces for local people.

A segmentation approach to understand angler preferences for tournament fishing policies

Oh, Chi-Ok
Department of Parks, Recreation and Tourism Management
Clemson University
Clemson SC USA 29634-0735

Robert B Ditton
Department of Wildlife and Fisheries Sciences
Texas A&M University

Email: chiokoh@clemson.edu

Keywords: Stated preference choice model, recreational tournament fishing, management preferences

Abstract: With an increasing number of recreational saltwater fishing tournaments in the U.S., there has been concern over the inequitable use of public fishery resources and the lack of any special licensing requirements for participants. A typical analysis based on an average angler perspective fails to consider the heterogeneous preferences of various user groups into optimized policy development. Therefore, we sought to understand the differences in concerns and preference for management of tournament fishing based on previous tournament participation (i.e., tournament and non-tournament participants). Study objectives were to: 1) better understand anglers' preferences for tournament fishing trips under various policies and management options; 2) examine group differences in preferences; and, 3) provide feasible management options that maximize satisfaction for both groups concurrently with conserving the resources involved. Using seven different policy and expectation attributes, a fractional factorial design generated 56 paired choice sets, which were included in seven versions of the mail questionnaire. Random parameter logit models were used for parameter estimation. Results indicated that the average angler most preferred a conservation-oriented scenario that introduced additional management measures over other scenarios. However, the use of the segmented group approach revealed different patterns of preferences for the management scenarios proposed. While both groups most preferred a conservation-oriented scenario, participants were more interested in maintaining the current laissez-faire management conditions. A segmentation approach is advantageous for understanding how changes in management options have a differential influence on angler segments and is useful for avoiding the unwanted displacement of affected angler types.

A community readiness approach to natural resources program planning

O'Keefe, Garrett J
Journalism and Technical Communication
Colorado State University
Fort Collins USA 80523

Robin Shepard
Cooperative Extension
University of Wisconsin-Madison

Email: gjokeefe@lamar.colostate.edu

Keywords: Water quality programs
Citizen participation
Environmental education

Abstract: Natural resource management information and education programs in recent years have taken a strong turn toward community level efforts, with greater emphasis upon formal and informal community organizations, interpersonal communication, and less but more focused reliance upon mediated communication channels. Most resource issues encompass a community, whether defined more by political boundaries (e.g., city, county), natural boundaries (watershed, basins, forests), and/or social boundaries (e.g., civic and political organizations, citizen networks, neighborhoods, cooperatives).

Characterization of the community is often the first step in resource management, leading to formative assessment of resource problems, perceptions of solutions, and strategies for achieving those. Citizen participation in such assessment has been demonstrated as often vital to successful program outcomes.

Here we examine the Community Readiness Model (Edwards, et al.) as a tool for formative resource program assessment. The model asserts in detail nine stages of community readiness for implementing programs (i.e., from "no awareness" of a problem to "professionalism" in public response.) Each stage calls for calls for differing program strategies and tactics. The stages are based upon empirical study of six community dimensions (e.g., public knowledge, community capacity, leadership). The model has been applied in depth to a number of health and well-being issues, but rarely to natural resources.

We propose such applications here, including methods and measures appropriate to resource issues, using research on water quality education and information programs as examples. We find the model particularly useful in introducing an assessment technique based

upon the existing situation in particular communities and developing techniques for moving them forward in ways appropriate to their own situations.

Influencing factors in federal post-fire management decision-making: An exploratory study

Olsen, Christine S
Department of Forest Resources
College of Forestry, Oregon State University
Corvallis OR USA 97331

Bruce A Shindler
Department of Forest Resources
College of Forestry, Oregon State University

Email: Christine.Olsen@oregonstate.edu

Keywords: qualitative research, citizen participation

Abstract: Wildfire is a significant threat to forests and surrounding communities throughout the United States. The issue is particularly salient in the West where abundant fuel conditions indicate that the large (100,000 acre) fires now occurring in many states are expected to continue to be a major problem for land managers in the coming years. Consequently, the process of managing forests after large fires will become increasingly important to forest agencies and communities. However, forest managers are largely unprepared to cope with the ecological planning and public interactions that follow such events. In the context of post-fire management, this presentation explores factors that influence federal forest decision-making in five areas: local context, barriers and obstacles to decision-making, perceptions about uncertainty and risk, communication strategies, and bringing communities together to reach agreement. Four recent large fires are examined as study sites: the Hayman Fire in Colorado (2002), the Biscuit Fire in Oregon (2002), the Bear & Booth Fire Complex in Oregon (2003), and the Grand Prix and Old Fires in California (2003). Analysis is based upon exploratory interviews, planning documents, and an extensive review of pertinent literature. Preliminary findings suggest regulatory time limits and requirements present barriers in the decision-making process, individuals and groups unify under common goals after the fire, targeted communication from the agencies is essential to citizen understanding and cooperation, and the uncertainty of future forest conditions is a major concern. Additional research is recommended.

The interrelationship of biodiversity and rural viability in mountain environments

Olsson, E. Gunilla A
Department of Biology
Norwegian University of Science and Technology
Trondheim Norway 7491

Susanne K Hanssen
Department of Biology
Norwegian University of Science and Technology

Solvi Wehn
Department of Biology
Norwegian University of Science and Technology

Email: gunilla.olsson@bio.ntnu.no

Keywords: lscenarios, stakeholder participation, landscape change, semi-natural habitat, livestock grazing, eco-tourism

Abstract: Mountains have been used by humans since prehistory and are to some extent cultural landscapes shaped by different farming systems. The withdrawal of resources from the mountain ecosystem to sustain the agrarian production in the farming communities at lower altitudes has impacted and shaped both landscape and habitats in the mountain environment. The decline and restructuring of agriculture has been a general trend during the last 50 years and this trend is particularly evident in mountain areas. The local economy in the mid-Norwegian mountain communities is still highly dependant on small- and medium sized farms, multifunctional agriculture, where meat production includes range summer grazing by livestock in the mountains, semi-domestic reindeer husbandry, small scale forestry, and diverse tourism activities. What are the likely future developments, what are the alternatives and what may be the consequences for landscape, biodiversity and rural viability in these areas? Scenarios on land use changes and the response in landscape development were developed for the eastern Jotunheimen mountain range, Norway, in collaboration with local stakeholders, given different sets of drivers for change, including different agricultural policies and governmental agri-environmental incentives. The aim of this paper is to illuminate the connection between biodiversity dimensions in a region and the rural viability of local communities based on sustainability appraisal of landscape scenarios. Rural viability is used as an aspect of sustainable development with the components economy, culture and environment.

Measuring society's pressure on the environment: The human appropriation of net primary production in Nova Scotia

O'Neill, Daniel W
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada B3H 3J5

Peter H Tyedmers
School for Resource and Environmental Studies
Dalhousie University

Karen F Beazley
School for Resource and Environmental Studies
Dalhousie University

Email: entropyhero@yahoo.ca

Keywords: pressure indicators; NPP appropriation; resource planning; land use; biodiversity; GIS

Abstract: The energy captured by plants in the process of photosynthesis ultimately supports the majority of life on earth, including human beings. The extent to which humans use this energy -- or make it unavailable to other species -- may be determined by calculating the "human appropriation of net primary production" (HANPP).

HANPP is an indicator of the pressure exerted by society on natural systems, and is therefore a valuable tool for decision-makers. It is an aggregate measure that reveals the total appropriation due to a variety of different activities (such as agriculture, forestry, and land cover change) within a given area. HANPP is also a particularly useful indicator because it may predict biodiversity loss before it occurs.

As a case study, we have used remotely-sensed and statistical data to calculate and map HANPP for the province of Nova Scotia, Canada. Our calculations show that over 25% of potentially-available net primary production is appropriated through harvest activities and land cover change. Interestingly, HANPP is not distributed evenly throughout the province, but is concentrated around the narrow isthmus that connects Nova Scotia to the rest of North America. In this region appropriation reaches 50%. We also find that appropriation is significantly higher on private land than on public land, and in areas where a high road density allows greater access.

We conclude that HANPP analysis may be used to identify the activities and areas where human pressure

on the environment is greatest. Management decisions in these areas are particularly important to sustainability.

Landguards and struggles over land rights in Greater Accra, Ghana

Onoma, Ato Kwamena
Department of Political Science
Northwestern University
Evanston IL USA

Email: kwamena-onoma@northwestern.edu

Keywords:

Abstract: Peri-urban areas of major African cities represent the frontiers of struggles over property, the environment, and the location of political control in many African countries. The rapid urbanization on the continent has led to the speedy and often chaotic conversion of agricultural areas surrounding cities into residential and commercial sites. In the Greater Accra area where the capital city of Ghana is located, this struggle over peri-urban lands has always involved landguards. Landguards are groups of young men who act as entrepreneurs of coercion in land markets. They sell violence that is used to acquire, contest and protect valuable rights in land. My paper traces and problematizes the lineages of landguards with the intention of reflecting on wider political, economic and social processes in which they are located. This exercise is interesting firstly, because it demonstrates some of the innovative ways in which people seek to secure their land rights even as states struggle to secure land rights. Secondly, it reveals the innovative means through which many ordinary Africans endeavor to survive in increasingly hard times by recycling and redeploying aspects of major policies and processes that are often written off as failures and irrelevant histories by scholars and policy makers. Finally, this paper reflects on the challenges of ensuring downward accountability within social groups that rise to challenge the state. Such accountability is important for ensuring that such groups, which many see as countering the abuses and failings of states, adhere to the views of their communities.

The communicative competence of commercial guides: a framework for evaluating communication effectiveness

Oschell, Christine M
Department of Society and Conservation
University of Montana, College of Forestry and Conservation
Missoula MT USA 59825

Neil Moisey
Society and Conservation
University of Montana, College of Forestry and Conservation

Email: christine.oschell@umontana.edu

Keywords: commercial guiding, nature-based tourism, education, protected area management

Abstract: Research has informed managers of the most effective ways of communicating with visitors. Studies have looked at indirect management techniques, like information and education and they have shown that personal contact, or face-to-face contact, with recreationists is perceived by resource managers in various agencies to be the most effective means for successful communication with protected area visitors. Commercial guides have personal contact with visitors and should be considered a channel for managing agencies to deliver messages that will help them achieve their goals.

Oschell (2004) examined the roles of guides empirically and investigated the possibility of an effect on the outcomes of guided recreation. The results of this study indicated that the communicative role was the highest rated of the roles. It was also concluded that the communicative role did have a positive effect on learning by the customers in this study. Considering this result, the potential exists for guides to assist managers in achieving their goals by communicating with visitors.

It is clear that guides have a role as a communicator but this is of no utility to managers if guides are not effective in their communicative effort. Communication competence is a construct that can be used to quantify effectiveness. This paper will discuss the components of a potential framework to be used for understanding and evaluating the communicative competence of commercial guides operating in protected areas. It will also address how through competent communication guides may be able assist managers in achieving objectives, like visitor education.

Restoration in wilderness areas and National Parks: Advocacy coalitions and the evolution of wilderness fire policy across three decades.

Ostergren, David M
School of Forestry, Center Environmental Sciences
Northern Arizona University
Flagstaff USA 86011

Email: david.ostergren@nau.edu

Keywords: Mt. Trumbull, Mt. Logan, Kendrick Mountain, Kachina Peaks, Grand Canyon National Park

Abstract: The US Forest Service, Bureau of Land Management and National Park Service manage wilderness areas in northern Arizona that are dominated by Ponderosa pine ecosystems. Agencies, researchers and NGOs acknowledge that these ecosystems are out of their natural range of variability and need some restoration of composition, structure and function. The means and goals of any proposed restoration are the focus of this analysis. Across the southwest, the most significant process that has been excluded is fire. But how do agencies reintroduce fire into dense, small diameter stands of Ponderosa pine without courting disaster? The answer for many public lands, especially those close to communities, is to thin and prescribe burn, or prescribe burn under controlled conditions. Wilderness however has deeper theoretical implications. Management standards are supposed to protect the wilderness character of an area, to maximize natural and untrammelled conditions. This policy analysis identifies three advocacy coalitions that have evolved over three decades and continue the fiery debate into wilderness. Current positions appear to be; 1) let all ignitions burn no matter the consequences, 2) enter once with means that may include chainsaws and then burn until lightning ignites fires safely, or 3) plan for suppression during high fire season and then employ light thinning and a regular pattern of prescribed burns for the indefinite future. No single policy will suffice for all wilderness, but each has its costs to one or more wilderness values and each prompts debate.

Exploring the relationship quality model for bed and breakfast industry

Ou, Sheng-Jung
Horticulture
National Chung Hsing University
Taichung Taiwan 402

I-Chun Lin
Horticulture
National Chung Hsing University

Email: sjou@nchu.edu.tw

Keywords: tourism; commitment; satisfaction; trust; revisit; word of mouth

Abstract: The purposes of this study were to develop the relationship quality model for Bed and Breadfast industry in Taiwan and to discuss dimensions influencing the cognition of visitors' relationship quality and the impact of relationship quality on customers' loyalty. By using mailed questionnaire survey, the study obtained 229 valid samples from legal B&B industry. Using Structure Equation Model (SEM) to examine the hypothetical model of relationship quality, the study obtained major conclusions as followings:

1. Dimensions such as the provision of basic service need, the contact level of interactive relationship, and the style and environmental atmosphere positively and significantly influenced the relationship quality. The dimension of the contact level of interactive relationship also positively and significantly influenced both dimensions of the provision of basic service need and the design of local experience activities. However, no significant relationship had been found between the provision of basic service need and the relationship quality.
2. The relationship quality had positively and significantly influences on the willingness to revisit and word of mouth recommendation.
3. From the total effect perspective, the contact level of interactive relationship had the strongest total effect on the relationship quality, while the relationship quality had the strongest total effect on word of mouth recommendation.
4. From the holistic model perspective, the contact level of interactive relationship was the major determinant for both relationship quality and the willingness to revisit.

Old-growth forests: Values of citizen constituencies in Nova Scotia, Canada

Owen, Rochelle J
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada B3H 3J5

Peter N Duinker
School for Resource and Environmental Studies
Dalhousie University

Email: rjowen@dal.ca

Keywords: old-growth forests; values; stakeholders; Nova Scotia; citizen constituencies; public participation

Abstract: The management of old-growth forests is complex. In the last centuries and decades, old-growth forests have declined significantly. Scientific and management organizations are concerned that sustainable forest management (SFM) of old-growth forests will be hampered by data gaps, policy pressures, and value conflicts. The purpose of this study is to describe and prioritize old-growth values of citizens and groups in Nova Scotia, Canada, for integration in future sustainable forestry decision-making.

This study is based on nine one-day field trips to forest stands in Queens County, Nova Scotia. Participants were selected to represent five citizen groups identified in the literature as groups whose values should be taken into consideration in SFM decision-making. These include Aboriginal groups, environmental non-government organizations (ENGOS), forestry professionals, the rural and the urban public. Over 80 participants attended the one-day sessions. Each participant was given a diary to record personal thoughts during visits to young and old-growth forests stands in the morning. In the afternoon, a group discussion and rating sheet were used to elicit additional information.

Early findings show that a variety of environmental, economic, moral/spiritual, and aesthetic values were assigned to old-growth forests by all constituency groups. The attributions of some values are ascribed by participants to both young and old-growth forests. The value difference often lies in the interpretation of the value definition and the strength of the value conviction. The strength of certain value convictions appears to be influenced by some socio-demographic characteristics. At the time of the conference, specific details will be provided on old-growth value categorizations by constituency groups, the influence of silvicultural treatments on these old-growth values, and

Evaluating the social carrying capacity of black bears in North Carolina

Palmer, Dain R
Division of Wildlife Management
N. Carolina Wildlife Resources Commission
Raleigh NC USA 27699-1722

David T Cobb
Division of Wildlife Management
N. Carolina Wildlife Resources Commission

Email: dain.palmer@ncwildlife.org

Keywords: wildlife management; cultural carrying capacity; CCC; SCC; attitudes; values

Abstract: Black bear populations in North Carolina have steadily increased over the past 30 years. Concomitantly, their occupied range has expanded as the human population in North Carolina has grown. As a result, there are increasing opportunities for bear/human interactions. We used a Bear Sensitivity Index (BSI), developed by Peyton and Bull (2001), to assess the social carrying capacity of bears. In 2005, we mailed surveys to 12,810 North Carolina residents and 3,933 surveys were returned, for an adjusted response rate of 35%. There was evidence of non-response bias as respondents were less likely to be women, younger, have lower education levels, or have lower income levels than the general population in North Carolina. Respondents were classified based on their tolerance for situations involving bear/human interactions: 15% of respondents were tolerant of all situations involving bears and humans, 29% were intolerant only of personal threats by bears, 14% were intolerant of frequent bear/human interactions, 28% were intolerant of occasional bear/human interactions, and 14% of respondents were intolerant of even the presence of bear. We found that tolerance for bear/human interactions was generally higher for people who live in areas of North Carolina where more bear/human interactions occur, people who have had one or more interactions with bears (e.g., observed or photographed a black bear), participants in wildlife-related recreation, men, and those who described themselves as having higher knowledge of black bears than their counterparts. Unexpectedly, farmers or beekeepers and people who had children under age 10 in their households did not have lower tolerance for bear/human interactions than other residents. The results of this study indicate that most North Carolinians would tolerate at least occasional bear/human interactions; this is good news for wildlife managers as occupied bear range may continue to expand into areas that have high human populations. However, North Carolinians who live in

areas currently unoccupied by bears may be more likely than other residents to demand that wildlife managers take steps to prevent bear/human conflicts.

Markets and Policies in Transition to Sustainable Forest Management in Finland

Palo, Matti
Finish Forest Research Institute (METLA)
Helsinki Finland

Email: matti.palo@metla.fi

Keywords:

Abstract: We define Sustainable Forest Management (SFM) as the objective of postindustrial forestry according to Rio UNCED: "Forest resources and forest lands should be sustainably managed to meet social, economic, ecological, cultural and spiritual human needs of present and future generations." We specifically analyze the transition from industrial forestry to postindustrial forestry. Our attention concerns the de jure and de facto transitions of forest policy objectives, means, institutions and their implementations. Most of the world's forests are owned by the states. Socialistic forestry has a tendency to undervalue existing forests and thus increase the opportunity costs of sustainable forestry. The Public Choice Theory supports our idea that socialistic forestry also has a tendency for corruption. Therefore, the transition to SFM under socialistic forestry is problematic. Finland provides a case of market-based forestry, where the transition to SFM took place de jure in 1992-1996 and de facto later on. Private tenure, markets, the globalized forest industry corporations, certification, and international and national NGOs, have played decisive roles in this transition. In fact, globalization impacts of intergovernmental policy processes, such as Rio UNCED, The Helsinki Process and UNFF have brought SFM to Finland. Forest certification has also been brought from abroad by the globalized NGO-campaigns. A continuous increase in the real value of forests has been a necessary but not a sufficient condition in the transition to SFM. It has lowered the opportunity costs for SFM. In a parallel way public policies have been necessary but not a sufficient condition in this transition.

World heritage as a global public good?: A case study from Komodo National Park, eastern Indonesia.

Pannell, Sandra N
Rainforest Cooperative Research Centre
James Cook University
Cairns, Queensland Australia 4870

Email: sandra.pannell@jcu.edu.au

Keywords: World Heritage; Komodo National Park; Culture versus Nature; Global Public Good.

Abstract: The 1972 World Heritage Convention is commonly seen as a global response to local impacts upon natural and cultural heritage. With its emphasis upon universal values and a common humanity, the adoption of the Convention by the member states of UNESCO elevated the status of heritage to that of a global public good. In the thirty or so years of its operation, it is apparent that the World Heritage listing of many natural and cultural properties poses new challenges and threats to those societies living in or near these protected areas. With an ethnographic focus upon Komodo National Park in eastern Indonesia, I explore local responses to the imposition of this global protection and management regime.

Public participation in the decision making process during a severe defoliation of eastern Hemlock at Kejimikujik National Park and national historic site of Canada by the pale-winged gray moth.

Pardy, A. Blair
Resource Conservation
Parks Canada
Halifax NS Canada B3J 1S9

Diane Wilson
Management Planning and Social Science
Parks Canada

Email: blair.pardy@pc.gc.ca

Keywords: National Parks; decision-making; resource management; public participation

Abstract: In 2002, severe defoliation of eastern hemlock (*Tsuga canadensis*) trees was observed over about 400 ha in Kejimikujik National Park and National Historic Site of Canada. The initial infestation was confined to an area known as Canning Field and was subsequently attributed to feeding by abundant larvae of the pale-winged gray moth (*Iridopsis ephyraria*), a previously innocuous and little-studied native moth. The insect is known to be widespread in southern Nova Scotia and elsewhere, but has previously only been reported at harmless population levels. The outbreak of the pale-winged gray, considered a generalist feeder, was unusual in that it had a focus specifically on eastern hemlock. Concerns about the long-term persistence of eastern hemlock on the landscape saw park managers work with a number of partners to develop an extensive research program – little or no information existed in the literature on this insect – with the desired result being the accumulation of enough knowledge to develop a scientifically-based management response to the insect. In addition to the development of an advisory board made up of diverse interests, a series of open houses were held as well as other public consultation mechanisms to discuss management options. This presentation describes the approach taken by Parks Canada regarding the management of this highly visible and contentious issue.

Economic impact and visitor preference of off-highway vehicle recreation: A case study from Florida

Parent, Gregory D
School of Forest Resources and Conservation
University of Florida
Gainesville FL USA 32611

Janaki RR Alavalapati
School of Forest Resources and Conservation
University of Florida

Taylor V Stein
School of Forest Resources and Conservation
University of Florida

Chris Reed
Department of Agriculture and Consumer Services
State of Florida

Email: gparent@ufl.edu

Keywords: Nature based tourism; Public forests; Motorized recreation; Input-output analysis

Abstract: Off-highway vehicle (OHV) recreation is a popular and fast growing forest-based activity. As such it is necessary to understand the participants involved and their impacts to better manage for its use. While OHV use does generate negative impacts, such as sound pollution, adverse soil effects, and user conflicts, positive impacts also arise from this activity. This paper reports a study of OHV users who visited the Croom Motorcycle Area, a single use OHV recreation area, in the Withlacoochee State Forest, Florida. Specifically, this study focuses on economic impacts of OHV recreation on local economies. Evaluation of the economic impact was achieved through travel expenditure surveys combined with input-output analysis to generate the direct, indirect, and induced economic impact arising from OHV use in the Croom Motorcycle Area (CMA) and is significant to the surrounding communities.

In addition, the study analyzed the motivations, desired settings, and opportunities for social interaction of OHV users. Results showed that users with high expenditure levels differed from those with lower expenditure levels in their motivations for OHV recreation. Through the integration of this data, the study will highlight how recreation managers can better work with community residents to plan for economic benefits to communities while ensuring visitors attain their desired motivations.

The polemics of wilderness: Concepts of wilderness as tools for landscape conservation?

Park, Jung Jin
Landscape
The University of Sheffield
Sheffield United Kingdom S10 2TN

Anna Jorgensen
Department of Landscape
The University of Sheffield

Carys Swanwick
Department of Landscape
The University of Sheffield

Email: arp02jpp@sheffield.ac.uk

Keywords: protected areas; landscape change; land use planning; wildness

Abstract: It is a well known fact that there is no such thing as a pristine natural landscape in Britain. Even its National Parks are cultural landscapes, internationally recognised as Category V: Protected Landscape/Seascape by the IUCN. Despite this, concepts of wilderness have recently generated contentious issues relating to landscape management in agriculture and forestry in wilder parts of British National Parks, suggesting that, like the landscape it represents, the idea of wilderness is a cultural construct. However, little is known about how these concepts are interpreted in the context of development control in the National Parks.

This issue was examined by means of a case study of mobile telecommunications development in the Woodlands Valley in the Peak District National Park, located in the southern Pennine Hills between the conurbations of Sheffield, Leeds and Manchester. The main aims of the case study were to examine: (a) how the landscape in the Woodlands Valley was perceived by key stakeholders; and (b) how the National Park Authority controls the landscape impacts of mobile telecommunications development. The methodology used a qualitative approach involving semi-structured interviews with key stakeholders and representatives from the National Park Authority, document review and observations of planning committee meetings. This paper will report on the ways in which these concepts were mobilised by key stakeholders within the development control process and discuss the implications of the findings.

Efficacy of visitor management alternatives on the summit of Cadillac mountain, Acadia National Park

Park, Logan O
Rubenstein School
University of Vermont
Burlington VT USA 05405

Robert E Manning
Rubenstein School
University of Vermont

Jeffrey Marion
Patuxent Wildlife Research Center
USDI, U.S. Geological Survey

Steven Lawson
Department of Forestry
Virginia Tech

Charles Jacobi
Resource Management
Acadia National Park, NPS

Email: logan.park@uvm.edu

Keywords: prosocial; proscriptive; routes to persuasion; vegetation loss; frontcountry management

Abstract: The summit of Cadillac Mountain is an icon site of Acadia National Park. The summit is easily accessible by means of a 3.5 mile summit road, a parkwide trail system, and a 0.3 mile paved summit loop trail. Current peak season visitation to the summit is estimated at over 5,000 visits per day (Jacobi, 2003). High visitation and off-trail hiking have resulted in extensive damage to fragile soils and vegetation on the summit. An array of management practices might be applied to encourage visitors to stay on designated trails and reduce damage to park resources. However, little is known about how effective these management practices might be and how well accepted these practices would be to visitors. The objectives of this study were to explore these issues. Five management practices were experimentally applied in sequence during the summer of 2005. These management practices included 1) educational signage, 2) directive signage, 3) reminder signage, 4) personally delivered educational messages with ethical appeals, and 5) fencing along trail margins. Unobtrusive observation was used to test the effectiveness of these management practices for reducing off-trail hiking (Godbey, 1984; Burrus-Bammel and Bammel, 1984; LaPage, 2001). In addition, visitor perceptions of and reactions to the experimental treatments were collected through administration of an

on-site visitor survey. Study findings show statistical and substantive differences in the effectiveness of the alternative management practices, as well as differences in visitor opinions regarding the appropriateness of these management actions.

Five hundred ways to improve advisory committees in the forest sector of Canada

Parkins, John R
Social Science Research Group
Canadian Forest Service
Edmonton AB Canada T6H 3S5

Email: jparkins@nrcan.gc.ca

Keywords: public participation, governance, environmental policy, collaborative resource management

Abstract: This presentation draws on the results of a national survey of advisory committees in the Canadian forest sector (n=1079). As indicated by approximately 200 such committees that were identified during this survey, they represent a popular means of community-based public engagement. Conducted in 2004, the survey covered topics such as public representation and inclusiveness, demographic characteristics, the mandate of each committee, the types of information that were accessed by committee members, the effectiveness of group processes and some recommendations for committee improvement. In addition to an overview of descriptive results, this presentation will focus on 500 responses to an open-ended question regarding ways of improving committee effectiveness. Results point to three areas for improvement: inputs to group discussion, representation on the committee, and group processes and procedures.

What is successful forest co-management from an aboriginal perspective? Using participatory methods to define measures of success

Parsons, Sarah E
Geography
University of Northern BC
Prince George BC Canada V2K 5A9

Email: parss000@unbc.ca

Keywords: co-management; Aboriginal values; social forestry; participatory evaluation; criteria and indicators

Abstract: In recent decades, Criteria and Indicators (C&I) have been developed to monitor and evaluate progress towards sustainable forest management; however, development, application and refinement of C&I at local scales is relatively untested. At the local level, sufficient detail is needed to move beyond indicators to measures for monitoring and evaluation of forest management institutions. Measures of success are increasingly used by forest managers, thus they are a logical medium for communicating Aboriginal values in co-management. Unfortunately, attempts to include Aboriginal groups in creating C&I have met with limited success, particularly at local levels.

Methodologies used in applied social sciences offer innovative approaches for involving Aboriginal communities in developing measures of success. In this study, I developed and tested a method for creating measures with Tl'azt'en Nation of north central British Columbia, for the John Prince Research Forest, a forest co-managed by Tl'azt'en Nation and the University of Northern British Columbia. The project aimed to develop measures of success in cultural revitalization, a criterion of successful co-management established in an earlier study. The process included archival analysis, interviews, and a focus group to generate measures, followed by technical review, refinement, and community review. The process resulted in the recommendation of 62 measures for cultural revitalization, as well as 34 optional measures. A participant evaluation of the method provides insight on the strengths and weaknesses of such a process.

Legislating science? Trends and implications of recent policy-for-science mandates

Patterson, Michael E
College of Forestry and Conservation
University of Montana
Missoula MT USA 59812

Daniel R Williams
Rocky Mountain Research Station
USDA Forest Service

Email: mike@forestry.umt.edu

Keywords: research;governance; politics; professionalim

Abstract: In natural resource management the relationship between science and governance typically is viewed in terms of the role of science in generating policy. When influence flows in the opposite direction, concerns about inappropriate politicization of science are quickly raised. However in the USA, recent years have seen a growth in this latter trend through increased legislative and administrative policy for science. These include the Shelby Amendment (which required federal agencies sponsoring research to ensure data be made available to the public), the Data Quality Act, and the Federal Policy on Research Misconduct. We examine these recent legislative mandates regarding policy for science as reflecting societal debates that run deeper than merely attempts by special interests to subvert science through political avenues. Rather they represent the convergence of two historical and evolving discourses about the relationship of society to science. One discourse stems from the Progressivist vision for an administrative state and the other from what scholars have described as the “social contract for science” emanating from the 1945 report, Science: Endless Frontier. Recent policy-for-science mandates show how a new social contract for science is being negotiated, one that has the potential to redefine not only the relationship between science and governance, but also the very nature of science. Thus it is important for natural resource scientists to be active participants rather than passive bystanders. However, engagement in these negotiations by natural resource professionals has been minimal and sporadic. This paper seeks to stimulate more active and deliberative professional engagement in trends related to policy for science.

An ecosystem service assessment from the Tongass National Forest

Patterson, Trista M
Human and Natural Resources Interaction Unit
PNW Research Lab, USDA Forest Service
Juneau AK USA

Colin Beier
Department of Biology and Wildlife
University of Alaska, Fairbanks

Email: tmpatterson@fs.fed.us

Keywords: ecosystem services, forest management, systems dynamics, sustainable development,

Abstract: Advances in ecological economics are subtly changing the way forest managers understand and articulate forest benefits. One of these contemporary shifts involves that between measurement/monitoring of stocks of natural capital on forested land, to the flows of ecosystem services which influence ways of life for people both on the forest and in areas far removed. Unknown, is the extent to which this new perspective can prevent unintended consequences of land-use change, engage a wider range of stakeholders, address intra- and inter-generational equity, or guarantee continued provision of these services in perpetuity. We present the data and analytical structure used in an ecosystem service assessment of the Tongass National Forest. A systems dynamic model describes how ecosystem service assessments can enter into decisionmaking, providing missing feedback to the range of indicators employed to gauge forest benefit. A South-East Alaskan ecosystem provides a unique perspective because 1) ecological processes in SE AK are unique and little-understood; 2) ecosystem services may be more intuitive to communities with the high prevalence of subsistence activity (over 90% of households in SE Alaska); 3) pressures for ecosystem services in Alaska and Canada are often distinct from more populated areas further South. The particular conditions of this study underscore the importance of addressing a diversity of conditions, scales, audiences, and paradigms in resource management.

Testing integrated water resources management in establishing basin management committees in an arid region: The case of the Kuiseb river basin in Namibia.

Peet, R. Creighton
Interdisciplinary & Global Studies
Worcester Polytechnic Institute (WPI)
Worcester MA USA 01609

Mary Seely
Desert Research Foundation of Namibia

Email: cpeet@wpi.edu

Keywords: common pool resources; Africa; co-management; sustainable development

Abstract: Basin management involves interactive management of all resources and activities affecting the functioning of a river basin. Basin management, therefore, offers one appropriate approach to integrated water resources management that fulfills IWRM's principles. Further, basin management can help developing countries achieve sustainable development through decentralisation, participation and integrative approaches to livelihoods. This approach in Namibia, supported by legislation, is: iterative; transparent; open to voluntary participation; information rich; based on shared vision and understanding; enhancing capacity among all stakeholders; and encompassing multi-sectoral approaches. Despite their promise, roles of basin management committees in Namibia continue to develop but have not yet reached their full potential, and their implications for sustainable development require further evaluation. Nevertheless, these evolving committees provide a valuable, established platform for use by and support to identified development interventions.

In Namibia, Basin Management Committees (BMC) constitute a key issue in the newly promulgated Namibia Water Resources Management Act (2004). To test ramifications of implementation of this approach, guidelines provided by Namibia's National Water Policy White Paper, 2000, were used to establish a BMC in the Kuiseb River basin. This poster presentation describes and analyses the experiences gathered during the three year process.

The conservation value map - translating Cree land-use information and knowledge for forest management planning purposes

Pelletier, Martin
SFM Program
Waswanipi Cree Model Forest
Waswanipi QC Canada J0Y 3C0

Email: wapistan@globetrotter.net

Keywords: Aboriginal; knowledge; participation; process; sustainable; forest; management; planning;

Abstract: The Waswanipi Cree Model Forest is an aboriginal-led partnership aiming at promoting and fostering the principles and practice of sustainable forest management through the meaningful involvement of the Waswanipi Cree. Its research program included the integration of various projects results to develop the Ndoho Istchee Conservation Process, a multi-step process proposing meaningful participation of the Cree in forest management. It is based on the contribution of Cree knowledge and on documenting adequately Cree land-use in order to enhance forest management planning. The Conservation Value Map is presented as the "cultural translation" step of Ndoho Istchee. During this step, we regroup the different elements of the Family Map, the previous step where Cree land-use is documented properly, into a standardized format preserving the confidentiality of the Cree land-use information but organizing this information into areas of conservation where forest management strategies can either help to protect or to reach the desired forest conditions. In other words it is a manner of presenting Cree land-use information on a trapline scale in a language that is understandable by forest management planners and that is sensitive to the protection of cultural information. This map is the object of a validation session with Cree land-users and is further analyzed in the subsequent step of Ndoho Istchee, the State of the Trapline. It shall create an opportunity for better understanding between First Nations and forest managers and therefore, better forest management.

Stakeholders and Washington suburban sanitary commission management goals for their water supply reservoir

Perkins, Gabriel F
Environment and Earth System Science
University of New Hampshire
Durham NH USA 03824

Allison K Percival
Environmental and Resource Economics
University of New Hampshire

Robert A Robertson
Resource Economics and Development
University of New Hampshire

Anne Hairston-Strang
Forest Watershed Management
Maryland Department of Natural Resources

James B Benton
Environmental Resource Group
Washington Suburban Sanitary Commission

Email: gfo2@cisunix.unh.edu

Keywords: forest watershed management; stakeholders; water supply; outdoor recreation;

Abstract: This proposed poster includes results from the collection of high quality social science data through a series of methodologies and analytical techniques. This information reported is essential to the development of a management plan for the forested lands associated with Washington Suburban Sanitary Commission's municipal water supply reservoirs. The development and administration of programs/policies for the management of municipal water supplies and adjacent lands require managing a vast and ever-expanding array of interests; to be effective, the WSSC, local, state and federal agencies and non-profit organizations need to be able to identify, characterize, and communicate with all stakeholder groups of a specific watershed management program or policy. To include identifying the types and volumes of activities taking place on reservoir lands and waters, as well as user (and WSSC rate payers and local residents) attitudes, knowledge and education/communications needs regarding the relationship between water quality protection and the provision of outdoor recreation opportunities. The results from this joint effort between the WSSC, the University of New Hampshire, and the Maryland Department of Natural Resources provides administrators, managers and policy makers with a more complete understanding of behaviors, attitudes and

preferences of important stakeholder groups when making decisions and policies that directly and indirectly impact the management and use of reservoir lands/waters. The results also provide decision makers with a better understanding of the relationships between forest watershed management planning and perceptions, attitudes, self-reported behaviors of the public and key stakeholder groups. This study assists in the development and evaluation of targeted communication programs to address issues and concerns identified through this research.

**Beating the politics and emphasizing the
landholders' perspective: Community-based
natural resource management governance
lessons and insights from rural Australia**

Pero, Lionel V
School of Geography, Planning and Architecture
The University of Queensland
Brisbane Queensland Australia 4072

Email: Lionel.Pero@csiro.au

Keywords: multi-stakeholder processes; leadership;
cultural transformation; collaborative decision-making

Abstract: Australia's current natural resource management (NRM) regional arrangements are the focus of a seven year 2.4 billion dollar social experiment. The experiment has divided the country into 56 regions, each with their own regional NRM body mandated to develop and implement a regional plan and investment strategy for achieving sustainable NRM outcomes. In the state of Queensland the regional bodies are community-based, with their membership combining the interests of primary production, community, conservation, Indigenous and local government. This paper examines the potential for community-based governance to promote and achieve sustainable NRM. The paper is framed by a transdisciplinary framework, the CIVILS conceptual framework, which suggests that to achieve sustainable NRM outcomes, community-based organisations need to: embrace cultural diversity and encourage change; promote cohesion and a common identity; facilitate cooperative behaviour, collaborative decision-making and collective action; ensure transparency, accountability and organisational credibility; and promote mutual environmental values and social norms. Drawing on triangulated case study data collected over a 12 month period, the author examines and compares the functioning and decision-making of two Queensland regional bodies through the lenses of the CIVILS framework. The paper shows how the contexts within which the two organisations operate have influenced their governance structures and approaches. It also highlights their innovations for overcoming complex organisational, behavioural, socio-psychological, and political challenges. While making considerable progress as community-based organisations, several of their efforts may be construed as taking place at the expense of ecologically sustainable outcomes rather than with the intention of promoting and achieving them.

**In Pursuit of Community-based Conservation
With and Without Collaborative Learning**

Peterson, Tarla R
Wildlife and Conservation Policy
Texas A&M University
College Station TX USA 77843

Email: trpeterson@ag.tamu.edu

Keywords:

Abstract: I contrast two community-based conservation efforts in the United States as comparative case studies to examine how Collaborative Learning can contribute to democracy in action. After summarizing how CL might relate to the practice of democracy, I present case studies of community-based conservation: the Bastrop County Texas Habitat Conservation Plan for the Houston toad and the San Antonio Texas Total Maximum Daily Load process for Salado Creek. I use interpretive analyses to ground a discussion of how community-based conservation functioned to dampen democratic practice in one case, and to invigorate it in the other. I conclude with an argument that, by relying indiscriminately on community-based conservation in the absence of structures that require participants to incorporate multiple perspectives, conservationists risk losing the very nature they seek to defend, and all citizens risk losing the energy and space essential to democracy. Alternatively, a Collaborative Learning framework provides community-based conservation efforts with the structures needed to protect both the scientific and political integrity of environmental policy.

Judging a book by the cover: perceptions of innovations in recreation resource management

Pfister, Robert E
Recreation and Leisure Studies
East Carolina University
Greenville NC USA 27834

Deborah J Chavez
Pacific Southwest Research Station
U.S. Forest Service, Riverside, CA

Yasong A Wang
Recreation, Park, and Tourism Management
Penn State University

Email: pfisterr@ecu.edu

Keywords: Dissemination of innovations, adoption factors, professional practice

Abstract: Complex problems faced by public/crown land managers often require innovative strategies to address the management challenges. Successful implementation of a new idea within an organization can be influenced by whether or not an audience tends to “judge the book by the cover” in the context of perceived attributes of change.

This presentation reports on the “perceived characteristics of innovations” from the point of view of potential adopters and the research employs the five constructs of innovations described by Everett M. Rogers. The degree to which any employee can voluntarily apply innovative tools is but one consideration in the rate of adoption. Another set of questions pertains to employee perception of the attributes of the professional practice. The perceptions of interest would include the extent to which the application is an improvement (relative advantage), how well the idea fits within an existing scope of professional practice (compatibility), ease of use (complexity), the opportunity to personally try the practice on a small scale (trial-ability), and the degree to which other agency managers can see the results or outcomes of the application (observable). These variables are examined for proactive forest service managers identified to be the first organizationally to try out new ideas arising from social science research.

The results help explain why some practices have an easy path to adoption and use while others do not. Overall the perceived attributes (of an innovation) are an important consideration in assisting innovators to succeed and to adopt new management tools.

An Application of a Discrete Choice Experiment to Assess Environmental Management Options in the Shrimp-Mangrove System in the Indian Sundarbans

Philcox, Neil
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A1S6

Duncan Knowler
School of Resource and Environmental Management
Simon Fraser University

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Email: nbp@sfu.ca

Keywords: discrete choice experiment, India, mangrove forest

Abstract: The Indian Sundarbans, in West Bengal, is inhabited by small-scale farmers and traditional paddy-cum-prawn cultivators; however, this unique region is also ideal for large-scale commercial shrimp aquaculture. Recent policy initiatives may facilitate expansion of commercial shrimp aquaculture in India, potentially setting the stage for conflict between different stakeholders in the Indian Sundarbans. This research project presents policymakers with an ex ante analysis of four alternative development scenarios, based on a more participatory approach to the decision making process. Using a discrete choice experiment to quantify the preferences of local stakeholders for economic, social, and environmental attributes, policymakers and local stakeholders can measure and compare the preferences of local stakeholders for alternative management options. Local stakeholders, including shrimp fry collectors, shrimp farmers, and agricultural farmers, prefer a sustainable approach to development in the region, especially with respect to the management of mangrove forests, and access to alternative income generating opportunities.

Integrated catchment management (ICM): integration, knowledge management and the role of collaborative learning

Phillips, Chris J
Rural land use
Landcare Research
Lincoln Canterbury New Zealand 8002

Will Allen
Collaborative Learning
Landcare Research

Glen Lauder
Global Learning

Margaret Kilvington
Collaborative Learning
Landcare Research

Andrew Fenemor
Rural Land Use
Landcare Research

Email: phillipsc@landcareresearch.co.nz

Keywords: interdisciplinary science; watershed
management;

Abstract: Over the past two decades, the challenges facing landowners, resource managers and scientists have multiplied. Where once our rural environments were viewed as single-sector-oriented productive landscapes, they now face demands by new players – such as those voicing their views on issues such as landscape, recreation, conservation and tourism. There are now many perspectives of resource management and the science and other resource information in this arena is frequently subjected to diverse and contested interpretations. To work in these areas ICM practitioners require collaborative approaches that accommodate multiple perspectives and utilise multiple sources of information.

The Motueka ICM research programme in New Zealand is a collaborative, holistic approach to large-scale, regional environmental issues. This programme (<http://icm.landcareresearch.co.nz>) was founded through extensive consultation with end-users and stakeholders and input from two internationally recognised experts. Seeds were sown during a workshop in 1998 attended by a wide array of stakeholders who identified that holistic and sustainable management of land, river, and coastal resources – a "ridge tops to the sea" perspective – was a top priority. The programme's goal has been to undertake research to help improve the

management of land, freshwater, and near-coastal environments in catchments with multiple, interacting, and potentially conflicting land and water uses.

This goal is being accomplished through an innovative combination of historical research, biophysical experimentation, simulation modelling, and social learning that began in July 2000. The addition of social learning to the research mix has been designed specifically to improve interactions between science providers and community stakeholders, and to maximise the uptake and use of new knowledge and tools developed from the research.

This paper outlines where we have got to after 5 years and highlights the contribution and benefits that social science and collaborative learning can make to sustainable land management. It focuses on aspects of integration, collaborative learning, interdisciplinary science, and adaptive management cycles.

Identifying predictors for quality and quantity restorative character of wilderness: Using events as an analysis unit

Pierskalla, Chad D
Forestry and Natural Resources
West Virginia University
Morgantown WV USA 26506

Jason M Siniscalchi
Leadership Development Center
United States Coast Guard Academy

William E Hammitt
Parks, Recreation, and Tourism Management
Clemson University

Email: cpierska@wvu.edu

Keywords: environmental perception, Gibson, visual quality, aesthetics, trail impacts, recreation

Abstract: The purpose of this research is to understand whether and how trail design and resource impacts influence the quantity and quality of restorative character. The focus of research has been on understanding the quality-side (what happens). What is missing is a better understanding of predictors of quantity experiences (how much happens).

Gibson's environmental perception theory was used to conceptualize quantity and quality experiences. Through extensive research, Gibson suggests that events involving the coupling of actors and environments are meaningful. Events were used as a unit of analysis in this study. Quantity was measured on an eventfulness scale ranging from 'not much happened' to 'a lot happened'.

Continuous Audience Response Technology was used to evaluate video simulating hiking events in the Monongahela National Forest. While walking along each of 8 wilderness trail segments, 90 seconds of visual media was filmed as stimuli. As study participants (N=42) watched each video, they rated the restorative character by turning a handheld dial anywhere from 0 (low) to 100 (high). Data were recorded every second. Following each video, respondents evaluated Kaplans' four components of restorative environments, overall quality, and eventfulness.

The number of dial turns was correlated with eventfulness ($r=0.21$, $p<.001$) but not quality. Average restorative character across the video was more strongly related to quality ($r=.65$, $p<.001$) than to quantity ($r=0.30$, $p<.001$). Two models predicting quality ($R^2=0.55$, $p<.001$) and quantity ($R^2=0.17$, $p<.001$)

restorative character were developed. Independent variables include components of restorative character, average restorative character across the video, and number of changes (positive and negative dial turns) in character. Average character and fascination (absorption in the surroundings) were more strongly related to overall quality than to quantity. The number of positive changes in character and extent (differences perceived in the environment) were more strongly related to quantity. Quality and quantity are different constructs. Quality is related to a cognitive process associated with fascination. Quantity seems to be more objective and related to extent—a process associated with direct perception. Respondents reacted more to positive changes in character. Providing more variety in scenery and minimizing resource impacts contribute to eventful and high quality restorative opportunities.

Understanding and managing soundscapes in the National Parks: Part 1- indicators of quality

Pilcher, Ericka J
Natural Resources Recreation and Tourism
Colorado State University
Fort Collins CO USA 80526

Peter Newman
Natural Resources Recreation and Tourism
Colorado State University

Robert Manning
Rubenstein School of Environment and Natural Resou
University of Vermont

Michael Savidge
Golden Gate National Recreation Area
National Park Service

Email: ericka_pilcher@yahoo.com

Keywords: natural sounds, perceptions, national parks, visitor experience

Abstract: A growing body of research has documented the potential impacts of outdoor recreation in national parks and related areas. These impacts apply to multiple components of the landscape, including soil, vegetation, water, and wildlife. Moreover, there are often aesthetic implications of these impacts that can degrade the quality of the visitor experience. Research and management attention is now being extended to include aural impacts of outdoor recreation, and natural quiet – the sounds of nature undisturbed by human-caused noise – is now being recognized as an important and endangered resource in national parks and related areas. In particular, human-caused noise can mask the sounds of nature and detract from the quality of the visitor experience.

During the summer of 2005, a “listening exercise” was conducted at in Muir Woods National Monument. The purpose of this exercise was to 1) identify the natural and human-induced sounds that visitors heard most frequently, 2) distinguish the characteristics of sounds identified, and 3) understand how visitors perceived those sounds. From July 16th -27th, 2005, visitors (n= 280) were asked to listen and then identify sounds on a checklist. Building on methods used by Kariel (1990), the checklists included possible physical characteristics of sounds, and allowed visitors to rate each sound on a scale of -4 (very annoying) to +4 (very pleasing). More than 70% of visitors heard all the following sounds:

people (73%), water (81%), wind (74%), and groups talking (73%).

In addition to supplementing current sound monitoring and logging efforts in Muir Woods, this study helped with the development of a study instrument for a 2nd phase of research. Based on study findings, the second phase was designed and conducted to measure normative standards of quality for the soundscape of the park. This study is described in a companion abstract by Manning et al.

Indigenous ancestral domain, decentralization and competing plans for the Mt. Pulag National Park, the Philippines

Pinel, Sandra L
Urban and Regional Planning
University of Wisconsin, Madison
Madison WI USA 55107

Email: slpinel@wisc.edu

Keywords: co-management;
cultural landscape;
indigenous rights;
protected areas;
regional planning

Abstract: The Philippine National Integrated Protected Area Systems Act (NIPAS), Indigenous Peoples Rights Act (IPRA) and Local Government Code exemplify the 2003 World Parks' Congress principles for managing protected landscapes through co-management and networks of local governments and indigenous peoples. The approach embraces indigenous rights and decentralized governance and is expected to apply local knowledge, provide an alternative to conflict over resource rights, and to create a partnership and shared sense of landscape among managing jurisdictions - goals consistent with collaborative spatial planning theory. How do decentralization and indigenous rights laws affect the perceived landscape and preferred management alternatives? The session will summarize initial findings on this question from Mt. Pulag National Park in the Philippine Cordillera of northern Luzon. The national park and buffer area are part of four indigenous ancestral domain claims and multiple local government jurisdictions whose planning and management authority overlap that of the Philippine Department of Environment and Natural Resources (co-management). All are represented on the Protected Area Management Board. The poster highlights how decentralization and indigenous rights are leading to a fragmented and competitive protected area and cultural landscape management among partners and the implications of these findings for international co-management and regional planning practice.

The dynamics of stewardship formation in co-management arrangements: a case study on northwest Vancouver island

Pinkerton, Evelyn W
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada V5A1S6

Leonard John
Kyuquot-Checklesah Fisheries
Kyuquot/Checklesah First Nation

Email: evelyn_pinkerton@sfu.ca

Keywords: co-management, stewardship, environmental values, attitudinal change

Abstract: Research on co-management arrangements between state management agencies and commercial resource harvesters suggests that co-management results not only in behavioural change in resource users, but also attitudinal change. However, we have limited understanding of how, when, and why these changes occur, or why they produce differing relationships between resource users and the resource (variously characterized as caring for, being interdependent with, identifying with, or having enlightened self-interest in sustainable exploitation of the resource). Furthermore, we seldom have data on behaviour and attitudes preceding co-management, nor on the factors relevant to stages of change which would allow us to understand the dynamics of change. Based on longitudinal data and recent ethnographic fieldwork, this paper reports initial findings on the evolution of behaviour and attitudes in clam harvesters in a small and isolated British Columbia coastal community as they and their community move toward greater involvement in abundance monitoring, harvest management, allocation, and habitat monitoring. Although we provisionally term attitudinal change as moving toward "stewardship", we consider that the findings of this paper will contribute to theory beyond environmental stewardship, including co-management, sense of place and environmental value orientations.

Best practice angling method. Simple cost-benefit analysis to guide tackle policy

Poole, Erik
Dept. of Economics
Simon Fraser University
Burnaby BC Canada V5A 3M1

Email: epoole@sfu.ca

Keywords: Recreational fishing, Economic analysis, Environmental economics, Thompson River, Steelhead

Abstract: Fierce angler attachment to easy public access to fisheries discourages managers from limiting access even when fish stocks are a conservation concern. The result is frequent use of total closure, although restricting tackle may provide an attractive option. I propose the notion of Best Practice Angling Method (BPAM) to guide sport fishery managers who wish to maximize economic value when making choices with respect to tackle restrictions. The BPAM index captures post-release mortality per unit of angling effort by tackle method. Although the concept has appeal for private owners or associations in a position to limit access, it should prove particularly useful to those managing easy-access fisheries with conservation concerns.

The Strong and Weak BPAM indices rank tackle on the rate at which catch rates decline as available fish decline, and inform as to the *automatic stock-stabilizing* feature of tackle.

Data from the catch-and-release Thompson River steelhead fishery in British Columbia illustrate the BPAM concept, the potential to reduce the use of closure, and ameliorate outcomes under an easy-access constraint. BPAM indices reveal that natural bait costs 3.1 to 9.6 times as much as flies measured in numbers of expected dead fish per time spent angling. Despite a much lower catch rate, B.C. steelhead fly anglers spend 3 times as much on trip expenditures per day as bait anglers despite similar household incomes.

Adaptation of cross-country skiing behavior to changing climate

Pouta, Eija
Economic Research
MTT Agrifood Research Finland
Helsinki Finland 00410

Marjo Neuvonen
Finnish Forest Research Institute

Tuija Sievänen
Finnish Forest Research Institute

Email: eija.pouta@mtt.fi

Keywords: participation; travel cost method; benefit loss

Abstract: Outdoor recreation and nature-based tourism is very dependent on the climate as a precondition for the activities. Changes in climate may cause changes in people's recreation and travel behaviour and cause serious threats to the supply of recreation opportunities. The studies of the climate change and skiing have mainly focused on downhill skiing. However, in Nordic countries like in Finland the effects on cross-country skiing are expected to be even more severe. Currently in Finland cross-country skiing is part of Finnish lifestyle as 43% of Finns participate in cross-country skiing annually. According to temperature and snow depth scenarios for Finland in the next 20-50 years changes in skiing opportunities are likely. Particularly the opportunities in southern Finland will be profoundly deteriorated.

In this study, we focus on the future (2020-2050) changes in participation in cross-country skiing. We present scenarios of recreation participation based on climate and demographic scenarios. In building the scenarios, we use recreation participation models based on the data of the national inventory of outdoor recreation (LVVI). The recreation participation scenarios give us a vision how Finns adapt their skiing behavior, participation rate and participation times, to changes in climate. Decline in participation and participation times mean also decrease in benefits of skiing in economic terms. From a travel cost model we estimate the benefit loss and show in which magnitude various population groups encounter it.

**Nature-based tourism within protected areas:
Effects of participation on knowledge,
attitudes, values, and behaviors and the
factors that influence these outcomes**

Powell, Robert B
Parks, Recreation, and Tourism Management
Clemson University
Clemson USA 29634

Email: rbp@clemson.edu

Keywords: International Parks, ecotourism, outdoor recreation, protected area management, evaluation.

Abstract: What are the impacts of nature-based tourism (NBT) participation on people's environmental knowledge, attitudes, values, and behaviors and future intentions, and why do they occur? Proponents of NBT suggest that through tour design and interpretation the industry can mitigate tourism's negative impacts, both human and environmental, and build an educated and interested group of participants willing to support environmental conservation on site and at home. Similarly, for the management of protected areas, land management agencies rely on NBT operators to provide interpretational services designed to educate the public and minimize visitor induced site degradation. But how effective are these efforts? To study the potential educational and psycho-social benefits derived from NBT participation, two complimentary studies—a longitudinal and a retrospective investigation—were undertaken at three protected areas and NBT destinations—the Colorado River through Grand Canyon National Park, Galapagos Islands National Park, and Antarctica. Six variables—knowledge of the host protected area, attitudes toward the host protected area's resource management policies, environmental values, outdoor ethics, environmental behaviors and future intentions, and satisfaction—were selected for their importance in evaluating NBT as a conservation, environmental education, and sustainable development tool. Pre and post visitation surveys were administered to participants (n=768) immediately before and after 32 tours from the three destinations. A response rate of 81% was attained. In addition, to investigate the more long term impacts of NBT participation, a sample of past participants from the destinations was mailed surveys using a modified Dillman approach. Completed surveys were received from 487 participants for a response rate of 75%. Finally, using a series of multiple regressions to explore the influence of different trip and tourist characteristics, a preliminary model of the multi-day NBT experience was developed for future testing. By drawing upon over 1000 participants and 22 operators from the three destinations, the results provide

information for the planning and development of tourism experiences that build conservation support, mitigate negative visitor impacts, and improve the tourists' connectivity to the natural world.

**Managing conflict and promoting learning in
interactive arenas: The importance of
stakeholder frames of people-environment
relationships**

Preus, Laura E
Section of Policy, Research, and Planning
Minnesota Department of Natural Resources
St. Paul MN USA 55155

David Bengston
North Central Forest Experiment Station
University of Minnesota

Thomas R Fiutak
Educational Policy and Administration
University of Minnesota

Kristen C Nelson
Forest Resources
University of Minnesota

Email: laura.preus@dnr.state.mn.us

Keywords: Public participation; conflict management;
social learning; all-terrain vehicles (ATVs)

Abstract: Citizen and stakeholder participation in natural resources management often addresses conflicts about water and forests, public lands, habitat and biodiversity, recreation and development. Interactive arenas, or participatory decision-making arenas, provide opportunities to: 1) manage conflict, and 2) promote learning about environmental trends and cause-effect relationships. Both are necessary to achieve durable agreements that support sustainability. Yet conducting these arenas is difficult. To gain insights about managing conflict and promoting learning we examined two interactive arenas in Minnesota: the Motorized Trail Task Force, addressing off-highway vehicle recreation in state forests; and the Metro Trout Stream Watershed Protection Initiative, addressing urban trout streams. Forty-five in-depth interviews and surveys revealed participant perceptions of people-environment relationships, conflict, learning, and satisfaction. We used computer-aided text analysis (QSR NVivo) to analyze interviews. Participants held different values and frames about the conflicts, as expected from existing theory. Yet this research provided new, emerging theory about how stakeholders frame key elements of people-environment relationships, and what this means for the tractability of conflict and learning. These frames uncovered leverage points to manage natural resources conflicts by: learning and reframing; negotiating differences; using science constructively; addressing scale issues; and building an outdoors stewardship identity.

This study gives insights for conducting interactive arenas in natural resources management.

Strategies for species conservation on two continents – a comparison of SARA in Canada and Natura 2000 in Europe

Pröbstl, Urike

Dep. of Landscape, Spatial, Infrastructure Science
University of Natural Resources and Applied Life
Sciences, Vienna
Vienna Austria 1180

Andrea Prutsch

Department of Landscape, Spatial and Infrastructure
University of Natural Resources and Applied Life
Sciences, Vienna

Wolfgang Haider

School of Resource and Environmental Management
Simon Fraser University

Email: ulrike.proebstl@boku.ac.at

Keywords: policy cycle model, expert interviews,
participation, management planning

Abstract: Species decline is a global phenomenon, and therefore conservation initiatives to counter these trends have been started around the world during the 1990s. The European Community used the Birds Directive and the Habitat Directive to develop the NATURA 2000 framework, which must be complied with by all member states. Parallel, in Canada the federal Species at Risk Act (SARA) was legislated.

We used the policy cycle model to compare and evaluate the two conservation strategies. The comparison will start with agenda setting and the formulation of goals, associated political decisions, and evaluate the implementation in more detail. This latter analysis will focus on the role of participatory processes and management planning, in particular. The evaluation is based on expert and key informant interviews in two regions: British Columbia representing Canada, and Austria representing Europe.

In Canada the process from agenda setting to implementation took more time than in Europe. One of the main reasons is that in Canada the selection of endangered species was a collaborative process including experts from NGOs, as well as interest groups such as fishery. In Canada the process of legislating a national framework took until 2003, when the Species at Risk Act was finally passed. In Europe the agenda setting and the decision making was a top down process. This initial disparity has consequences for implementation in both areas. In Europe the top down process causes now a massive rejection from most land users, especially farmers, wood lot owners. Their management planning processes are suffering from the need to explain the

overall European concept and the national duties. Like Austria most of the member states feel the need to develop special participatory planning processes and concepts for compensation.

After the initially arduous legislative process in Canada, implementation seems to be much easier because conflicts with landusers have been minimized already. However, the final outcome concerning the goal of species conservation is expected to be more adapted to ecological concerns and requirements of endangered species.

Roving focus group methodology: Tweaking an old standby

Propst, Dennis B
Forestry
Michigan State University
East Lansing MI USA 48824

Email: propst@msu.edu

Keywords: research methods; evaluation; mobile focus groups; reliability and validity; rural landscapes

Abstract: The physical environment for most focus group discussions includes a room or office, an audio recorder, a facilitator, and a table around which focus group participants are seated. The participants are usually stationary. Discussion stimuli are auditory (questions read aloud), visual (photographs, maps, etc.), or involve other senses (e.g., product tasting).

In May of 2004, researchers at Michigan State University developed and tested a roving focus group procedure with a unique visual stimulus: the rural landscape of south central Michigan as perceived from the window of a moving vehicle.

The focus group procedure is flexible and has been adapted to a number of unique situations, but Kruger cautions that, though flexible, the physical environment in which the discussions take place: (1) should be free from visual or auditory distractions, (2) neutral, and (3) have seating that can be arranged so that participants can face each other. In general, the environment should be “permissive to sharing, listening, and responding.”

Our roving focus group methodology was tested in September, 2004 and replicated in May, 2005. For each study, six groups were transported along pre-determined routes through six townships in south central Michigan. Residents were asked to point out features of the landscape they felt added to or detracted from rural character and the discussions were recorded for later transcription. The results of these studies are presented elsewhere at this conference.

The technology used to record the focus groups is demonstrated and results of the methodology evaluated according to Kruger’s three criteria for effective environments. Moderator and researcher observations, debriefing of the interviewees, and spontaneous participant comments indicated that the procedure was effective at obtaining quality data. There were no seasonal differences between fall and spring focus group results, indicating reliability and validity of the methodology. Transcription error rates due to inaudible

recordings were less than five percent. The pros and cons and ways of improving this procedure are discussed.

Engaging local citizens in meaningful ecological monitoring for planning and management: An example of citizens monitoring wildlife highway crossings in Crowsnest Pass, Alberta, Canada

Quinn, Michael S
Faculty of Environmental Design
University of Calgary
Calgary AB Canada T2N 1N4

Tracy Lee
Faculty of Graduate Studies
University of Calgary

Danah Duke
Miistakis Institute

Email: quinn@ucalgary.ca

Keywords: roadkill; public participation

Abstract: Road Watch in the Pass is an innovative community based research project that engages local volunteers in reporting wildlife observations along Highway 3 through the Crowsnest Pass in southwestern Alberta, Canada. Through the use of Web-based GIS, interested citizens can participate in data collection that will be instrumental to decision makers in reducing wildlife vehicle collisions and for developing mitigation measures for proposed highway expansion. Road Watch was designed to test and profile the use of local knowledge and volunteer data collection in the Crowsnest Pass by providing land managers and the community with valuable baseline information related to wildlife highway crossings. The goals of the project are to collect, analyze and communicate information highlighting crossing locations of wildlife along the highway based on local knowledge and observations as well as engage the citizenry of the Pass in local issues around relating wildlife movement and safety. In this paper we will discuss the challenges, benefits and methodological issues associated with using citizen science for natural resource management decision support. We will present a comparison of the citizen science data to more conventional expert-science approaches. Our results demonstrate that the use of citizen science increases the knowledge base by providing new emerging knowledge that would not have been explicit from a single source. Furthermore, our research identifies the collateral benefits of involving citizens the collection and subsequent use of scientific information.

Island community: Acceptance through environment

Raadik, Jana
Natural Resource Recreation and Tourism
Colorado State University
Fort Collins CO USA 80523

Email: jraadik@lamar.colostate.edu

Keywords: Community development, norms, sense of place

Abstract: This study examines normative concepts of island community identity as expressed by inhabitants of the island of Saaremaa, Estonia. Twenty in-depth interviews of islanders living permanently on Saaremaa were done. To understand how community identity is discursively constructed, interpretative repertoire was used in the context of norm theory to examine storylines interviewees use for constructing their sense of being part of an island community. Findings imply that community identity is related to infrastructural aspects; insularity being a main physical, philosophical and psychological component of the island's infrastructure, followed by more specific spatial units such as parish, village, neighborhood and home. Each infrastructural unit involves both a social network and physical environment related to a continuum of normative structure. Effects of a proposed fixed link (bridge to mainland) seem to influence respondent repertoire on changes of island community identity. Acceptance was found to be one of the more dominant aspects of islander identity; acceptance by the environment and acceptance of the environment determines 'who is who' in the island space. Normative components of acceptance included notions such as 'bodily experience' of individuals, 'community control' and 'community sign-systems'. The various constructions of 'we' as islanders distinctly different from the other (non islanders) provide a complex view of community identity: we - residents sharing the island environment; residents accepted by the island environment; residents accepting the island environment (gained from 'bodily experience'); and residents as interpreters of local sign-systems. Implications of 'we' as a normative construct will be discussed.

Local processes and national regulation: The interplay between actors and structures in forest conflict management in Finland

Raitio, Kaisa
Department of Social Policy
University of Joensuu
Joensuu Finland 80101

Email: kaisa.raitio@joensuu.fi

Keywords: forest policy; resource management; new institutionalism; Finland;

Abstract: A quarter of all forests in Finland are state owned and managed by state enterprise Metsähallitus. The forests are situated in eastern and northern peripheries in Finland where they play a central role in regional economy and employment, biodiversity conservation, recreation, reindeer herding and tourism. State forestry also provides income to the Finnish national budget. Due to these at times mutually exclusive interests, conflicts have characterized the planning and use of state forests especially since the early 1990's.

Typically, research on environmental conflicts and their resolution has focused on inter-personal communication and bargaining in specific planning processes within the existing legal and regulatory framework. In this study, in contrast, the structural factors were included in the analysis in order to examine their role in conflict management.

Two case studies were chosen, the management of the conflict between state forestry and reindeer herding, and between timber production and nature conservation. 28 thematic interviews were carried out at the local, regional and national levels of Metsähallitus and in the ministries that set annual targets and draft national legislation for state forests. Relevant legislation and its legislative history, as well as other regulatory guidelines, formed the data for the structural analysis.

New institutionalism provided the theoretical framework for the analysis. By combining the results of the interviews and of the regulatory structures in a socio-legal analysis it was possible to learn about the interplay between the actors attempting to manage the conflicts and the structures in which they find themselves at different levels of the administration. Preliminary results of the analysis are presented in the poster.

A Method for Assessing Protected Area Allocations Using a Typology of Landscape Values

Raymond, Chris M
School of Natural and Built Environments
University of South Australia
Adelaide SA Australia 5095

Greg Brown
School of Natural and Built Environments
University of South Australia

Email: raymond.chris@saugov.sa.gov.au

Keywords: GIS; land-use planning; public participation; national parks

Abstract: Traditional park and reserve selection techniques that rely exclusively on expert assessment using scientific sampling protocols and methodologies can marginalize local knowledge in the review process. We conducted a spatial survey to test the hypothesis that protected area and private land classifications can be differentiated using a typology of 12 landscape values collected from residents in the Otways region of Victoria, Australia. Two mapping approaches-vector and raster-were trialled with results from the vector model indicating that respondents hold more indirect and less tangible values for national parks and reserves, and more direct use values for private lands. Results from the raster model show moderate to good alignment of value-based land classifications with expert-derived boundaries. The mapping of local landscape values appears useful in planning and reviewing public land classifications, and when combined with biological assessments, can strengthen protected areas planning and management in Australia and elsewhere.

Protecting biodiversity on private property: The role of landowner's values and behavior

Raymond, Leigh
Purdue Climate Change Research Center
Purdue University
Lafayette IN USA

Andrea Olive
Political Science
Purdue University

Email: raymond@polsci.purdue.edu

Keywords:

Abstract: Despite numerous anecdotes and “horror stories” about the Endangered Species Act’s impact on private landowners, surprisingly little research exists on why property owners support or oppose the ESA. This project helps correct that oversight through 20+ in-depth interviews with landowners living within a Conservation Management Area (CMA) for the endangered Indiana Brown Bat. The CMA is approximately 1,890 acres of land set aside near the Indianapolis Airport as part of a Habitat Conservation Plan for the Indiana Bat in 2002. Approximately 1/3 of the land remains in private ownership divided among 52 landowners, most of whom show little inclination to leave despite an ongoing voluntary purchase program. The results of the surveys reveal far more complex and nuanced ideas about property rights and support for endangered species conservation among landowners than stereotypical views presented in ESA hearings and media coverage, despite the study location is a conservative county and a conservative state within the U.S. The results also illustrate the importance of finding reasonable, incentive-based ways to work with private landowners on conserving endangered species, taking advantage of their basic support for conservation while being mindful of their “common sense” notion of ownership rights.

Gender, representation, and voice on Canadian forest sector advisory committees

Reed, Maureen G
Geography
University of Saskatchewan
Saskatoon SK Canada S7N 5A5

Jeji Varghese
Guelph Water Management Group, Geography
University of Guelph

Email: m.reed@usask.ca

Keywords: forestry; gender; sustainability; social sustainability; advisory committees; Canada

Abstract: In Canada, forest sector advisory committees have been established to contribute local knowledge directly into forestry decision making and thereby contribute to the social, economic, and environmental dimensions of forest sustainability. This paper presents a gender-based analysis of a national survey of 102 forest sector advisory committees conducted by a network of social scientists in 2004. Our analysis revealed that women compose less than 19% of the membership on advisory committees across the country. Drawing on feminist, forestry, political, and sociological literature, we explore several possible explanations for the absence of women in forestry advisory committees, such as whether women’s absence from forestry employment is reflected in their volunteer work related to the industry or whether systemic biases within forestry communities and the forest industry consider production, consumption, and appreciation of forest resources as gender-neutral. We examine the plausibility of these explanations with reference to the ways in which women and men framed particular issues raised in the survey. Our exploration suggests the need to give greater attention to how power relations affect the definition and use of local community knowledge, with particular attention to how that knowledge is produced and how participation is constrained. We argue that such attention is necessary to improve the prospects for achieving social sustainability of forests.

Improving eco-efficiency for tourism transportation: the case of whistler, British Columbia

Reilly, Jennifer M
Resource and Environmental Management
Simon Fraser University
Squamish BC Canada V0N 3G0

Wolfgang Haider
School of Resource and Environmental Management
Simon Fraser University

Peter Williams
School of Resource and Environmental Management
Simon Fraser University

Joe Kelly
School of Resource and Environmental Management
Simon Fraser University

Ben Beardmore
School of Resource and Environmental Management
Simon Fraser University

Email: jen@wildrockadventures.com

Keywords: destination planning; sustainable tourism; energy consumption; greenhouse gas emissions

Abstract: Tourism is often characterized by the intensive use of energy. Nowhere is this more salient than with regards to transportation of tourist to and from resorts. This energy consumption and the resulting environmental impacts pose a serious challenge to many tourist destinations, as it threatens their environmental integrity thus eroding tourists' initial attraction to the resort. A variety of eco-efficient transportation strategies are available for reducing energy consumption. For these strategies to be successful, technological solutions must be accepted and adopted by tourists. Therefore, there is an urgent need to examine the relationship between eco-efficient transportation strategies and tourists' responses to their implementation.

This research uses Whistler, one of BC's premier resort destinations, as a case study. An online discrete choice experiment examined the preferences and trade-offs of summer and winter tourists for various transportation options. Respondents were presented with several choice sets representing car, bus and train travel options. Limdep was used to predict the likely split between transportation modes under different planning scenarios. These modal splits have been incorporated into a technical model to predict energy flows and consequent emissions impacts, comparing a "business as

usual" scenario to predicted changes under different policy regimes based on stated visitor preferences. This research provides valuable insights for destination planners into the probable effects of transportation policies on destination eco-efficiency. It may guide planners who wish to maintain the viability of their tourism product by mitigating the negative environmental effects of tourism.

A highway runs through it: Addressing ecological integrity in Banff National Park.

Rettie, Kathy
Mountain Parks
Parks Canada
Banff AB Canada T1L 1K2

Email: kathy.rettie@pc.gc.ca

Keywords: national parks, ecological integrity, public understanding

Abstract: In all Canadian national parks, maintaining ecological integrity is considered a first priority. Managers in Banff National Park face unique challenges due to the high volumes of human use and the infrastructure that supports this use. On average, 16,000 vehicles a day travel the Trans-Canada Highway in the park, with peaks of up to 35,000 vehicles a day in summer. This would be comparable to putting the San Diego Freeway through Yosemite National Park.

In Banff National Park the conservation benefits of 'wildlife crossings' are coming into focus. In the last decade, road kill overtook hunting as the leading direct cause of wildlife deaths on worldwide. The Park possesses the only large-scale complex of highway mitigation of its kind in the world - a variety of man-made structures created to provide safe crossings for wildlife and increase safety to motorists. The structures, and the research to measure their performance, are of international significance. Research to date documents over 70,000 wildlife crossings over nine years. Habitat connectivity and viable wildlife populations are key to ecological integrity, therefore further research is underway employing non-invasive techniques for DNA collection to measure the gene flow and percentages of species populations moving across the four lanes of highway. Mitigations of this calibre are expensive; 1/3 the cost of current highway twinning in the park is set aside for crossing structures. Public support is forthcoming when the effectiveness of the mitigations on ecological integrity is understood, and the global implications of these local actions are recognized.

Social acceptability of forestry in the U.S. pacific northwest: Information effects upon perceptions of clearcuts, thinnings, green-tree retention and old growth preservation

Ribe, Robert G
Institute for a Sustainable Environment
University of Oregon
Eugene OR USA 97403-5234

Email: rrobe@uoregon.edu

Keywords: Forest management, public perceptions, timber harvests, green-tree retention, New Forestry

Abstract: Conflicts over timber harvesting and clearcutting versus wildlife conservation have instigated alternative silvicultural systems in the U. S. Pacific Northwest. Major forest treatments can be the most controversial element of such systems. A public survey explored the social acceptability of nineteen forest treatments that varied by forest age, level of green-tree retention, pattern of retention, and level of down wood. The survey presented respondents with photos of the treatments, explanatory narratives, and resource outputs related to human and wildlife needs. Respondents rated treatments for scenic beauty, service to human needs, service to wildlife needs, and overall acceptability. Preference distribution patterns were analyzed for all forest treatments. These showed broad, passionate opposition to clearcutting, conflict over the acceptability of not managing forests, conflict over old growth harvests, conflict with some passionate opposition to 15% retention harvests, and unconflicted acceptance of young forest thinnings and 40% retention harvests. Analysis of ratings indicated that socially acceptable forest treatments tend to produce both economic and habitat values, scenic beauty, maintenance or restoration of old growth forests, and wildfire risk reduction.

Towards a digital atlas of permanent preservation forest areas for the Brazilian Amazon

Ribeiro, Carlos A A S
Department of Forest Engineering
Federal University of Vicosa
Vicosa Brazil 36570-000

Michael J Meitner
Department of Forest Resources Management
University of British Columbia

Brent Chamberlain
Department of Forest Resources Management
University of British Columbia

Email: cribeiro@interchange.ubc.ca

Keywords: Environmental regulation; South America; rainforest; Amazon; protected areas

Abstract: Concepts like natural preserves are the cornerstone of the Brazilian Forest Code of 1965. As of May 13th, 2002, it went through a major review which set new guidelines for the establishment of natural preserves on hilltops, along ridgelines and riparian zones, and on upland catchments, relying on key geographic features of watersheds. The new regulations of forest practice deter any commercial land use on preserves, imposing severe restrictions on land availability for agricultural uses.

While this represents a remarkable advance in environmental legislation, these increased protections remain a reality only on paper. The historic lack of appropriate countrywide topographic datasets and the expertise required for manually mapping the preserves, along with the difficulty in implementing the regulations “on the ground”, were used by landowners, state forest services and governmental agencies as the main excuse not to comply with the current environmental legislation. However, recent technological advances in Geographic Information Systems and high-resolution topographic satellite imagery, such as those provided by the Shuttle Radar Topography Mission, have allowed this issue to be revisited.

The solution to the problem relies on accurately mapping and quantifying current and potential land use conflicts on a regional basis, therefore enabling a reliable evaluation of its political and economic scope. Our analyses, developed for the Tapajos River basin, anticipate that if and when enforced, the Brazilian environmental legislation will create a huge network of

ecological corridors, connecting all biomes and effectively protecting their biodiversity. These results raise the question of the degree of political willingness to enforce these landuse designations as we have effectively removed the barrier of mapping them.

Reconceptualizing community: Negotiating identity and the politicization of place of the Lisu in northern Thailand

Rickson, Joseph R
Faculty of Social Sciences, Chiang Mai University,
Regional Center for Social Science and Sustainable
Chiang Mai Chiang Mai Thailand 50200

Email: infothai2003@yahoo.com

Keywords: community, ethnic identity, politics of place, territorialization

Abstract: In the context of highland peoples struggle for land rights and the assertion of rights to 'place' in the face of state policies classifying land as national parks, wild life sanctuaries and conservation areas local people are simultaneously, with the assistance of non-governmental organizations and international non-governmental organizations constructing new meanings of place attempting to counter state resource management ideology. This paper analyzes such phenomenon through both government policy implementation regarding highland people and the internalization of such policies within the community. This paper demonstrates that the simple dualisms characterizing much of the research into state and minority group relationships and interactions in Thailand are insufficient to investigate, analyze or describe the lived realities of local communities, interacting culturally, politically and economically in diverse ways and on many scales with state agencies, regional allies, international bodies and markets. Addressing the politics of place directly challenges a conceptualization of the distinctive polarity of the global and the local, or in fact majority and minority divisions. Division of social and geographical spaces into fixed categories embedded with political significance remains a primary tool in classifying people and resources. In this sense the problematic of territory and ethnicity is highlighted, for on the one hand these notions embrace "deterritorialized" characteristics, and on the other represent localized articulations of relationships between actors and institutions.

Engaging wilderness and securing the nation: Debating the bounds and dimensions of forest, conservation and community in Thailand's protected areas

Rickson, Kara E
Australian School of Environmental Studies
Griffith University
Brisbane Queensland Australia 4109

Joseph R Rickson
Regional Centre for Social Sciences and Sustainable
Chiang Mai University

Email: kararickson@yahoo.com.au

Keywords: Community; environmental protection; resource management; social movements

Abstract: Thailand's protected areas have become the center of powerful and enduring calls to remove villages from the forest, despite ongoing community struggles claiming legitimacy and viability of residence and resource management. These debates have focused on the northern highlands and the people who inhabit them, as the site and target of shifting and conflicting state interests and strategies for the control of territory, resources and people. Claims and support for the legitimacy of centralised, scientific management of 'sensitive ecological areas' and exclusion of communities from protected areas have been underscored by notions of environmental crisis and perceived threats to national security. At the same time, resource and citizenship rights movements have pressed for more inclusive conceptions of nation, community and environmental protection. On the national level, these conflicts are brought into sharpest relief in debates over the Community Forest Bill, driven by divisions both between and within state and civil society. Overall, the bounding and characterisation of protected areas in Thailand has been influenced by the international scientific and conservation community, but even more powerfully by the political, socio-economic and cultural dimensions of forest management in Thailand. Community forests potentially offer a negotiated retreat from wilderness and moves towards securing resource claims for diverse communities, through a broadening of the interpretative bounds of nation and conservation.

Sustainability and community democracy: The role of corporate and community partnerships

Rickson, Roy E
Australian School of Environmental Studies
Griffith University
Brisbane Queensland Australia 4111

Peter Hoppe
Brisbane Water
Brisbane City Council

David Burch
School of Science
Griffith University

Email: R.Rickson@griffith.edu.au

Keywords: community, democracy, power, transnational corporations, environmental management

Abstract: Outside of family and community contacts, the most important relationships local people now have are with transnational or multinational corporations. These relationships are key to understanding environmental governance at the local community level, particularly how relationships between transnational corporations and local communities vary in their impacts upon communities and their environment. We present data from a comparative study of company and community relations in Switzerland and Australia showing that when these relationships are based upon limited power sharing and trust, effective company and community partnerships emerge that direct development and satisfy sustainability goals. Alternatively, when companies opt to dominate locals, a downward spiral of distrust and conflict hinders not only investment, but environmental and social justice goals. When there are company and community partnerships controlling project development, locals are involved in strategic project planning, deepening community democracy.

Capacity, attachment, engagement? Supporting and facilitating local community responses to NRM challenges in regional partnerships in south east Queensland

Rickson, Sarah T
School of Arts, Media and Culture
Griffith University
Nathan Queensland Australia 4109

Jeni Warburton
AustraAsia School for the Study of Ageing
University of Queensland

Ken Keith
Griffith University

Email: S.Rickson@griffith.edu.au

Keywords: social capital; community attachment; public participation; participation barriers;

Abstract: Natural Resource Management challenges are heightened by the impacts of rural restructuring and persistent drought, urban encroachment in peri urban communities with population and lifestyle changing patterns of land use and industrial mix, as well as urban residents' responses to competing development claims and interests within and across local government council boundaries. The articulation and development of community responses to these challenges are contextualized within the changing complexities of the NRM arena at the level of national and regional governance structures as well. This further complicates effective NRM decision making and implementation of programs and policies even within a bounded catchment area.

Water catchment area management in Australia is now organized through regional bodies under the National Action Plan. Those regional bodies aim to facilitate, support and resource strategic partnerships to meet locally and regionally determined NRM goals. Research has shown that local conditions of resources and allocations as well as community and partnership dynamics are such that it is useful to site discussions of social capital, capacity building, engagement, effective networks and the like in the relevant social and political context.

This paper explores capacity, attachment and engagement in and for NRM planning and implementation in selected communities in a spatially bounded area of Southeast Queensland. These studied communities ---rural, peri urban and urban--- are sited along the banks of a creek flowing to a tributary of a

major river system. They exhibit the diversity and complexities within and between communities on the dimensions of particular concern to community involvement in identifying, articulating and overcoming barriers to meet major NRM issues. We explore linkages between different stakeholder groups and their impact on local community capacity given potentially varying spatial domains of responsibility; map the social capacity of stakeholder groups within the SEQWC communities (rural, urban and peri-urban) for contribution to local NRM targets; and explore ways to address potential impediments to the development of trust and collective action.

Global constraints on local adaptation in rural Alaska: Whose resilience is it anyway?

Robards, Martin D
Biology and Wildlife
University of Alaska
Fairbanks AK USA 99775

Joshua Greenberg
Resources Management
University of Alaska, Fairbanks

Email: ftmdr@uaf.edu

Keywords: Salmon, Wild, Aquaculture, Sustainability, Resilience, Panarchy, Globalization

Abstract: Sustaining wild salmon is regarded as vital to ecological resilience and the social and economic vitality for the Pacific Northwest of the United States. Paradoxically, relatively healthy wild salmon runs in Alaska's Bristol Bay exist in conjunction with declining economic vitality for the resident salmon fishing fleet and the local participation in services that support it. We use a theoretically grounded systems approach and empirical data to demonstrate feedbacks between global preferences toward salmon and the resilience of wild salmon populations and human communities. Proliferation of reliable and increasingly high-quality salmon from farms around the world has substituted for the wild product and consequently reduced global salmon prices. In conjunction, specific niche markets for wild salmon (not substituted by farmed salmon) are limited. Managers and the fishing industry in Alaska are striving to mitigate these trends by reducing costs and raising revenues. Unfortunately, local policies to revitalize the wild salmon fishery through economic efficiency may act contrary to local community interests, particularly if they neglect multi-scale social processes. Globalization of an increasingly resilient and high-quality salmon market, coupled with dynamic consumer preferences are critical drivers within this system. Furthermore, if communities are unable to procure livelihoods from wild salmon, they may seek alternative incomes. Although logical for any individual or community seeking viability through transformation in a changing world, choices may not be conducive to resilience of a fishing community or the sustainability of wild salmon. These integrated issues of scale are not well represented in the salmon sustainability literature.

Environmental performance improvement in residential construction: The impact of products, biofuels, processes and consumer attitudes

Robbins, Alicia S
College of Forest Resources
University of Washington
Seattle WA USA

Lucy Edmonds
College of Forest Resources
University of Washington

Bruce Lippke
College of Forest Resources
University of Washington

Email: astr@u.washington.edu

Keywords: life cycle assessment; environmental preferences; environmental services; willingness to pay

Abstract: Understanding the environmental burdens from residential construction is increasingly important as consumers become aware of the impacts of their purchasing decisions. Evaluating components of subassemblies where wood products are one of several options illuminates how the environmental performance of wood products compares with other building materials. It also provides specific information on how alternative products and/or processes reduce environmental burdens. The Consortium for Research on Renewable Industrial Materials (CORRIM) developed Product life cycle inventory (LCI) data that was used with the ATHENA™ Environmental Impact Estimator model (EIE) to design building subassemblies and to develop a Life Cycle Assessment for different building components, manufacturing processes and alternative designs. Environmental indices were developed for total and fossil fuel energy requirements, global warming potential, air and water pollution and solid waste. This study clearly shows that the use of wood-based building materials significantly reduces most environmental burdens and demonstrates the ability to further decrease fossil fuel consumption by increasing the use of biofuel, recycled wood-based materials; the use of engineered wood products and pre-cutting to size can cut down on solid waste. An experimental choice estimate of willingness to pay among consumers reveals attitudes about the environmental emissions associated with building materials used in new home construction (identified above). This product attribute information has important policy implications for programs that could help achieve certain environmental standards and may

lead to consumer preferences in support of building materials that produce lower environmental burdens. The results from this study suggest that consumers are sensitive to differences in the amounts and type of emissions that building materials produce.

Forest certification in Quebec: Implications for public participation

Roberge, Amélie
Faculté de foresterie et de géomatique
Université Laval
Québec QC Canada G1K 7P4

Luc Bouthillier
Faculté de foresterie et de géomatique
Université Laval

Email: amelie.roberge.3@ulaval.ca

Keywords: certification; public involvement; decision-making process; sustainable forest management

Abstract: Public participation is acknowledged as a part of the decision-making process in forest management. Forest certification is also considering public involvement as a component of sustainable forest management. However, each different certification standard used in Quebec, i.e., the Forest Stewardship Council (FSC), the Sustainable Forestry Initiative (SFI), and the Canadian Standard Association (CSA/Z809) has its own specific criterion regarding public participation. In this context, each standard indicates a specific process for stakeholder involvement in forest management.

In this research, seven public involvement processes conducted within forest certification initiatives were studied. The results show that each scheme studied implies a specific intention to public participation. CSA/Z809 tends to empower participants to decision-making by requesting their contribution in the creation of forest management plans, FSC reaches citizens via information and, enables them to specific agreements, and SFI leans towards education of the actors included in the supply chain.

The comparison of those public involvement processes allows to distinguish resemblances and differences between the certification schemes. The analysis reveals that even if certification schemes have different criterion regarding public involvement, the standards studied present similarities regarding the application of public involvement in terms of clarity and processes. The resemblances are mainly caused by the concept of certification in itself and also by the fact that certain characteristics are necessary for the success of the public involvement processes. The research also demonstrates that when it comes to the principles underlying public participation, each standard has its own specific frame related to company's intents and relationship to forest policy.

Cooperative research and the management of marine protected areas and fishery research fishery resources in New England: A comprehensive assessment

Robertson, Robert A
Department of Resource Economics and Development
University of New Hampshire
Durham NH USA 03824

Troy Hartely
Department of Resource Economics and Development
University of New Hampshire

Email: rob.robertson@unh.edu

Keywords: social science research; meta analysis; Jeffries Ledge Area Closure; marine fisheries; scientists;

Abstract: Cooperative research has been held up by some advocates from the fishing, scientific, management and policy making communities as a way to incorporate the knowledge of commercial fishermen into the scientific assessments of marine fisheries. Cooperative research seeks to promote partnerships between fishermen and researchers to improve the quality of data used in fisheries management and to improve the relations between the fishing industry and the scientific/management communities. The success of cooperative research initiatives in achieving these goals depends, at least in part, upon (1) the commercial fishing community's willingness to be actively engaged in the design, collection and application of a multifaceted research program; (2) the ability of academic and agency scientists to actively engage the commercial fishing industry in scientifically sound research; and (3) the willingness of resource managers and policy makers to use and apply the results from cooperative research initiatives. There are many potential barriers to cooperative research and very little empirical research on the socio-economic or human dimensions of this topic. This paper will provide a preliminary understanding of the challenges and prospects of cooperative research from the perspective of members of the commercial fishing, scientific, and management community.

More specifically, this paper will graphically display the results from a meta-analysis of five years of social science data collected to document and investigate the social and economic dimensions of the Northeast Consortium. The meta analysis incorporate qualitative and quantitative data collected from multiple formal questionnaires administered to participants and non-participants in cooperative research to include commercial fishermen, scientists, managers,

administrators and staff, and a detailed case study of cooperative research activities associated with a project focused on Western Gulf of Maine closure area. The poster and meta-analysis will reach conclusions about the overall effects of cooperative research programs. The primary importance of this paper and the associated meta-analysis is its potential to improve estimates of cooperative research program related outcomes. It allows for the understanding of both policy level concerns (i.e., overall effects of the program) and program level concerns (i.e., differential effects of alternative strategies).

Adaptive monitoring of visitor use and impacts: A conceptual model and research agenda

Robinson, Jessica
Parks, Recreation and Tourism Management
North Carolina State University
Raleigh NC USA 27695-7106

Yu-Fai Leung
Parks, Recreation and Tourism Management
North Carolina State University

Email: jrobins@ncsu.edu

Keywords: adaptive monitoring; visitor impacts; visitor use; monitoring programs; protected areas

Abstract: Visitor use and impacts are a significant management concern in many protected areas. Command of visitor use and behavior is vital to sustaining the ecological health of protected area resources and the quality of visitor experiences; through communication of visitor issues protected areas garner funding and administrative support. While visitor use and impact monitoring has been recognized as an integral part of adaptive management strategy and an essential component in management planning frameworks such as Limits of Acceptable Change (LAC) and Visitor Experience and Resource Protection (VERP), there has been insufficient guidance for establishing and sustaining such programs. As a result very limited progress has been made to develop long-term effective monitoring programs to inform management decisions. Change in budget, personnel and even catastrophic environmental events uproot monitoring programs.

Because of the drastic differences in impact concerns, environmental attributes, availability of park personnel and volunteers, and changing information needs, protected-area impact monitoring programs, if they are to be efficient and sustainable, must be adaptive to these constraints while maintaining integrity and utility in yielding useful information. This presentation posits a conceptual model illustrating essential elements, considerations and process of an adaptive design for visitor impact monitoring. Some elements include multiple-tier monitoring triggered by anticipated or unexpected change, adaptive sampling design, prioritization of indicators, and refined indicator measures based on monitoring results. Examples from U.S. and international protected areas will be provided to illustrate the conceptual model. A research agenda for refining and applying this model will be discussed.

Ontario local citizens' committees and social capital

Robson, Mark
School of Outdoor Recreation, Parks and Tourism
Lakehead University
Thunder Bay ON Canada P7E 5E8

Email: mark.robson@lakeheadu.ca

Keywords: community-based collaboration; social relations; forest management; Canada

Abstract: In Ontario, the establishment of Local Citizens' Committees (LCCs), which are standing committees that advise on the development and implementation of Forest Management Plans (FMPs) on public lands, is mandated. LCCs are comprised of local district citizens, who represent a range and balance of interests and use consensus-based decision-making to arrive at decisions. This presentation reports on a comparative case study evaluation of two LCCs and their associated contexts (community, agency and resource). It uses an adapted version of Woolcock's (1998) social capital-based policy framework to interpret the context of each LCC's advisory process and the process each LCC followed when advising on the 27 month development of an FMP. The purpose was to develop a cross-case explanation of the social structural factors that constrained the effectiveness of each LCC and to identify policy solutions. The study used a social capital interpretation since research indicates that social capital is relevant to the design of sustainable resource management institutions and may be a pre-requisite for the long term sustainability of natural resources. A social capital interpretation was also used to translate identified criteria into a more generalized form to facilitate the identification of policy solutions that would be applicable across cases. The paper concludes by describing how linkage social capital and complementarity social capital were the biggest obstacles to an optimal developmental outcome in terms of cooperation between local LCC members and DO support staff and suggests three enhancements to improve the application of the social capital framework.

Wildlife tourism, science and actor-network theory

Rodger, Kate J
School of Environmental Science
Murdoch University
Perth Western Au Australia 6150

David Newsome
School of Environmental Science
Murdoch University

Sue Moore
School of Environmental Science
Murdoch University

Email: K.Rodger@murdoch.edu.au

Keywords: human-wildlife interaction; scientific research; sub-Antarctic/Antarctica; management

Abstract: Wildlife tourism, the viewing of wildlife in their natural environment, is a growing sector of tourism world wide. The presence of diverse and unusual wildlife is a major influence on visitors choosing Australia as a destination. However, in many circumstances there is little scientific knowledge available on the short and long term impacts on the wildlife on which such tourism depends. Given the diversity of possible impacts and possible responses, plus concerns surrounding sustainability, it is essential that good empirical scientific research is available to inform the management of wildlife tourism. This paper uses actor-network theory as a method to describe and analyse the sub-Antarctic/Antarctic region where wildlife tourism management is being guided by science. It explores the power relationships and potential transformations between scientists, wildlife and managers which allowed for the development of research into human-wildlife interactions. Using these theoretical perspectives this paper examines the key actors and intermediaries who were involved in the development and uptake of wildlife tourism science in the sub-Antarctic/Antarctic region.

Measuring public support for a tax increase to acquire new parks

Rollins, Rick B
Tourism and Recreation
Malaspina University College
Nanaimo BC Canada V9R 5S5

Jeff Ward
Capital Region Parks

Lynn Wilson
Capital Region Parks

Email: rollins@mala.bc.ca

Keywords: contingent valuation, community values

Abstract: Regional Parks are an important component to the parks system in British Columbia. In Victoria, the Capital Regional District Park system contributes to: ecosystem value, scenic quality, recreational opportunities, and enhanced property values. However, gaps in the system were evident, regarding: ocean coastlines, lakes and rivers, trails, cycling routes, and “near urban” wilderness opportunities.

Funds to acquire these missing components were not available, so alternative approaches were assessed. One option considered was an increase in property taxes of \$10 per household, collected each year for five years.

In order to determine public support for this strategy, mail survey research was undertaken with a random sample of 3560 residents of the region, using the “total design method” (Salant & Dillman, 1994). The overall response rate was 41.2% (n= 1467).

The results revealed

- 81% of the sample viewed regional parks as important;
- 53% indicated more parks were needed, particularly trails and wilderness areas;
- Priority management actions were: protecting the natural environment (70%); repairing and maintaining existing facilities (57%); and acquiring more parks (53%);
- Regarding the proposed property tax, support was evident from 65% of the sample, with higher support from people who had used visited a regional park (75%), compared to non-visitors (55%).

The paper concludes with an outline of how this tax was implemented, subsequent successes in acquiring new parks, public response, and how this research contributes to theory and methods.

Evaluating BC's parks and protected areas management planning process

Ronmark, Tracy C
School of Resource and Environmental Management
Simon Fraser University
Burnaby BC Canada

Tracy C Ronmark
School of Resource and Environmental Management
Simon Fraser University

Email: tronmark@telus.net

Keywords: Protected Area Planning, Collaborative Planning, Shared Decision-Making, Park Management Planning

Abstract: British Columbia's protected areas system has recently doubled in size as a result of land use planning across the province. Managing protected areas to meet a range of goals requires thoughtful planning that involves stakeholder participation and dispute resolution through the plan development and implementation stages. This research identified the best practices for collaborative planning and evaluated protected areas management planning processes based on those criteria.

Evaluative criteria were developed from a literature review. Park planners and stakeholder groups were then surveyed to determine the extent to which those criteria have been met in past planning processes.

The protected area management planning process was unsuccessful in meeting most process and implementation criteria, but met most outcome criteria. Key strengths, weaknesses and areas for improvement were also identified by the survey participants. Recommendations have been made to better integrate the collaborative approach into protected area management planning processes.

Commercialisation of natural and cultural resources - some Norwegian contextual factors and adaptation strategies

Rønningen, Katrina
Centre for Rural Research
University centre
Trondheim Norway 7491

Email: katrina.ronningen@bygdeforskning.no

Keywords: Rural restructuring, marginalisation, industries, cultural landscapes, rural tourism development

Abstract: Rural tourism and business development based on the landscape produced by a 'multifunctional agriculture' and access to fishing, hunting and wilderness experiences, is partly presented as a 'rural saviour' by official policies. The paper analyses some reactions and adaptation strategies as well as some consequences of these 'new rural futures'. The paper draws on some previous and ongoing research projects on rural business development based on natural resources (especially hunting and fishing) and the conservation and management of (agri)cultural landscapes in Norway. Perceptions and adaptation strategies among major rural stakeholders are analysed. Some important contextual factors explaining rural resistance as well as adaptation strategies concerning hunting, fishing and wilderness oriented activities, are (local) traditions and customary rights linked to hunting and fishing, and the Scandinavian General Right of Access. The development of modern second homes is an important driver for rural change. The low property taxes in Norway is a factor explaining some important differences between Norway/Scandinavia and North America. Further, rural ownership structures, the role of pluriactivity versus specialisation and productivism, and the importance ascribed cultural landscapes and cultural heritage of farmed areas are some crucial factors explaining reactions and adaptation strategies towards revised agricultural and rural policies.

Neighbors talking to neighbors: The Coos Watershed Association's "neighbor-shed" approach to watershed restoration

Rosenberg, Stacy
Environmental Studies
University of Oregon
USA

Email: srosenbe@uoregon.edu

Keywords: collaborative resource management; Western Oregon; water resource management;

Abstract: Local, place-based collaborative groups are continually developing innovative techniques to attract participation in conservation activities. This paper will provide an overview of the Coos Watershed Association's "neighbor-shed" approach to encourage private landowners to participate in watershed restoration efforts. The neighbor-shed public involvement process is part of a NOAA funded national pilot watershed restoration project and included a series of coffee klatches and field tours in six small sub-basins of the watershed. This approach was designed to promote close interaction among neighbors, familiarize landowners with watershed group activities, and enhance landowner willingness to adopt restoration practices. An evaluation of this approach was conducted to determine how effective this type of education and outreach method is at encouraging support for watershed restoration projects and the extent of social capital created through project implementation. A series of written questionnaires assessed past, current, and future participant behavior and attitudes toward restoration practices and explored landowner perceptions of watershed group activities.

The neighbor-shed approach was in part motivated by research findings from a previous study in Western Oregon that revealed that riparian landowners prefer personalized outreach efforts and trust friends, family, and neighbors more than any other source of information when they make land and water management decisions. This paper will highlight longitudinal data on the effectiveness of small group outreach efforts, compare participant characteristics to general landowner characteristics, and detail the extent that landowners directly involved in watershed restoration planning efforts are willing to conduct restoration projects on their own property.

Challenges to recreation management in post-wildfire wilderness areas

Rosenberger, Randall S
Forest Resources
Oregon State University
Corvallis OR USA 97331

Ryan N Brown
Forest Resources
Oregon State University

Email: Ryan.Brown@oregonstate.edu

Keywords: wilderness; recreation; management; wildfire

Abstract: Natural events such as wildfires, floods, and storms can significantly alter the short-term structure and functioning of natural systems. Consequently, managers may be faced with a different set of challenges stemming from changes in visitation, visitor experiences, and the potential for increased ecological impacts on the disturbed natural system from recreation use. Resource management responsiveness to natural events and their repercussions may be limited by social, economic, political and regulatory constraints. This paper investigates the issue of post-wildfire recreation management in a wilderness area in Oregon. Data on recreational users of a wilderness area were collected by administering an intercept survey. Respondents were asked about changes in their use patterns following a wildfire, and their support for post-wildfire recreation management alternatives for the wilderness area. Four distinct groups of users emerged from a cluster analysis on support for recreation management alternatives. A continuum of user types emerged that ranged from further restricting access and letting nature take its course to increasing access and developed facilities in the wilderness area. Significant differences across these clusters are identified using sample mean difference tests. The plausibility of implementing post-wildfire recreation management alternatives is assessed through public support for them and consistency with existing wilderness management regulations.

Using theory to understand public support for collective actions that impact the environment: Building a dam to meet local water supply needs

Routhe, Aaron S
Sociology
University of Tennessee
Knoxville TN USA 37996

Robert E Jones
Sociology
University of Tennessee

David L Feldman
Sociology
University of Tennessee

Email: arouthe@utk.edu

Keywords: environmental concern; public support for the environment; water supply management

Abstract: There is increasing public debate over how to meet future water supply needs in historically water-abundant areas such as the American Southeast. Citizens, policymakers and others are struggling to find ways to meet these needs and to design political strategies for implementing them. This paper examines water supply problems facing many communities in the Southeast and how social theory can be used to better understand public support for collective actions designed to alleviate them. It presents a framework synthesizing recent work of Dunlap and Jones on the conceptual foundations of environmental concern research with Ajzen and Fishbein's Theory of Reasoned Action in order to understand public support for building a dam to meet local water supply needs. The linkages postulated by the model were empirically tested and supported using mail survey data obtained from a random sample of 433 adult residents of Cumberland County, Tennessee. The substantive findings demonstrate that public support for building the dam is weak. Knowledge of public beliefs, norms, and attitudes about its construction and potential impact, however, can provide policymakers, natural resource professionals, and local stakeholder groups with a solid understanding of why residents support, oppose, or are unsure about building a dam to alleviate water supply problems in this county.

The importance of trust and legitimacy in management of Common Pool Resources: Lessons learned from implementation of a fishery co-management system in a complex society

Rova, Carl W
Luleå University of Technology
IES/Political Science
Luleå Sweden SE-971 87

Email: carl.rova@ltu.se

Keywords: Common-pool resources, resilience, governance, institutions, collective action, trust, legitimacy.

Abstract: The aim of this paper is to provide insights into how implementation of co-management systems can be a way in building trust between authorities and the users of a CPR. It is shown that a new co-management system can be developed and "triggered" by an ecological crisis and that trust and social networks are crucial factors for successful institutional development.

The trawl fishery for vendus (*Coregonus albula*) in the northern part of the Gulf of Bothnia, has been top-down regulated by the State. At the beginning of the 1990s, catches started to decrease dramatically. In response to the poor performance of the fishery, a co-management system, with sharing of power and responsibilities between the authorities and the trawl fishermen, was implemented.

It is concluded that managing fisheries with unexpected changes and complexity in linked social-ecological systems requires actors who learn from failures and, when necessary, initiate and achieve institutional change. The creation of social-ecological resilience can be looked upon as a process - a socially generated collective good - which is likely to result in better governance systems. In this context, the role of institutions in building adaptive capacity and supporting collective rationality is important.

The indigenous cultural community of the subanen as co-managers of Mt. Malindang Natural Park, Philippines

Roxas, Alita T
Dept. of Economics
Mindanao State U - Iligan Institute of Technology
Iligan City Philippines 9200

Email: alita_mbm@yahoo.com

Keywords: resource management; conservation; indigenous knowledge

Abstract: Living in and around the Mt. Malindang Natural Park (MMNP), a protected area in the Southern Philippine province of Misamis Occidental, are about 20,000 indigenous people – the Subanen. Traditionally slash-and-burn cultivators from the coasts and lowlands, they moved through time to the uplands and into forests to avoid enslavement by co-inhabitants, attack by Moro pirates, subjugation by Spaniards, and encroachment into their ancestral domain due to resettlement programs during the American era.

For ages the Subanen nurtured their coexistence with the Mt. Malindang ecosystems which provided them their livelihood. However, commercial logging, the roads it opened, the in-migration by Subanen and non-Subanen from the lowlands in search for lands, the introduction of cash crops, and legislations declaring 53,000 hectares of the mountain range a protected area all had their effects on the forest ecosystem and on the Subanen's relationship with it. Slash-and-burn cultivation was supplanted with sedentary farming as the clearing of forests is prohibited, changing Subanen social relations and putting stress on their knowledge systems.

The Philippine government, recognizing the urgency of assistance of forest dwellers to manage forest resources, passed laws for the participation of local communities in protected areas and for granting land grants to indigenous local communities through certificates of ancestral domain titles.

This paper takes a critical look at how interventions for Subanen co-management of the MMNP can build on elements of culture and social relations using results of a socio-economic and cultural study of biodiversity in the core and buffer zones of the Park.

Politico-economic approach to deal with society value judgements: Public participation in the field of resource management

Rüffer, Christina
Department of Environmental and Resource Economics
University of Göttingen
Göttingen Germany 37073

Email: crueffe@gwdg.de

Keywords: Merit good; society values; participation

Abstract: In the context of a case study testing a biodiversity conservation program (conducted by the Research Centre for Agriculture and the Environment) it has been analyzed how the population could be reasonably integrated into the local planning of the demand for predefined ecological goods.

The paper argues how a political decision aid shall be established based on the norm of consumer sovereignty as the underlying welfare criterion. A survey questioning regional population (n=274) has been shown that society value judgements dominate personal benefit within the demand decision for ecological goods. Society value judgement means that people prefer to decide according to society's best rather than in their personal interest as required for rational decision making in the context of traditional economic theory. Thus, the concept of merit goods - goods or services whose consumption or production is encouraged by the government on the basis of society value judgements - is used as the theoretical basis to establish an economic approach to deal with public participation as required by the Aarhus Convention and recommended, amongst others, by the Convention on Biological Diversity.

In accordance with the principle of consumer sovereignty, preferred parameters of participation - such as the preferred survey mode, timeframe, willingness to continue education on the subject of decision-making, preferred political decision-maker and the respective reasons - have been analyzed. Furthermore, it will be discussed if and under which circumstances the delegation of a decision to, for example, a regional advisory board can be considered as a valid possibility for efficient participation.

Challenging the National Park concept: Contemporary indigenous peoples' experiences in Canada and Aotearoa/New Zealand

Ruru, Jacinta A
Law and Geography
University of Victoria
Victoria BC Canada V8W 3H7

Email: jacinta.ruru@stonebow.otago.ac.nz

Keywords: Aboriginal; Maori; First Nations; co-management; sustainable development; environment

Abstract: It is no coincidence that the first national parks were created in the British colonies, including Canada and New Zealand. The new arrivals overlaid the ancient homelands of the Indigenous peoples with national park labels in the pursuit of creating new, separate identities from the old world. Specific national parks were touted as housing the 'most graceful mountain in the world', or mineral springs as constituting 'a very great pleasure-resort for all kinds of people'. The 'mountains, forests, sounds, seacoasts, lakes, and rivers' were simply deemed 'of very little value to the Natives' because they were 'never used for cultivation'. The areas were renamed in the English language and have since been managed mostly in accordance with Western values.

However, in recent decades the traditional concept of the national park landscape has been challenged. There is, in part, an emerging acknowledgement in society and law that much of these landmasses are of cultural, spiritual, historical and contemporary importance for Indigenous peoples. Some Indigenous communities, particularly in Canada, are now seeking the imposition of national park labels over their traditional lands.

This address considers whether the national park concept, as embodied in contemporary legislation and management policy documents, continues to reflect a Western mono-cultural perception of wilderness landscape? It ponders this cultural landscape and deliberates the role and place of Indigenous peoples in these 'jewels of the Crown' estates.

Renewable resources, pollution and trade in a small open economy

Rus, Horatiu A
Economics
University of British Columbia
Vancouver BC Canada V6T 2C6

Email: h_rus_h@yahoo.ca

Keywords: renewable resources, pollution, production externalities, non-convexities, international trade

Abstract: Renewable resources are under two types of pressures: excessive harvesting, especially where there is no effective management, and pollution from other sectors. Previous work has looked at each of these pressures individually. However, many renewable resources are in reality concomitantly subject to both types of pressures. International trade creates opportunities for overexploitation of the open-access renewable resource but also for separating the sectors spatially. Due to a non-convexity in production induced by the cross-sectoral externality, autarkic equilibrium is inefficient and trade exacerbates the open-access over-harvesting. Yet, by the industry separation permitted by openness, the negative production externality declines in importance as a source of inefficiency. This paper shows that, depending on the relative damage inflicted by the two industries on the environment, it is possible that the production externality will persist and that specialization in the dirty good may not be the obvious choice from a welfare perspective. Also, the resource exporter does not necessarily have to lose from trade even when specializing incompletely, due to the partially offsetting external effects.

A management model to assist Māori to achieve their fisheries objectives

Russell, Melanie
Extension Services
Ministry of Fisheries
Nelson New Zealand

Jonathan Dick
Extension Services
Ministry of Fisheries, New Zealand

Email: melanie.russell@fish.govt.nz

Keywords: n/a

Abstract: Since the late 1980s, Māori (New Zealand's indigenous people) have gained transfers of commercial fishing assets and the legislative recognition of their non-commercial fishing rights and interests. The Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 gave effect to the settlement of both commercial and non-commercial fishing rights and interests. The settlement created the context for the development of the Customary Fisheries Regulations' and the incorporation of input of Māori fishing perspectives into New Zealand fisheries management.

The implementation of an extension service is another of the direct outcomes of the 1992 Deed Of Settlement. The extension service is a Ministry of Fisheries initiative designed to assist Māori to achieve their fisheries management objectives.

Part one of this paper briefly describes the settlement of Māori claims to non-commercial fishing rights and interests. This paper also describes the extension service, the New Zealand fisheries management framework, and the current management tools available to Māori to increase their opportunity for management of customary (non-commercial) fisheries.

Part two of this paper outlines the difficulties experienced by Māori when participating in New Zealand Government led fisheries management. To overcome these difficulties, this paper suggests a model that encompasses a holistic Māori approach to resource management.

Understanding and gauging public responses to water recycling: Comments from Australian experience

Russell, Stewart
School of Social Sciences, Media & Communication
University of Wollongong
Wollongong NSW Australia 2522

Email: stewart@uow.edu.au

Keywords: water reuse; participatory planning

Abstract: In a context of growing pressure for water recycling in Australia, but disappointingly little official commitment, several pioneer schemes – for urban and industrial non-potable reuse, and in two cases, potable reuse – are underway or proposed. A primary aim of the project Oz-AQUAREC WP5 ‘Methodologies for Public Acceptance Studies and Consultation’ is to develop and evaluate qualitative approaches to understanding public responses to recycling. The rationale first rests on theoretical arguments from literatures on public acceptance of technologies and related areas, and second, is a response to generic and particular shortcomings of surveys and of quantitative claims from them.

Our focus group work, in communities with different experiences of recycling, integrates information provision with opportunities to discuss and develop an understanding of the issues.* It examines particularly the influence of local conditions and events. The paper illustrates insights from the groups, about substantive views on recycling, processes of deliberation, and the usefulness of this approach. The work is important both for understanding responses to recycling proposals and for participation exercises. It questions the assumption of a stable ‘attitude’ and its straightforward measurement, and the common distinction between ‘rational’ and ‘emotional’ responses. It points to the need for extended opportunities for dialogue and deliberation, for a wider range of information than is often recognised, and for a process going far beyond the typical late, tokenistic ‘consultation’. Robust support for recycling depends on genuine opportunities to participate in planning and to develop an understanding of the system and issues.

(*Note for reviewers: Further aspects of this research program are covered in two other papers proposed - Hampton on using discourse analysis techniques for interpreting focus group material, and Lux on people’s responses to information on health risks.)

Understanding organizational capacity for addressing resource management challenges: The case of recreation in the US forest service

Ryan, Clare M
College of Forest Resources
University of Washington
Seattle WA USA 98195-2100

Lee K Cervený
Pacific Northwest Research Station
USDA Forest Service

Email: cmryan@u.washington.edu

Keywords: institutional capacity; organizational culture; recreation management; role of science

Abstract: Public agencies engaged in natural resource management have established structures, processes and practices for generating scientific knowledge for decision-making. Social, political, and economic factors have re-shaped the operating environments of today’s resource management agencies. This paper examines the USDA Forest Service and its ability to respond to current and future management challenges by incorporating scientific knowledge into its decision processes. The Forest Service is unique because its research functions were established as a separate branch within the organization. Today’s managers face increased demands from recreation users, while at the same time recreation budgets and trained personnel are declining. Using a national sample of recreation researchers and managers operating at multiple levels, we explored opportunities and challenges faced in conducting, conveying, and applying recreation research.

Findings from 64 interviews suggest that researchers and managers face an array of barriers and opportunities for developing and maintaining organizational capacity. Budgets, personnel, and professional classification systems are widely viewed as barriers to achieving productive, high-quality interactions, which in turn, affect the ability of researchers and managers to work together to address recreation issues. In addition, the model of separate research and management units both aids and hinders the creation of a shared community of practice among recreation researchers and managers. The paper also explores whether particular formal or informal organizational structures, policies, and processes are better suited for certain types of organizations and missions. Our results have implications for resource managers and scientists working with public resource management agencies who

seek strategies to enhance research-management interactions.

Integrating socioeconomic information into coastal restoration planning in Washington state

Safford, Thomas G
Human Dimensions Program
NOAA Coastal Services Center
Charleston SC USA 29405

Email: Tom.Safford@noaa.gov

Keywords: Coastal restoration, public participation, social and economic assessment, Washington State

Abstract: Decisions to restore coastal and estuarine habitat have both social and environmental implications. Managers have long relied on biological and physical science information to inform restoration efforts, but although most managers recognize the social importance of coastal natural resources, gathering and integrating related social science data has been a challenge. The National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, in collaboration with the Washington Department of Fish and Wildlife (WDFW), has developed a new approach for integrating social and economic information into a broader assessment of restoration options for the Deschutes Estuary in Olympia, Washington.

During the first phase of the project, WDFW created a citizens advisory board made up of individuals from community groups, local businesses, and environmental organizations. Members of the advisory board participated in a series of focus groups where they provided input about the range of benefits the Deschutes Estuary provides to both Olympia and, more broadly, Washington State. Results from these focus groups highlighted important market and non-market goods and services derived from the Deschutes Basin.

Researchers are currently using this information to structure a quantitative assessment of the net social and economic benefits provided by the estuary. Upon completion of the net benefits assessment, members of the advisory group will review the findings to ensure that the data provide insights into the categories of goods and services they identified as most important. The project team will then integrate information from the focus groups and the quantitative net benefits assessment to create a comprehensive socioeconomic data resource to complement existing biological and engineering information. Finally, the project team will compile all this scientific data in a report and present it to the Washington State Capitol Committee to inform a final decision on the restoration of the Deschutes Estuary.

A qualitative approach in understanding motivations of non-residential birdwatchers in New York state

Sali, Mary Joyce G
Forest and Natural Resources Management
State University of New York
Syracuse NY USA 13210

Diane M Kuehn
Forest and Natural Resources Management
State University of New York

Email: mjsali@syr.edu

Keywords: Birdwatching; Birdwatching trips

Abstract: Birdwatching is the fastest growing outdoor recreation activity in the United States. In the pursuit of this hobby, birdwatchers are an important economic development force in many rural communities. Wildlife management agencies are being challenged to develop products and programs for the non-consumptive users such as birdwatchers. For effective planning and management of these programs, it is important to know birdwatcher's characteristics such as their motivations.

The purpose of this study is to explore, through qualitative research methods, the motivations of non-residential birdwatchers. Sixty birdwatchers (i.e., 30 males and 30 females) were interviewed by phone using an interview guide. The interviews were recorded, transcribed, and analyzed. Results indicate that motivations of non-residential birdwatchers can be grouped into five categories (i.e., emotional, intellectual, physical, social, and spiritual). This study will aid in the development of a motivation-related model explaining participation in non-residential birdwatching.

Organizational learning in natural resource management: What we know and need to know

Salk, Raintry J
Forest Resources
University of Minnesota
St. Paul MN USA 55108

Ingrid E Schneider
Forest Resources
University of Minnesota

Email: salk0006@umn.edu

Keywords: institutional learning; adaptive capacity; natural resource management

Abstract: Increasingly, public land management agencies consider adaptive management frameworks to attain their overall mission and goals. Adaptive management is appealing in that it can improve agency performance, accountability, and responsiveness to changes in the biophysical, social and political environments. Critical to adaptive management is organizational learning. Organizational learning, key in complex and uncertain environments, leads to improvements in overall performance, efficiency, and innovation. Further, it provides mechanisms to detect and correct error and be more responsive to change. While there is an increased emphasis on the role of organizational learning for effective public land management, there is a lack of directives for effective implementation, optimization, or assessment of learning within public land management agencies. To address this shortfall, we present a framework drawn from organizational learning literature. The framework provides concrete opportunities to contribute to effective organizational learning and specifies best practices within public land management agencies. With such a framework, public land management agencies can take action to enhance their learning environments through both formal and informal mechanisms as well as through creation of a positive learning environment. Subsequently, the framework can strengthen public land management agencies' overall adaptive management capacity.

From fish production towards recreation and conservation: Local resistance and adaptation in the Finnish archipelago sea region

Salmi, Pekka
Saimaa Fisheries and Aquaculture
Finnish Game and Fisheries Research Institute
Enonkoski Finland FIN-58175

Juhani Kettunen
Socioeconomic Research Unit
Finnish Game and Fisheries Research Institute

Email: pekka.salmi@rktl.fi

Keywords: Cultural resistance; coastal fisheries; life-mode; pluriactivity

Abstract: Fishing has a long tradition as a source of income combined with agriculture and shipping in the Archipelago Sea Region, south-western Finland. The utilization of fish resources has faced increasingly hard pressures during the last decades and lost economic importance in the regional economy. International competition in the market, environmental regulation and increased recreational use of the area have reduced profitability and caused controversies concerning the water areas for fish production. In spite of the changes in economic and power structures the local communities appreciate fish-based livelihoods as an essential part of age-old archipelago culture.

This presentation draws on examples of recent controversies and adaptation of the Archipelago Sea Region fisheries. The main empirical material of the study comprises of personal interviews conducted with fishermen, fish farmers and other stakeholders in the study area. Rearing of rainbow trout has faced tightening environmental regulation, which reduces economic competitiveness of the livelihood and is locally often interpreted as a result of biased policies. Another conflict is related to public fishing rights for (often urban) recreational fishermen, especially province-wide rod fishing licenses provided by state authorities. The new licence system has aroused resistance among the local people and commercial fishermen in the study area. The most recent controversy is related to an expansion of grey seals and cormorants, which are claimed to threaten the future of the livelihood.

The various forms of local resistance towards nature conservation and leisure invasion in the area can be seen as attempts to maintain the cultural values of the archipelago community; from outside forces. The gap between local community and the locus of power is widening. Parallel to resistance and open

conflicts the households have found novel ways for adapting to the changes - as they have done for centuries. Combining fish revenues with other sources of income provides flexible adaptation strategies, which connect the fisherman-peasant way of life with new economic activities.

Designing and testing a prototypical landscape information interface for lay-people.

Salter, Jonathan D
Resource Management and Environmental Studies
University of British Columbia
Vancouver BC Canada V6T 1Z4

Stephen R Sheppard
Forest Resource Management/Landscape Architecture
University of British Columbia

Email: jsalter@interchange.ubc.ca

Keywords: forestry, human-computer interaction, educational psychology, information display, learning

Abstract: Management of forested landscapes is increasingly moving towards managing for multiple values and involving the public in decision-making processes. To provide informed opinions about how they would like various aspects of the landscape to be managed, members of the public require information about the implications of given management actions. Ecological processes tend to occur over large spatial and temporal scales, and involve both visible and non-visible indicators of landscape condition. People have difficulty conceptualizing landscape processes at these large spatial and temporal scales. Conventional methods of communicating this type of landscape information in British Columbia have been criticized as being too technical and inaccessible for non-experts. Developing technologies, such as realistic landscape visualizations, have been heralded as possible solutions, because of their abilities to engage users and communicate effectively. Realistic landscape visualizations, however, emphasize the visual aspects of landscape change. This may exacerbate people's existing tendencies to evaluate landscape management based on what they see on the landscape.

The purpose of this research project was to design, build and evaluate a prototype landscape information interface to communicate spatial, temporal, visible and non-visible characteristics of the landscape to non-expert users. The resulting interface displayed landscape visualizations and indicator graphs in association with other contextual information. This interface was evaluated, using a questionnaire and an exploratory video analysis procedure, to investigate how non-expert subjects would use the interface to answer landscape related questions. Results of the evaluation suggest that the majority of subjects quickly understood the interface and the information it presented, and were able to combine the interface's representations to understand temporal and spatial aspects of the

landscape. The subjects also demonstrated the ability to recognize relationships between the ecological indicators represented in the interface. The findings of the study suggest that such interfaces can be an effective means of communicating information about landscapes and the implications of management, even in constrained timeframes.

Co-management of large carnivores in a multi-level institutional setting: problems and prospects

Sandström, Camilla
Department of Political Science
Umeå university
Umeå Sweden SE-901 87

Göran Ericsson
Department of Animal Ecology
University of Agricultural Sciences

Email: camilla.sandstrom@pol.umu.se

Keywords: wildlife management; governance; conflict resolution; representation; legitimacy

Abstract: A current trend in wildlife management is the adoption of strategies to involve the public in decision making and in management actions. This includes more passive approaches like inquires to map the public opinion but also to a larger extent approaches where the stakeholders play an active role in for example management committees.

In an attempt to overcome the political and administrative difficulties associated with the reintroduction and the management of the five large carnivores in Sweden, the Swedish parliament has chosen the latter alternative. The overarching responsibility of the large carnivore policy is still the responsibility of the Swedish Environmental Protection Agency but management committees broadly representative of various stakeholder groups have been established in regions with carnivore populations in order to adapt the management to regional conditions.

Although the participatory or even co-managerial approach has been promoted by the parliament and various stakeholder groups as being a more democratic and effective way of addressing the carnivore issue in Sweden there are a number of concerns about the establishment of these regional committees.

Questions about representativity, accountability, appropriate scale but also about the possibilities to efficiently coordinate the policy – horizontally and vertically – in a multi-level institutional setting has been raised in relation to the actions taken by the committees. This study will portray the co-managerial approach of large carnivore management in Sweden and provide an assessment of its problems and prospects to deliver a sustainable outcome.

Community concerns and stakeholder involvement in sea-level rise modelling under climate change scenarios in the Fraser Delta.

Sangret, Marcy
Planning
Municipality of Delta
Delta BC Canada

Email: msangret@corp.delta.bc.ca

Keywords:

Abstract: Climate change presents a major challenge to coastal towns and local communities charged with land use planning and infrastructure maintenance in the face of medium-term impacts which are not yet fully understood or quantified. This presentation will review a recent community-based case-study on impacts of climate change in the Municipality of Delta, located on the coast of southwestern British Columbia in the Fraser River delta. Working together with Natural Resources Canada and the Tsawwassen First Nation, a scientific study has been conducted on the impacts of sea-level rise on the tidal flats of Roberts Bank; this is an area of critical ecological and recreational value adjacent to residential areas and municipal/regional infrastructure (eg. industrial port, ferry terminals, dykes, and pumping stations). Modelling of sea-level rise suggests that climate change impacts under various scenarios are likely to be significant on biophysical and socio-economic values of this area over the next 100 years. The impact modelling has been the focus of a series of stakeholder meetings and municipal dialogue on socio-economic aspects of climate change locally. The presentation will describe the linkage of scientific and community involvement processes, and present community concerns over climate change impacts, possible adaptation responses, and further study needs.

The marginalization of "pineros" (latino forest workers) in the pacific northwest

Sarathy, Brinda
Environmental Science, Policy and Management
University of California, Berkeley
Berkeley CA USA

Email: bsarathy@nature.berkeley.edu

Keywords: race, forest management, Latinos, Oregon

Abstract: Mexican immigrants constitute the vast majority of contracted forest labor on federal lands in the Pacific Northwest today. Yet, they remain invisible to both the general public and forest policy-makers. Immigrant workers perform manually intensive forest management activities such as piling and thinning brush, fuels-reduction, pest control, and reforestation. They also face unsafe working conditions, with little protection from labor violations and exploitation.

In this paper, I compare the relative marginality of immigrant forest workers (known as pineros), loggers, and non-immigrant reforestation workers, and show how immigrants are the most marginal group of forest workers. I focus on three aspects of labor marginality: working conditions, media coverage, and political visibility. Working conditions include safety on the job, access to benefits (i.e. health care and disability), workers' compensation, unemployment insurance, and protection from labor violations. Media coverage is another important indicator of marginality because it indicates the extent to which the needs and concerns of forest workers are visible to elected officials and the general public. Finally, I consider two aspects of political visibility: the extent to which government officials pay attention to the needs of forest workers, and the extent to which workers have a seat at the table on relevant issues and policies.

Alabama forest landowners in black and white

Schelhas, John
Southern Research Station
USDA Forest Service
Tuskegee University, Tuskegee AL USA 36088

Esperance Namugabo
College of Agricultural, Environmental, and Natural
Tuskegee University

Robert Zabawa
George Washington Carver Agricultural Experiment S
Tuskegee University

Email: jschelhas@fs.fed.us

Keywords: Private Forest Landowners, NIPFs, Race and Ethnicity

Abstract: Private forests comprise about 90% of the forest land in the U.S. South. Although decisions about these forests are made by their owners, the aggregate of individual forest landholdings ultimately has important implications for economic development, timber supplies, forest health, watershed benefits, biodiversity, and global climate change, and private forests have long been an important subject of study and target of public policy. In spite of the long history of research on and outreach programs for private forest landowners, attention has only recently been directed at minority, limited resource, and female forest landowners. What work has been done suggests that these landowners often have distinct characteristics, values, and ownership objectives that in turn have implications for forest policy, outreach, and assistance programs. Here we report the results of a recent survey of forest landowners in Macon County, Alabama, highlighting the differences and similarities among black and white forest landowners.

Building community-agency trust in resource decision-making: What's important?

Schertz, Joe M
Forest Resources
University of Minnesota
St. Paul MN USA 55108

Jerrilyn L Thompson
National Park Service

Dorothy H Anderson
Forest Resources
University of Minnesota

Email: schert166@umn.edu

Keywords: social capital, community and individual benefits, procedural justice,

Abstract: Since Voyageurs National Park (Voyageurs NP) was established local support for the park and the relationship of the park to its local neighbors has not always been positive. The perceived level of trust between Voyageurs NP and many communities adjacent to the park is often described as low or even non-existent. Local citizens and park staff are concerned that low levels of trust interfere with their ability to realize the economic and non-economic benefits the park provides. This study describes six dimensions of trust and community members' ratings of those dimensions with respect to National Park Service management at Voyageurs NP. In addition, measures of community members' place dependency and its relationship to benefits Voyageurs NP provides to community members are examined with respect to levels of perceived trust between the park and its neighbors. Recommendations for building greater levels of trust between community members and agency personnel are outlined. In particular strategies to move Voyageurs NP from an outcome-based management approach to a relationship-based management approach are detailed.

The paradox of rural America: Demographic change in the inter-mountain west

Schewe, Rebecca L
Rural Sociology
University of Wisconsin
Madison WI USA 53704

Donald R Field
Forest Ecology and Management
University of Wisconsin

Email: rschewe@ssc.wisc.edu

Keywords: amenity rich rural areas; population change; seasonal homes

Abstract: Rural American communities are caught in a paradox of growth and change: some areas are struggling to survive and maintain their communities while others are experiencing unprecedented expansion and development. These growing communities have undergone rapid population expansion, changing educational, income, and age characteristics of their population, and a massive boom in housing development, especially seasonal housing. Their neighbors rooted in extractive industries continue their struggle to offer employment and survival for their population. These changes are altering the foundations and future of many communities, reshaping the character of rural America. This study will illustrate these patterns of growth and transformation as they have occurred within the Inter-Mountain West region of the United States, an area of the nation exhibiting both sides of the rural paradox. We document and map thirty years of demographic and social changes across eight different physiographic provinces of the Inter-Mountain West, highlighting the role of the natural environment in shaping these patterns.

Analyzing the outcomes of environmental review: An assessment of mitigation implementation in local government planning processes

Schively, Carissa
Humphrey Institute of Public Affairs
University of Minnesota
Minneapolis MN USA 55455

Email: cschively@hhh.umn.edu

Keywords: environmental assessment, environmental planning, land use planning

Abstract: This presentation will focus on the results of research related to evaluating the outcomes of environmental review. The research provides a methodology for evaluating the implementation of mitigation efforts in Minnesota's Alternative Urban Areawide Review (AUAR) process. The AUAR is an environmental review tool created by the State Environmental Policy Act (SEPA) that allows for environmental impact analysis on regional, rather than a site- or project-specific scale. AUARs are conducted for a variety of purposes including comprehensive plan updates, annexation studies, and some large-scale development and redevelopment projects. Other unique features of the AUAR include the ability to evaluate alternative development scenarios and the inclusion of a mitigation plan that specifies environmental protection, restoration, enhancement, and mitigation efforts that must be undertaken as development occurs.

The presentation will highlight the results of the study of AUAR cases focused on assessing how local governments are implementing the outcomes of environmental review. The study considers techniques used to implement AUAR mitigation and compares required mitigation to actual development and policy decisions in the areas for which environmental review was completed in the AUAR. The presentation will present the results of these analyses and also discuss methodologies available to evaluate the outcomes of environmental review. Recommendations will be included which address techniques that communities can use to implement environmental review outcomes and techniques to track implementation.

Entomophilia: Environmental education or environmental socialization?

Schnabel, Matthew H
South Mountain State Park
North Carolina State Parks
Connelly Springs NC USA 28612

Robert D Bixler
Department of Parks, Recreation and Tourism Manage
Clemson University

Email: rbixler@clemson.edu

Keywords: insects, environmental education, childhood play, hobbies, environmental socialization,

Abstract: Extinction of insect species around the world and the potential of insects to be a focus of hobbies and recreation activities suggest a need to understand how some people develop entomophilia. This research project sought to understand the role of previous educational, hobby and recreational experiences in existing variation in interest and knowledge about insects.

Preferences for species of insects, a knowledge test, and attitudes about insects were collected from 10-12th graders (n=309) in rural, suburban and urban public schools in the southeastern United States. Additional questions measured experiences with insects and outdoor environments during childhood and adolescents.

Results suggest the primacy of informal play and recreation in the development of knowledge, preference, and appropriate attitudes toward insects and invertebrates. Childhood play outdoors, having an insect collection, having a pet insect, handling insects, watching television programs about insects, and supportive peers were significantly and positively correlated to knowledge level, preference for insects and attitude measures. Formal educational activities that occurred in schools through field trips, in-class insect collections or terrariums, or number of teachers who did insect activities with students, were not related to the outcome variables.

Results echo a growing awareness that informal experiences with wild places and living things provide opportunities for children to develop intrinsic interests in nature. Environmental and conservation educators, parents and teachers should emphasize and encourage self-directed exploration of wild places and provide opportunities for children and their friends to have first-hand experiences with the diversity of insect life.

Does generation matter? Differences in perceived benefits among baby-boomers, generation-x and generation-y at a water-based recreation area

Schneider, Ingrid E
Forest Resources and Tourism Center
University of Minnesota
Saint Paul MN USA 55108

Sonja A Wilhelm
Forest Resources
University of Minnesota

Jennifer J Heisey
District Resource Management Specialist
Virginia Department of Conservation and Recreation(DCR)- State Parks

Email: ingridss@umn.edu

Keywords: age, outdoor recreation, experiences

Abstract: Benefits-based management (BBM) is an emerging framework designed to incorporate outdoor recreation area values into a management framework. Improving the way managers incorporate visitor and community benefit opportunity production into recreation land management is a major concern of both land managing agencies and academics. The emphasis of BBM is on identifying desired outcomes and managing towards those outcomes. It is important to recognize that different visitor segments may have a variety of values and desired outcomes. One such visitor segment could be characterized by generation. This study explores the differences in perceived benefits among the baby-boomers, generation-X and generation-Y at a U.S. Army Corps of Engineers site in Illinois. Summer visitors across two years were asked to respond to questions on perceived benefit importance and benefit attainment, and demographics. Statistically significant differences emerged among the individual perceived benefit items, as well as benefit factors identified through factor analysis. For example, generation-Y rated "achievement" as more important than baby-boomers, generation-X rated "recreation with similar people" as more important than generation-Y, and baby-boomers rated "autonomy" as more important than generation-Y. When examining those that rated "learning" as an important benefit, the baby-boomers reported attaining learning more than those in generation-Y. This finding indicates an opportunity for educational programs to target individuals in generation-Y. Overall the results of this study suggests that marketing and planning efforts need to recognize the differences in visitor segments by generation, as

programs and recreation opportunities should be tailored to the specific desired outcomes of these different groups.

Generational preferences in all-terrain vehicle experiences

Schoenecker, Anthony H
Forest Resources
University of Minnesota
Saint Paul MN USA 55108

Ingrid E Schneider
Forest Resources
University of Minnesota

Email: schoe272@umn.edu

Keywords: OHV; off-highway vehicle; recreational riding; generation cohort

Abstract: Since the 1990s, all-terrain vehicle use has increased substantially across the United States. Participation projections indicate a growth of 25 percent in ATV use in the next decade. Coupled with a surge in baby-boomers, these participation changes have implications for natural resource managers and planners. In this project, we examine ATV experience preferences among registered ATV owners in a state projected to have a 214% growth in registrations in the next decade. A mail questionnaire to respondents assessed experience preferences and compared them by both age and skill groups. Analysis revealed that Generation X indicated greater importance for exciting experiences and mud experiences than Baby Boomers, as well as a preference for access to restaurants and fuel stations. Similarly, those with more skill indicated greater importance to control over their vehicle, a variety of terrain and exhilarating scenery, as well as excitement in the experience. Not surprisingly, more advanced riders had purchased their ATVs earlier than others and typically rode more frequently for recreation. Planning implications include assessing development levels within and across sites and regions, providing opportunities for multi-generational ATV groups and opportunities to work with local tourism providers. Similarly, recreation managers must continue to balance the needs of a variety of recreation groups as well as needs within recreation activity groups.

Protecting Minnesota's lakes: Values, place attachment, and lake conservation

Schroeder, Susan A
Fisheries, Wildlife and Conservation Biology
University of Minnesota
St. Paul MN USA 55108

David C Fulton
Fisheries, Wildlife and Conservation Biology
University of Minnesota

Email: sas@umn.edu

Keywords: conservation, political action, philanthropy, sense of place, protection, use

Abstract: We examine how lake values, place attachment, and ownership of lake property predict intention to conserve lakes. Results are derived from a 2004 survey of Minnesota residents. Lake values and place attachment predicted intention to conserve lakes. Respondents who reported stronger values associated with lakes and stronger attachment to lakes reported stronger intentions to protect lakes. Place attachment partially mediated the relationship between lake values and willingness to take action to conserve lakes. Ownership of lake property moderated how lake values and place attachment predicted intention to conserve lakes. For lakeshore property owners, place attachment fully mediated the relationship between lake values and willingness to conserve lakes. For respondents who did not own lakeshore property, both lake values and place attachment predicted intention to conserve lakes. Values related to lake use more strongly predicted place attachment and intention to conserve than values related to lake protection did. Place attachment, however, mediated the effect of use values on conservation—when place attachment was included, protection values were stronger predictors of conservation actions than use values were. More general place attachment was a better predictor of conservation than family-related place attachment was. Place attachment and lake values more strongly predicted taking philanthropic action to protect lakes than taking political action to protect lakes.

Outdoor recreation participation data in the US: What can you believe???

Schuett, Michael A
Recreation, Park and Tourism Sciences
Texas A & M University
College Station USA 77843-2261

David Scott
Recreation, Park and Tourism Sciences
Texas A & M University

Scott Shafer
Recreation, Park and Tourism Sciences
Texas A & M University

Email: mschuett@tamu.edu

Keywords: Outdoor recreation participation; secondary data; activity participation

Abstract: The outdoor recreation industry is becoming a multi-billion dollar business (Sporting Goods Business, 2005) and outdoor enthusiasts are taking their mountain bikes and snowboards out to recreate on public lands and forests nationwide in droves. The growth in outdoor recreation makes it increasingly important to use accurate trend data to guide management and business decisions. There are numerous secondary data sets that exist for practitioners, academics, businesses, and public agencies to use. Example data sets include: the National Survey on Recreation and the Environment, National Sporting Goods Association, and Mediamark Research Sports and Recreation. Several questions arise as practitioners and others seek to use data to make decisions. How do managers choose research data to use? Which source is the most accurate? What activities are really on the rise/decline? Do managers use secondary data or collect their own data? What are the differences in comparing these data? This presentation will examine several national outdoor recreation data sets analyzing their research design, activities, survey questions, and results. Within these outdoor recreation data, differences will be examined in methodology, sampling, and questions used in data collection. Other discussion points will include interpretation of these data, access/use of this information, and a summary of strengths and limitations. Recommendations will be given about the use of these resources for future outdoor recreation management decision-making policies and trends.

The role of indigenous knowledge in natural resource management with case studies from east Africa

Schultz, Courtney A
Forestry and Conservation
University of Montana
Missoula MT USA 59802

Email: courtneyschultz30@gmail.com

Keywords: Collaboration

Abstract: Indigenous knowledge (IK) about natural resources and local social institutions has great potential to contribute to successful development and natural resource management (NRM) initiatives. In this paper the meanings of the terms “indigenous” and “indigenous knowledge” are discussed, followed by an examination of the potential for IK to influence NRM projects positively. Several case studies from East Africa provide specific examples of the ways in which IK is being used in current research and interventions. Findings from these case studies indicate that a wealth of IK exists that is relevant to NRM. Examples include the use of rangeland indicator species by pastoralists, decision-making systems that prevent the “tragedy of the commons”, and irrigation systems specific to arid highlands. The case studies suggest that solutions based on both IK and outside knowledge can be superior to solutions based on either of these alone. Also, the use of IK in conservation projects can be time-consuming in the short-run and more cost-effective over time than projects without the benefit of IK. These examples indicate that community economic incentives alone will not lead to successful projects. Recommendations for practitioners based on this literature and case study review are that: 1) social systems should be considered when planning conservation projects that affect communities; 2) community involvement should go beyond economic incentives, education, and stakeholder identification and involve people in the planning process; and 3) conservation projects will benefit from more research, understanding, support, and involvement of IK.

Recreational displacement versus avoiding undesirable recreation settings: Theoretical and operational distinctions between the traditional displacement construct and avoidance

Schuster, Rudy M
Forest & Natural Resource Management
SUNY College of Environmental Science and Forestry
Syracuse NY USA 13210

Jennifer L Baker
Forest & Natural Resource Management
SUNY ESF

David Cole
Aldo Leopold Wilderness Research Institute
USDA Forest Service

Troy Hall
Department of Conservation Social Sciences
University of Idaho

Email: rschuster@esf.edu

Keywords: wilderness, stress, coping, visitor management, structural equation model, conflict

Abstract: The objective of this research was to update recreational displacement as a theoretical and operational construct. Displacement was conceptualized as having two components: a) the ability to physically avoid on-site problems as a coping effort; and b) future intentions to exercise inter/intra site displacement (traditionally conceptualized). The two components were distinct and operated at different sections of the theoretical model.

Psychological stress/coping theory and recreation research provided the foundation and model. Data were collected in the Great Gulf Wilderness, White Mountain National Forest, summer 2005. 400 usable surveys were collected (78% response rate) from exiting hikers.

Ordinal and interval data included the following. Social condition appraisal questions: number of groups seen, accuracy of expectations, and perception of crowding. Coping dimensions (20 variables): rationalization, product shift, physical avoidance, and problem solving. A single global satisfaction indicator. Seven indicators of displacement. Principal components analysis, confirmatory factor analysis and structural equation modeling were used to analyze the data.

Minor modifications resulted in an acceptable model ($\chi^2=509$ DF=368, CFI=.917, RMSEA=.038). As the perception of crowding increased the use of coping increased. As the use of coping increased visitor satisfaction decreased. Decreased satisfaction resulted in increased intentions to displace in the future. Temporal displacement accounted for the most variance and was followed by spatial.

Discussion focus: 1) varied ways displacement has been operationalized and placed in previous models used to understand behavior; 2) updated theoretical and operational definitions; and 3) theoretical and operational placement of displacement in behavior models based on analysis results.

Climate change and outdoor recreation in Canada's great lakes region: Risks and opportunities

Scott, Dan
Geography
University of Waterloo
Waterloo ON Canada

Brenda Jones
Geography
University of Waterloo

Jackie Dawson
Geography
University of Waterloo

Email: jpdawson@fes.uwaterloo.ca

Keywords: climate change; Great Lakes; recreation;
tourism

Abstract: An important determinant in the diversity and economic success of outdoor recreation and related tourism activities in the Great Lakes Region of Canada is the climate. Climate defines the length and quality of outdoor recreation seasons and associated levels of participation (i.e., natural seasonality) and affects the natural resource base many forms of recreation depend on. Changes in natural seasonality induced by climate change could have substantial implications for the economic sustainability of specific recreation sectors and the communities that depend on them for tourism. This paper presents the results of ongoing projects to assess the climate change vulnerability of outdoor recreation (winter and warm-weather sectors) in the Great Lakes Region under warmest and least-change climate change scenarios for the 2020s and 2050s.

Winter recreation is projected to be negatively impacted with reductions in the season length of both downhill skiing and snowmobiling. While snowmaking provides substantive adaptive capacity for the ski industry, snowmobile seasons could be cut in half in some regions as early as the 2020s. Adverse impacts on winter festivals are also examined. Warm-weather recreation is projected to benefit from climate change. The golf season is projected to lengthen, with rounds played increasing substantially in shoulder seasons. Provincial park visitation is also projected to increase substantially with a longer warm-weather season, with campgrounds in some parks potentially exceeding capacity during the summer season as early as the 2020s. The implications of climate-induced environmental change (e.g., biodiversity, water levels, forest fire regimes) for outdoor recreation and related tourism remain key uncertainties.

Focusing on bobwhite quail: Results of four northern Missouri focus groups

Scroggins, Heather J
Resource Science
Missouri Department of Conservation
Columbia MO USA 65201

Thomas V Dailey
Resource Science
Missouri Department of Conservation

Ronald A Reitz
Resource Science
Missouri Department of Conservation

Thomas B Treiman
Resource Science
Missouri Department of Conservation

Craig D Scroggins
Resource Science
Missouri Department of Conservation

Robert A Pierce II
Ag Ext-Natural Resources
University of Missouri-Columbia

William B Kurtz
Forestry
University of Missouri-Columbia

Email: Heather.Scroggins@mdc.mo.gov

Keywords: farmers; conservation; human dimensions;
attitudes; motivations; qualitative research; mixed
methods

Abstract: In response to dwindling populations of northern bobwhite (*Colinus virginianus*), the Northern Bobwhite Conservation Initiative and the Missouri Department of Conservation's Strategic Guidance for Northern Bobwhite Restoration are guiding restoration efforts in Missouri. Success of these programs is dependent on restoration of habitat on large tracts of private land. Efficacious selection of restoration areas requires a foundation of ecological and sociological information. Although we know much about bobwhite ecology, our skill at engaging landowners in habitat restoration is meager, partly because we do not know how to motivate landowners in a cost-effective manner. Our objective is to develop a systematic approach for using sociological data to identify potential private land restoration areas.

As an initial step in this process, four focus groups were held with landowners and bobwhite hunters in northern Missouri. The 37 participants shared their views on bobwhite habitat management, explained how decisions regarding land management practices are made, and discussed how they perceive common cost share and other government programs. As well, participants offered ideas about a cooperative approach to bobwhite habitat restoration. Focus groups revealed that bobwhite are of sentimental and utilitarian value for participants, with many landowners expending significant effort on managing their land and farming operations in ways they believe will benefit or at least not negatively affect bobwhite populations. In addition, prevailing concerns with traditional government cost share programs appeared to be tempered by these values for bobwhite, with many participants stating they were highly supportive of the cooperative approach to bobwhite restoration.

Land stewardship education and promotion: follow-up study of 11 years of rural landholder contact programs

Scull, John
Cowichan Community Land Trust
Land Trust Alliance of British Columbia
Duncan BC Canada V9L 5X9

Ann Archibald

François Cormier

Email: jscull@shaw.ca

Keywords: conservation psychology; transtheoretical; outreach; landowner contact

Abstract: Landholder contact is a tool for encouraging voluntary land stewardship in rural areas. The Cowichan region on Vancouver Island, British Columbia, has experienced landholder contact programs over a period of 11 years. This extended history provided an opportunity to assess the long-term consequences of land stewardship education based on landholder contact.

Using open-ended questions, lengthy telephone interviews were conducted with 89 participants from previous landholder contact programs. The interviews were supplemented by a number of site visits. The contents of the responses were then analyzed using both qualitative and quasi-quantitative methods.

The results were extremely positive regarding changing the attitudes, knowledge, and activities of landholders, both with respect to the specific focus of the contact and with respect to wider environmental issues. Respondents reported changes in knowledge and attitudes about land stewardship, including a greater understanding of the importance of passive conservation (leaving things alone). Behaviourally, they reported a wide range of changes in environmental management practices, especially those related to wildlife habitat; with the average landholder reporting 8 different changes. Participants were much more likely than the general population to join or contribute to environmental and conservation organizations.

The major weakness identified was the short-term nature of project funding from grants. To be more effective, landholder contact programs should be planned and funded on an ongoing basis. The results are considered in light of theories of community-based social marketing and the psychology of change.

Using a stated preference choice model to understand visitor preferences for wildlife-tourism management in a marine environment

Semeniuk, Christina A
School of Resource & Environmental Management
Simon Fraser University
Burnaby BC Canada V5A 1S6

Wolfgang Haider
School of Resource & Environmental Management
Simon Fraser University

Kristina D Rothley
School of Resource & Environmental Management
Simon Fraser University

Email: casemeni@sfu.ca

Keywords: tourism impacts; wildlife management; human dimensions

Abstract: Understanding the interaction between people and animals in a wildlife-tourism context is essential for both protecting the resource and for providing a highly satisfactory tourism experience. This study examined tourists' preferences for wildlife management at a stingray-feeding attraction in the Cayman Islands, using a stated preference discrete choice model. The study design accounted for changes in the interactive experience with stingrays at this tourism attraction resulting from differing management guidelines. Respondents were asked to choose their preferred management scenario from alternate management regimes for the site, including a status-quo option which corresponded to 'no management'. The scenarios were characterized by seven attributes that encompassed crowding aspects, animal-feeding and handling rules, ecological outcomes, and a management cost, defined as a conservation access fee. Based on the estimation of a multinomial logit model, results demonstrate that tourists prefer management of the attraction over none, but exhibit a strong preference for feeding and handling the stingrays themselves. Tourists also have a low tolerance for high injury risk to stingrays as a consequence of their interaction, and paying a small access fee above the regular paying price produces the same utility as paying no fee at all. By identifying the tradeoffs tourists are willing to make, the discrete choice model can help wildlife managers maximize tourist satisfaction and support while achieving wildlife-protection objectives.

Comprehensive master planning in a small American town: nontraditional measures of success in the face of dysfunction.

Senecah, Susan L
Environmental Studies
State University of New York College of Environmental Science & Forestry
Syracuse NY USA 12037

Email: ssenecah@esf.edu

Keywords: community capacity; public involvement; comprehensive master planning; environmental dispute;

Abstract: Collaborative based processes are new to most convening parties and quite often the participants as well. They often come to process with motivations at odds with their comfort level for taking what they perceive will be huge political, professional, or personal risks. This case chronicles the efforts of a small town to revise its 30 year old comprehensive master plan and the consequences of its lack of internal and external capacity to engage in collaborative learning processes with the community or hold itself accountable for its planning process. The town's formal public involvement process "failed" by the traditional measures of success but it produced an undercurrent of "nontraditional" success that endured. The analysis of this case offers frameworks for assessing and meeting the internal capacity needs of convening agencies to support collaboration, identifies a continuum of measures of success, and contributes a typology of best practices for similar situations.

Making a place for wildlife and people: Exploring sense of place on national wildlife refuges

Sexton, Natalie R
Fort Collins Science Center
U.S. Geological Survey
Fort Collins CO USA 80526-8118

Susan C Stewart
Fort Collins Science Center
U.S. Geological Survey

Email: natalie_sexton@usgs.gov

Keywords: sense of place, place attachment, national wildlife refuges

Abstract: Nearly all federal public lands have long-term management plans that guide future decisions and actions on individual land units. In particular, the U.S. Fish and Wildlife Service is currently developing 15-year conservation plans for all of their units in the National Wildlife Refuge system. The management mission of “Wildlife First”—managing specifically for the conservation of fish, wildlife, and plants, and their habitats—is unique to the refuge system. In addition, most refuges provide wildlife-dependent recreation opportunities when compatible with this refuge mission. Balancing this mission with visitation and recreation opportunities creates interesting management challenges. Because support for public lands and their protection is often driven by citizens’ interaction with and attachment to those lands, understanding these place attachments and how they affect long-term management is important. Using research results from studies of three national wildlife refuges across the nation, we explore the role of place attachment in refuge conservation planning.

Green golden rule and optimal use of a forest resource

Shahi, Chander K
Faculty of Forestry
University of Toronto
Toronto ON Canada M5S 3B3

Email: chander.shahi@utoronto.ca

Keywords: Sustainability, forest resources, optimum stock levels, Green Golden Rule.

Abstract: A forest resource is composed of multiple stocks – stocks of different age classes – and the aggregation of all stocks in a single stock is unable to capture the complexities of forest growth dynamics and their implications for optimal use of a forest resource. We divide the renewable forest resource into three stocks – young, middle aged, and old – to study its growth dynamics. We extend the concept of Green Golden Rule (GGR), introduced by Chichilnisky, which refers to the configurations of the economy that give the highest indefinitely maintainable level of instantaneous utility to different stocks of a forest resource. The discounted utilitarian criterion and the Green Golden Rule are used to find optimum values of consumption and preservation of different types of stocks of the forest resource. The solutions of the discounted utilitarian criteria and the GGR are analyzed for some specific cases of forests. Since, the growth of different forest stocks is inter-linked, the optimal levels of consumption and preservation of these stocks are found to be linked to each other. The results also indicate that the optimal path conditions obtained by modeling a forest resource comprised of a single homogenous stock may give misleading signals to resource managers.

When researchers are translators of global governance principles through participatory forest policy

Shannon, Margaret A
State University of New York at Buffalo
Law School
Buffalo NY USA 14260

Email: mshannon@buffalo.edu

Keywords: participation; global governance; flows of ideas; forest policy; transition economies;

Abstract: Around the globe new forms of environmental governance are emerging. These new governance forms have in common a set of essential design principles: participatory and collaborative processes; iterative, adaptive, and transparent procedures, cross-sectoral and integrative frameworks, based upon accountable expertise, and organized through networks. The use of these design principles is mediated by “translation” processes and through translators. This paper explores an unexpected translator of governance design principles – the researcher. When researchers conduct field studies to document, analyze, and understand emerging forms of governance in practice, they also utilize these universal concepts as a frame for observation and analysis. In many instances, the research establishes a relationship with people within the frame of the research and conveys through discussion and a desire to understand why as well as what and how. Thus, the researcher serves as a translator of these global principles into meaningful concepts for the policy actors through the research process. This paper draws upon recent experiences in Kyrgyzstan wherein a participatory process was initiated to create a national forest policy. This participatory process created a context shaped by the activation of social actors and the emergence of new framing context based upon global governance principles. This paper develops these ideas in order to lay the foundation for reflection upon our work as researchers and scholars as we seek to understand the emergence of new forms of environmental governance.

Farmer perceptions of water availability in the Okanagan basin

Shaw, Alison
Adaptation and Impacts Research Division Group (AI
IRES, University of British Columbia
Vancouver BC Canada V6T 1Z4

Email: shwali@gmail.com

Keywords: Climate change adaptation and mitigation, sustainable development, local case studies

Abstract: This paper explores possibilities for including users in formulating and framing governmental research problems. This inclusion is considered necessary in order to develop a contextual understanding of what is and is not considered a legitimate policy at the local level. The Okanagan Basin case-study examines farmers' perceptions of current and future water availability in the 'desert of Canada'. The research suggests that government research on water availability that does not simultaneously consider the impacts of residential development and climate impacts in the region may miss the boat for creating both a legitimate and thus effective policy for water management and conservation at the farm level. In other words, although irrigation is the largest user of water in the region, targeting the agricultural users for increased technological and management adaptations without considering other contextual influences may increase rather than decrease possibilities for water conflict in the future.

**The 2000 West Coast Groundfish Disaster
Response: What Happened and What Are the
Socioeconomic Lessons Learned for all Natural
Resource-Based Communities**

Shaw, Wesley
Oregon Sea Grant
Oregon State University
Corvallis OR USA

Flaxen Conway
Oregon Sea Grant
Oregon State University

Email: flaxen.conway@oregonstate.edu*

Keywords:

Abstract: While federal responses to fisheries disasters cost the US government millions of dollars each year, they are rarely researched and poorly understood. Congress responded to the 2000 federally-declared West Coast groundfish disaster by allocating \$5 million in disaster relief for Oregon, Washington and California. Each state, with federal oversight, designed and executed its own disaster response program to help impacted members of the fishing industry and coastal communities to cope with the downturn. While the broad federal goals for the funding were identical, each state created different relief programs. Oregon focused on helping individual members of the fishing community to access social services. Washington used most of their money on economic development of coastal towns. California split their money among multiple programs, including payments to impacted individuals and cooperative fisheries research. There has been, as of yet, no comprehensive cataloguing of the socio-economic responses to the West Coast groundfish disaster, nor has there been an assessment of how well each state's program worked. The goal of this project was to document the states' responses to the disaster, explore useful comparisons, and extract possible lessons-learned. Results indicate that people working in the fishing industry face many obstacles to leaving the fishery, and that aggressive, well-planned outreach programs are necessary for efforts to directly help members of the fishing community through fishery disasters. It is hoped that the lessons learned in this project will help both decision makers and those impacted by future fishery and other natural resource disaster responses.

**4D Visioning of local climate change scenarios
as a tool for improving dialogue and
awareness.**

Sheppard, Stephen RJ
Collaborative for Advanced Landscape Planning
University of British Columbia
Vancouver BC Canada

Stewart Cohen
Adaptation & Impacts Research Division
Environment Canada

Email: Stephen.Sheppard@ubc.ca

Keywords:

Abstract: This presentation will outline a current research project on developing local scenarios of climate change and presenting them to community stakeholders and professionals using realistic landscape visualisation and other media. Termed 4D visioning, this technique, as part of larger participatory processes, has proven helpful in improving community understanding of environmental phenomena and socio-cultural implications. This study is one of the first in North America to 1) develop a systematic process for spatializing, localizing, and visualizing climate change scenarios which integrate impacts, adaptation, and mitigation; and 2) evaluate the effectiveness of the resulting visioning packages in raising awareness, improving the dialogue, informing community planning decisions, and motivating behavioral change. This session will describe the process underway with local case study communities, and demonstrate the advanced visualisation methods available for such processes, including down-scaled climate change modelling, GIS mapping, realistic 'personalized' presentations of possible future conditions at the neighbourhood scale.

Development of recreational forests in Korea and evaluation

Shin, Won Sop
Forest Resources
Chungbuk National University
Cheongju Chungbuk Korea (south) 361-763

Chan Woo Park
Forest Management
Korea Forest Research Institute

Rhee Wha Yoo
Forest Management
Korea Forest Research Institute

Hon Gyo Kwon
Forest Management
Korea Forest Research Institute

Email: shinwon@chungbuk.ac.kr

Keywords: leisure; outdoor recreation; forest recreation

Abstract: During the past couple of decades, outdoor recreation demand has been increased dramatically in Korea. To combat the social requirement of outdoor recreation, Korea Forest Service has developed recreational forest system. The first 'recreation forests' established in 1988. To date, 98 recreational forests have been developed and running. Korea Forest Service has plan to develop more recreational forests (total of 140 recreational forests) by 2007. Most recreational forests (83%) are developed within national forests and managed by Korea Recreational Forest Management Agency and Provincial/Municipal Governments.

The recreational forests are generally located in the easily accessible areas from nearby large cities with outstanding scenery. In 2004, over 4.8 million people (about 10% of total population) visited recreational forests across the country. Unlike other parks and recreational resorts, the recreational forests are equipped with minimum recreational facilities including log cabins, hike trails, benches, camping grounds, and simple sport facilities. Most of visitors are staying one overnight with family members and friends. They spend a relaxing time and by taking quiet walks through the forest. "Forest bathing" for physical and psychological health is one of the major activities in the recreational forests. Recreational forests are also used as nature classrooms diverse environmental education programs.

This study sums up the current knowledge related to users' perception about recreational forests and their satisfaction of recreational forest experiences. Using 10

years' visitor survey, the results of this study indicated that most of visitors satisfied with service and management of recreational forests. This study also presented 10 years' trends in users' recreational activities and their behaviors. Suggestions about management alternatives to meet new recreation patterns is discussed.

Recycling behavior and justification: Empirical analyses of the survey in Sendai city, Nagoya city and Minamata city, Japan

Shinoki, Mikiko
Faculty of Policy Studies
Iwate Prefectural University
Iwate Japan 0200193

Michio Umino
Graduate School of Arts and Letters
Tohoku University

Email: shinoki@iwate-pu.ac.jp

Keywords: waste management, environmental problem, rational choice

Abstract: Why do many people do not carry out pro-environmental behavior regardless of their pro-environmental attitude? This paper presents a theoretical framework on justification mechanism by the non-recyclers who have discrepancy between their attitude and behavior. Based on the discussion by Diekmann and Preisendofer (1998), we proposed sophisticated framework on justification. Their empirical analyses propounded three cognitive justification strategies based on the fact that individual actors are likely to harmonize the discrepancy between their environmental attitude and behavior. These strategies are called "attention-shifting strategy," "high-cost strategy," and "subjective-rationality strategy." By theoretical analysis, we found that these strategies do not cover all the cases. Thus, we added a new strategy named "behavior-despise strategy." Utilizing the questionnaire surveys conducted in three cities in Japan, we tested the justification strategies to show the trends of individuals. Each city has characteristic waste management system. It was found that individuals who have the discrepancy are less likely to adopt behavior-despise strategy in three cities. However, high-cost strategy is more likely to be accepted in Nagoya city and subjective-rationality strategy is to be accepted in Sendai city. Regarding attention-shifting strategy, the above tendency was proved partly in Sendai city.

The valuation of maintenance and repair of alpine trails: An approach using choice experiment and photographic technique

Shoji, Yasushi
Graduate School of Agriculture
Hokkaido University
Sapporo Hokkaido Japan 065-8589

Tomoya Hashizume
Graduate School of Agriculture
Hokkaido University

Koichi Kuriyama
School of Political Science and Economics
Waseda University

Takahiro Tsuge
Department of Regional Policy
Takasaki City University of Economics

Email: yshoji@for.agr.hokudai.ac.jp

Keywords: Daisetsuzan National Park; Heterogeneous Preferences

Abstract: The erosion of trails and the destruction of alpine vegetation alongside the trails in alpine national parks in Japan have evolved into serious problems. The purpose of this study is to examine visitors' preferences regarding methods of maintaining and repairing the alpine trails, using a choice experiment (choice modeling) and photographic technique. On-site sampling questionnaires were distributed to visitors in September 2004, and 471 (65.4%) out of 720 questionnaires were returned by mail. After removing respondents who did not answer the main questions, there were 393 remaining completed responses. Conditional logit estimates demonstrated that constructing a boardwalk is the most popular approach to solving the problem, in contrast, introducing a system closing trails during snowmelt and late fall season is the worst. In addition, although setting ropes beside trails and constructing wooden stairs were popular approaches, they were much less attractive methods compared with constructing a boardwalk. However, a serious problem of the conditional logit model is that the model assumes that the parameters are constant among all respondents. Therefore there is a possibility of obtaining different results, if we consider a variety among respondents' preferences on estimation. Now we are attempting to apply some models that enable us to consider it.

Sustainable conservation of biodiversity of National Chambal Sanctuary (NCS) in central India while developing viable eco-tourism.

Shrivastava, Ajit K
Forest Department, Madhya Pradesh (M.P.) State
Government of M.P.
Jabalpur M.P. India 482001

Email: ajitshri@gmail.com

Keywords: NCS: National Chambal Sanctuary

Abstract: The Chambal river valley in Central India is having an outstanding universal value looking to its physical and biological formations, aesthetic and scientific value. It contains the most varied significant natural habitats for in-situ conservation of biological diversity including threatened species. The valley being protected as the National Chambal Sanctuary is last stronghold for breeding Ghariyal (*Gavialis gangeticus*) and fresh water river Dolphin (*Platanista gangetica*) with respective population of 1600 and 85. The Sanctuary contains habitats for maintaining the most diverse fauna and flora. Flowing through a total length of 435 Km the river is a prime destination for migratory birds with around 150 species.

Special care for management is required as the sanctuary is best area for conserving aquatic animals. The Gangetic River Dolphin needs special protection. In the recent time there is a clear impact of climatic changes in the wild life habitat in the sanctuary. Due to frequent draught there is less availability of water, which has adverse impact on the aquatic animals.

The NCS offers one of the best destinations for Eco-tourism. The clear unpolluted water, deep and rugged ravines, varied flora, aquatic life and avifauna makes the area panoramic. There is an urgent need to develop various eco sustainable tourism activities, to involve local community in the tourism. Time has come now to look for species specific conservation in the riverbank eco-system and need to develop strategies to focus on ecological requirements of the flora and fauna of the valley.

The role of neo-liberal ideology and policies in park privatization.

Shultis, John
Department of Resource Recreation and Tourism
University of Northern British Columbia
Prince George BC Canada

Email: shultis@unbc.ca

Keywords: privatization, neo-liberalism, policy

Abstract: The role of neo-liberal ideology and policies in park privatization. Abstract: Protected area literature has tended to ignore the role of neo-liberal ideology and associated policies (e.g., fiscal conservatism) in altering the form and function of contemporary parks. The privatization of many public goods, including parks, is a central feature of neo-liberalism. This presentation will highlight the central tenets of neo-liberalism, focusing on its relationship with privatization, and will argue that political ideology is a necessary component in studying and understanding park functions and management strategies.

Assessing factors that influence the willingness and ability of European farmers to co-operate with biodiversity policies

Siebert, Rosemarie
Institute of Socio-Economics
Institute of Socio-Economics, Leibniz-Zentrum fuer
Agrarlandschaftsforschung (ZALF)
Muencheberg Germany 15374

Email: rsiebert@zalf.de

Keywords: EU biodiversity conservation policy, environment, decision making of farmers

Abstract: The future of farming is closely linked to issues of sustainability, care for the natural environment and biodiversity management. The poster presents major findings from an interdisciplinary EU research project that analyses key insights into farmers' willingness and ability to co-operate with biodiversity policies.

The results are based on an assessment of about 160 publications and research reports from 6 EU member states and from international cooperative research. A conceptual framework provides a common structure for analysing farmers' perspectives regarding the introduction into farming practices of measures relevant to biodiversity.

The analysis is coupled and contrasted with a survey of experts. The survey consisted of a written questionnaire and a small number of in-depth interviews. The target group consisted particularly of people from national and local governmental bodies responsible for agricultural policy, farmers' unions, research institutes and universities, and other stakeholder organisations.

The results represented above suggest that the ability and willingness of farmers to co-operate in biodiversity policies can not simply be reduced to their attitude towards nature on the one hand, or economic considerations on the other. A wide variety of factors play a role in farmers' response to biodiversity policies.

Certification strategies as government tools for alpine regions in Switzerland (nrp-48).

Siegrist, Dominik S
Landscape architecture
University of applied sciences
Rapperswil 8640

Vicente Carabias-Hütter
ZSA
University of applied sciences Winterthur

David Kümin
ZSA
University of applied sciences Winterthur

Karin Wasem
Landscape architecture
University of applied sciences Rapperswil

Email: dominik.siegrist@hsr.ch

Keywords: Label region, sustainability, regional policy, mountain region, nature tourism

Abstract: In order to examine various certification systems and indicator sets in three test regions and two comparison regions in the Swiss Alps, test runs with two ideal type certification systems were undertaken. Thereby three indicator sets were being used: 'mainstream sustainability', 'landscape-oriented sustainability', and 'label region'. Label regions that are using the proposed certification concept, ought to get preferential treatment within the framework of regional policy. Furthermore the label ought to give its holders an advantage on the nature-based tourism market. A certification strategy for label regions that is included in regional as well as in sectoral policies, and whose label is being effectively marketed, could significantly improve the economic survival chances of structurally weak peripheral regions.

Changes in nature-based recreation caused by climate change

Sievanen, Tuija
Vantaa Research Unit
Finnish Forest Research Institute
Helsinki Finland 00170

Marjo Neuvonen
Vantaa Research Unit
Finnish Forest Research Institute

Eija Pouta
MTT Agrifood Research Finland

Email: tuija.sievanen@metla.fi

Keywords: outdoor recreation; nature tourism; Finland

Abstract: Nature-based recreation is considered as a climate-sensitive human activity. Adapting recreation behaviour to climate change will affect the majority of Finns. This study focuses on the changes in participation in recreational activities caused by climate change. Scenarios of recreation participation are based on climate and socioeconomic scenarios developed for Finland. Recreation participation models have been developed on data from the national inventory of outdoor recreation (LVVI). The models represent those activities, which were found to be the most sensitive to changes in climate conditions. These activities are winter activities, which are dependent on natural snow cover (cross-country skiing, downhill skiing and snowmobiling), and also summer activities which are related to warm temperature and sunshine conditions (swimming in natural waters). Based on these models, a decrease in participation rates and days are estimated to occur in winter activities, particularly in cross-country skiing and snowmobiling as expected consequences of climate change. Participation in downhill skiing is less sensitive to changes in climate conditions. As an example of summer activities, swimming in natural waters, seem to have an increase in participation associated with an increase in warm days, but a slight decrease caused by socioeconomic factors, particularly age structure. Beyond these model-based scenarios several other ways to adapt recreation behaviour patterns are identified and discussed: a) shifting to activities which are less sensitive to weather conditions, b) by travelling to more distant locations, and c) by investing on new types of recreation equipments with high-tech solutions in changed climate conditions.

The sustainable living project at OSU: A values approach to intelligent consumption of natural resources

Simon-Brown, Viviane M
Extension Forestry
Oregon State University
Corvallis OR USA

Email: viviane.simon-brown@oregonstate.edu

Keywords: sustainable living, intelligent consumption, ethics-based education

Abstract: "The long and short of the matter is that forest conservation depends in part on intelligent consumption, as well as intelligent production of lumber."

~ Aldo Leopold, 1928, "The Home Builder Conserves"

In a 1995 national telephone survey by the Merck Family Fund, 67 % of the respondents acknowledged that "Americans cause many of the world's environmental problems because we consume more resources and produce more waste than anyone else in the world." And 88% of Americans agreed "protecting the environment will require most of us to make major changes in the way we live." But the same survey showed that Americans really don't know what the specific ecological implications of their lifestyles are, and don't know precisely what to change.

At Oregon State University and other land-grant institutions, we focus our educational efforts on teaching students to professionally manage natural resources. However, as population, economic and consumption pressures increase, helping consumers take a thoughtful approach to understanding their cultural, economic and environmental ethics and addressing their responsibilities as consumers of natural resources, become viable educational tools.

Intelligent consumption is about managing ourselves. It is based on personal values, ethics and beliefs that underlie decision-making. Considering the barriers to living sustainably, examining national trends, and determining personal priorities are integral components of educating the public about their consumer choices.

Since 1998, the Sustainable Living Project at OSU has been offering off-campus programming on intelligent consumption to typical American adults and older youth. Over 7,500 people have participated in workshops, and over a half million browsers have visited the website. In 2000, the Sustainable Living Project was

named as a national Flagship Program by the Cooperative Extension Service.

**An assessment of forest management
stakeholder advisory committees: case studies
from Manitoba, Canada**

Sinclair, John
Natural Resources Institute
University of Manitoba
Winnipeg MB Canada R3T 2N2

Alan Diduck
Environmental Studies Program
University of Winnipeg

McGurk Brett
Natural Resources Institute
University of Manitoba

Email: jsincla@ms.umanitoba.ca

Keywords: Public participation, sustainable forest management, advisory committees, Canada

Abstract: The management of forests in Canada is evolving from a process that was largely bilateral and closed to one that is more inclusive and open. In an effort to test new approaches to public participation, many forest products companies have established advisory committees. Since there is little empirical evidence documenting advisory committee processes, our purpose was to determine the strengths and weaknesses of such processes. This was achieved by assessing the advisory committees of the three major forest product companies in Manitoba, Canada, responsible for managing over five million hectares of productive forest. Our approach was grounded and qualitative, involving standardized, semi-structured interviews with committee members. Results coalesce around both process and outcome strengths and weaknesses, such as multiple involvement techniques, information sharing and communication, and breadth of participant learning. While the results are mixed, the study confirms that the advisory committee approach has promise as a method of actively involving a select group of stakeholders in forest management.

**Social, demographic, and political
consequences of hurricanes: The case of
Louisiana after Katrina and Rita**

Singelmann, Joachim
Sociology
Louisiana State University
Baton Rouge LA USA 70803

Email: joachim@lsu.edu

Keywords: environmental protection, storm surge
technology, housing, race, southern politics

Abstract: On August 29, 2005, Hurricane Katrina made landfall as a Category 4 storm along the Gulf Coast near New Orleans, Louisiana. The storm created catastrophic damage along the coasts of Louisiana, Mississippi, and Alabama, including a storm surge that breached the levee system protecting New Orleans and led to widespread flooding in the city. Katrina stands to be the costliest natural disaster in the history of the United States and perhaps the greatest humanitarian crisis the nation has experienced since the Great Depression. With the residents of the region still reeling from Katrina, less than one month later, on September 24, 2005, Hurricane Rita made landfall as a Category 3 storm along the Gulf Coast near the Louisiana-Texas state border. Though of a lesser magnitude than Katrina, Rita, nonetheless, caused extensive damage throughout the region, particularly in the coastal parishes of southwestern Louisiana. This paper examines the consequences of the 2005 hurricanes Katrina and Rita on Louisiana, especially New Orleans. The destruction of the city has reduced New Orleans's population to about one-fourth of its pre-hurricane size. More importantly, the destruction differed by income level of racial composition of neighborhoods. The paper provides an overview of these changes and discusses possible rebuilding scenarios as well as their likelihood of implementation. Depending on which rebuilding plans are chosen, New Orleans and the state of Louisiana will have a very different social, racial, and political fabric from what existed in these places before the hurricanes.

**Recreational homes in the hinterland of urban
regions: Development and implications**

Skjeggedal, Terje
Not relevant
Eastern Norway Research Institute
Lillehammer Norway NO-2626

Tor Arnesen
Eastern Norway Research Institute

Email: Terje.Skjeggedal@ostforsk.no

Keywords: Second homes; Recreation; Industry;
Environment; Land use

Abstract: Norway has seen a substantial growth in numbers (doubled since 1970), standards and investments (mean sales values doubled since 1999) in recreational homes (second homes). Such a persistent development should be regarded as an essential manifestation entailed with implications for land use, society and nature. Locations and use of recreational homes are fairly well documented. Less is known about the forces, patterns and contingencies driving this trend. As a majority of recreational homes are rurally located, and owners are urban citizens, the trend changes rural-urban relationships in ways that calls for comprehensive studies. Growth and implications of recreational homes may be studied as basically driven by an "urban recreation sprawl". Urban citizens demand for recreational consumption creates markets for a recreational homes industry in the rural hinterlands. Strong private economies, advances in technology and mobility, and an ample supply of attractive areas are factors that seem to result in continued urban recreation sprawl ever deeper into rural hinterlands. This project identifies and characterises urban recreation sprawl patterns based on Oslo, Trondheim and Tromsø. Recreational homes and their users represent a market basis for potential growth in rural economies. We have study these markets and to what extent various regions have managed to exploit them. The growth in recreational homes presents also challenges relating to nature management, to environmental and sustainability issues as well as social issues. The aim is to suggest better management instruments and strategies to better enforce a "smart growth" direction on the underlying sprawl driving forces.

Forestry in the radical middle: Community based forestry in the U.S.

Sledge, Piper
Rubenstein School of Environment and Natural Resou
University of Vermont
Burlington VT USA 05401

Email: psledge@uvm.edu

Keywords: democratic forestry; social movements;
feminism

Abstract: Recent studies of community based forestry (CBF) have suggested that these groups occupy a radical middle position between dominant non-local interest groups (particularly the timber industry and environmental groups). By acting from a position that is dependent on the forest rather than existing at a distance from it, CBF provides an example of how we might restructure our interactions with nature and move beyond the dichotomies of interest group politics. Central to CBF is the notion that forest management must begin with those most closely tied to the forest. This shift in the location of decision-making carries with it a critique of expert knowledge and a new production of nature that moves away from traditional depictions of nature as feminine or in need of control. Drawing upon feminist and post-colonial theory, this paper will unpack the implications of the new human/nature relationship which stems from the themes suggested above. The author will explore the construction of CBF's position in the radical middle and will offer insight into the implications of CBF on social and institutional interactions with nature.

Birdwatchers and environmental concerns: An analysis of bird watching websites

Slowik, Madeline Gates
Sociology and Anthropology
Nazareth College
Rochester NY USA

Email: mslowik7@naz.edu

Keywords: birders; environmental advocacy;
environmental attitudes; website methodology

Abstract: Birdwatching has become one of the fastest growing outdoor pastimes in North America (Youth, 2000). In the U.S., there are 46 million birdwatchers according to a 2001 survey by the U.S. Fish and Wildlife Service – about one in five adults (LaRouche, 2003). Birdwatching is most often done locally, perhaps resulting in a heightened awareness of local environmental issues. Birdwatchers may also be concerned about global environmental issues. Most birds migrate seasonally and the integrity of both nesting and wintering habitats are important for their survival. In addition, some birdwatchers travel extensively to view birds. Thus, birdwatchers represent a sizable group of people – generally unrecognized and untapped – potentially concerned about environmental issues both locally and globally, and an important group to consider.

This paper presents an analysis of birdwatching websites to ascertain the level and type of environmental concerns of birdwatchers. Site analysis includes the entry (initial) sites along with all primary links, secondary links, and peripheral links. While much of the limited data about birdwatchers is based on survey research, website analysis provides another dimension. Gathering data from websites avoids accuracy issues of survey data, links identify potential networking, and the educational and socioeconomic level of birdwatchers (LaRouche, 2003) makes reasonable the assumption that these sites are designed for use by birdwatchers. The paper concludes with implications of this data for birdwatchers as a powerful advocate for local and global environmental concerns.

Abstract References

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Youth, Howard. 2000. "Watching vs. Taking." World Watch May/June:12-23.

The theory and practice of green purchasing

Smargon, Adam J
Natural Resources and Earth System Sciences
The University of New Hampshire
Durham USA 03824-3589

Email: adam.smargon@unh.edu

Keywords:

Abstract: Most purchasing departments evaluate suppliers on the four competitive dimensions of value: quality, dependability, flexibility, and cost. Now suppliers are being evaluated on another dimension: environmental responsibility, commonly known as green purchasing. As time progressed, purchasing evolved into new responsibilities; duties expanded from not only the acquisition of materials and inputs, but also responsibility for inbound logistics, quality management, and continuous improvement. Furthermore, purchasing became integral in marketing and management decisions.

The motivation for green purchasing comes from concerns about how environmental issues relate to the quality and future of people's lives. At the administrative level, however, green purchasing comes from a need to increase efficiency: reducing operational expenses, reducing demand for natural resources, and lessening environmental impact. A green purchasing coordinator makes informed recommendations about purchasing goods and services that conserve energy, minimize pollution and packaging, eliminate negative disposal impacts, and encourage reduction and reuse.

Because purchasing departments are required to negotiate and award all contracts, they can become the center for screening the environmental impact of all future goods and services, and the possibilities for outgoing waste. An environmentally sensitive contract should place an obligation, through the competitive bidding process, for sustainability with the contractor. Purchasing sustainable goods and services gives encouragement to producers with minimal environmental impact, and passively discourages producers with lesser regard to environmental impact.

Green purchasing can have a greatly reduced environmental impact with the change in purchase of paper and office supplies; computers, appliances, and other electronics; architecture, construction, and building materials; bathrooms, kitchens, and other high-use locations of water and plumbing; furnishings; chemistry classes; and other categories.

Spiritual, social, and economic perspectives on natural resource issues from black churchgoers in Miami, Florida

Smith, Eileen M
Social and Behavioral Sciences
Nova Southeastern University
Ft. Lauderdale FL USA 33314

Email: eilesmit@nsu.nova.edu

Keywords: African American; environment; religion; preservation; nature; activism; race

Abstract: In this qualitative study, perspectives of Black churchgoers on natural resource issues were shaped through spirituality and social identity. Many also perceived natural resource issues as related their own personal economic stability, health and success. Those who became activists on natural resource issues were driven toward goals of community empowerment. This study examined both what participants believed and felt about the natural resource issues around them, the origination of these beliefs, as well as the different ways in which many churchgoers acted on those beliefs. Natural resource issues addressed by these Black churchgoers included water conservation, land-use, overdevelopment, public access to public spaces, ecosystem restoration, resource consumption, native plants, pollution, agricultural practices and resource stewardship. Participant observations and interviews were performed over two years throughout Miami-Dade County in Black churches and at environmental projects spearheaded by their members. This research demonstrated how perspectives and actions related to natural resources were strongly influenced by Biblical references and spiritual beliefs, by churchgoers' early connections to the outdoors, and by perceived personal and community benefits related to the natural resource issues.

A wolf at my tent: Exploring the social ecological systems of human-wolf interactions in a coastal Canadian National Park

Smith, Jennifer B
Outdoor Recreation, Parks and Tourism
Lakehead University
Thunder Bay ON Canada P7B 1P1

Email: jenniferbsmith78@yahoo.ca

Keywords: wildlife; recreation; parks and protected areas; resource management; attitudes; meanings;

Abstract: Human-wildlife conflicts have become an internationally recognized concern for management agencies and stakeholders of parks and protected areas. In recent years, people's impacts on the environment and on wildlife within parks worldwide have become common research themes, but until now, have been unexplored in Pacific Rim National Park Reserve.

In the Broken Group Islands Unit of Pacific Rim National Park Reserve, there are increasing accounts of human-wolf interactions due to the recent migration of wolves (*Canis lupus*) into the area. These wolves have begun exhibiting less wariness of humans and are learning to forage for food in areas frequented by paddlers. In this island environment, paddlers constitute a significant 95% of the total user group, a highly influential group worthy of study. This situation has prompted park management to explore the human dimensions of wildlife with the intention to reduce risks to both people and wolves.

In response to this need, my MES research used a social ecological systems approach to investigate paddlers' attitudes and perceptions of wolves. Understanding the dynamics of how our social systems interact with and among the diverse array of ecological systems is a key component of understanding the importance of habitat conservation for the continued maintenance of biodiversity.

My MES research used this cutting-edge approach to address the current inter-species conflicts that are occurring in the Broken Group Islands Unit. This research will provide insight into the complex dynamics at play in wolf-human interactions within Pacific Rim National Park Reserve and in parks and protected areas worldwide.

Improving land use planning: The use of visual simulation software to model future land use change

Smith, Michael
Dept. of Environmental and Natural Resource Scienc
Humboldt State University
Arcata CA USA 95521-8299

Steven Steinberg
Dept. of Environmental and Natural Resource Scienc
Humboldt State University

Email: michael.smith@humboldt.edu

Keywords: environmental planning; population growth; growth management

Abstract: The loss of open space lands in the face of population growth and development pressure is one of the most contentious issues in high-amenity communities today. This research reports on the use of a computer software package to model future population growth and land-use change in a high-amenity county in the western United States. Residents and public officials in Humboldt County, California have expressed widespread agreement that they desire to protect the county's working agricultural, timber, and other open space lands in the face of future population growth. This project utilizes satellite photography, global positioning data, population growth projections, and existing development policies to construct and visually display various development scenarios that for how the county can accommodate future development.

Assessing ‘enabling’ outcomes for regional natural resource management

Smith, Timothy F
Resource Futures Program
CSIRO Sustainable Ecosystems
Brisbane Australia 4067

Lionel V Pero
Resource Futures Program
CSIRO Sustainable Ecosystems

Geoff McDonald
Resource Futures Program
CSIRO Sustainable Ecosystems

Bruce Taylor
Resource Futures Program
CSIRO Sustainable Ecosystems

Email: Tim.Smith@csiro.au

Keywords: monitoring and evaluation, NRM, regional governance

Abstract: The success of natural resource management (NRM) is largely defined by an improvement in the condition of one or more natural assets. However, NRM is a social process, where those asset improvements are dependent on the capacity of society to have positive impacts. The results of a three-year multi-institutional project on healthy regional planning systems (through benchmark reports and a case study on community engagement) show that no regions in northern Australia have adequately committed to the monitoring and evaluation of attributes needed to ‘enable’ on-ground outcomes. Australian regions, through the new regional arrangements, are in a position to be able to jointly monitor and evaluate both on-ground outcomes, as well as ‘enabling’ outcomes through systematic monitoring of institutional processes and other capacity attributes (eg. through performance indicators and targets). Improved capacity for NRM may be further enhanced through: (i) mechanisms to promote knowledge sharing among NRM practitioners; (ii) clarification and transparency in roles and responsibilities within NRM institutions; (iii) balancing reactive and proactive institutional approaches; and (iv) mechanisms to improve the link between NRM facilitators and decision makers.

Stakeholder response to landscape and biodiversity scenarios in mountain areas: Results from a European cross-country study

Soliva, Reto M
Landscape and Society
Swiss Federal Research Institute WSL
Birmensdorf Zurich Switzerland 8903

Katrina Ronningen
Centre for Rural Research
NTNU Trondheim, Norway

Email: reto.soliva@wsl.ch

Keywords: Agricultural decline; Perception; Visualizations; Land abandonment; BioScene; Uplands of Europe

Abstract: In many mountain areas across Europe, agriculture has been declining over the last decades, which has led to changes in the landscape and biodiversity of these areas. There are several partly opposing policy, economic and societal trends with far-reaching consequences for mountain areas. Local stakeholders assess these trends in various ways. In this paper we present different scenarios for the year 2030 that take account of these main trends and their likely consequences on the landscape and biodiversity in six mountain study areas across Europe: Scotland, France, Switzerland, Norway, Slovakia and Greece. The scenarios were rated and discussed by stakeholder panels in these locations.

The aim of the paper is to explore the ways in which local stakeholders advocate and assess these scenarios, and the priorities, values and preferences, which these discussions have revealed. We also explore the role of different dimensions of scenario assessment: how do stakeholders in different countries weight the visual landscape impacts, the livelihood and biodiversity aspects of the scenarios in their assessment, and what may be the reasons for their prioritising? We further identify which scenarios have cross-country support and provide explanations for the strength of, or lack of support for different scenarios in different regions.

Although the stakeholder panels partly differ in their assessment of the scenarios, the analysis of the discussions has revealed some common ground: most stakeholders are in favour of a multifunctional, environmentally friendly agriculture that ties in with local traditions and culture and makes use of local resources. They reject scenarios of agricultural liberalisation and managed rewilding, which points to the necessity of a dialogue between rural stakeholders

and urban and scientific stakeholders, who increasingly demand areas of dynamic nature.

Biomass energy policy: From grain to cellulosic ethanol

Solomon, Barry D
Social Sciences
Michigan Technological University
Houghton MI USA 49931

Justin Barnes
Social Sciences
Michigan Technological University

Kathleen E Halvorsen
Social Sciences/Forest Resources & Environ Science
Michigan Technological University

Email: bdsolomo@mtu.edu

Keywords: economics, renewable resources, climate change

Abstract: The United States and Brazil are the two leading producers of fuel ethanol. U.S. policies since the 1970s have supported the production and use of grain-based ethanol, primarily from corn. Policy support has included exemption from the federal gasoline excise tax, whole or partial exemption from road use (sales) taxes in several states, a federal production tax credit, and a federal blender's credit. In recent years the subsidization of grain-based ethanol has been increasingly criticized as economically wasteful and of questionable social benefit. In addition, much greater production of ethanol from corn may conflict with food production needs. An exciting new development has been the acceleration of the technical readiness of cellulosic alcohol fuels, which can be produced from the woody parts of plants, switchgrass, or waste materials. This technology is ready to be commercialized in the next few years and has greater long-term potential than grain ethanol. Cellulosic ethanol has the potential to be more cost-effective, environmentally beneficial, and have a greater energy output/input ratio as the technology matures. The technology is being developed in North America, Brazil, Japan and Europe. In this paper we will review the evolution of U.S. federal and state energy policy support for the production and use of alcohol fuels from biomass. In addition, the Conservation Reserve Program, public land management policies, and private forest certification programs affect feedstock availability. The various energy and economic policies will be reviewed and assessed for their potential effects on cellulosic ethanol development.

Scuba diver preferences for coral reef management

Sorice, Michael G
Department of Wildlife & Fisheries Sciences
Texas A&M University
College Station TX USA 77843-2258

Chi-Ok Oh
Department of Parks, Recreation and Tourism Manage
Clemson University

Robert B Ditton
Department of Wildlife and Fisheries Sciences
Texas A&M University

Email: msorice@tamu.edu

Keywords: ecotourism, marine, outdoor recreation

Abstract: Marine protected areas increasingly are challenged to maintain or increase tourism benefits while adequately protecting resources. Increasing attention has been directed toward the negative impacts of recreational scuba diving on coral reefs in protected areas. While research on carrying capacity suggests various strategies resource managers can employ to cope with use-related impacts, there is little understanding of the divers themselves, their preferences for management regimes, and their willingness to support conservation. Using a stated preference choice modeling approach, this study investigated choices divers make between hypothetical diving trips to marine protected areas as defined by use level, access, level of supervision, fees, conservation education, and diving expectations. A fractional factorial design was used to create 72 choice sets that were administered to divers recruited online and at an underwater sports exposition. Both a conditional logit and random parameters logit showed that divers actually preferred a more restrictive management scenario over the status quo. Divers favored a reduction in the level of use at a site and an increased amount of conservation education. Divers did not favor paying a fee to access a protected area, having decreased access to the resource, or being subjected to a high level of supervision. Finally, divers were much more willing to accept increasingly restrictive management scenarios when they could expect to see an increased amount of marine life during their dives. While our study measured values relating to dive trip satisfaction, there may be some overlap with conservation values because our sample had characteristics similar to conservation-oriented resource users. Regardless, by accounting for tradeoffs divers are willing to make, this research provides much greater insight than previous research. Resource managers can

relate these preferences to the conservation values espoused by a marine protected area.

Clean water is just good business: Measuring environmental behavior change among businesses

Souto, Leesa A
Sociology
University of Central Florida
Melbourne USA 32901

Brent Marshall
Sociology
University of Central Florida

Email: Lsouto@mail.ucf.edu

Keywords: pollution prevention; evaluation; social incentives; responsible behavior; social indicators

Abstract: The City of Cocoa Beach sits on a barrier island between the Atlantic Ocean and the Indian River Lagoon on the East Central “Space” Coast of Florida. Cocoa Beach is only 6 miles long and less than a mile wide. With little land available for stormwater treatment and an antiquated stormwater conveyance system, the City is faced with the challenge of reducing nonpoint sources of water pollution at the source – each individual action.

The Cocoa Beach Green Business (CBGB) Pilot Project goal is to reduce the amount of nonpoint source water pollution that enters the Indian River Lagoon from business related illicit discharges. Objectives to reaching the goal include identifying barriers and benefits to behavior change, raising awareness about pollution prevention techniques, committing businesses to the effort, using motivational incentives, and encouraging consumer support. CBGB evaluation compares pre- and post- knowledge change, attitude change, and self-reported behavior change. This research examines how community attachment, environmental activity, knowledge, and demographic variables affect environmentally responsible behavior and how these data are utilized within the context of the CBGB program evaluation.

Pacific Rim National Park reserve: Integrated social-ecosystem research model

Sparkes, Jennie
Environment Canada
Parks Canada
Sidney BC Canada

Bob Hansen
Environment Canada
Parks Canada

Email: jennie.sparkes@pc.gc.ca

Keywords: social-ecological systems
carnivores
residents
visitors

Abstract: This presentation would focus on presenting the social-ecological system model that was developed to conduct human-carnivore research at Pacific Rim National Park Reserve. The goal of the research is to be able to develop better targeted communication, visitor management and wildlife management practices so to enable both carnivores (wolves and cougars) and humans to co-exist within this small national park. The research model was designed by an interdisciplinary team of social and ecosystem scientists and practitioners and reflects one research problem being examined on both the human and wildlife fronts through a series of simultaneous social science and wildlife research projects. The purpose of collecting these streams of research data simultaneously has been to better understand the dynamics within the human and ecological systems that influence the emerging behaviours within both humans and carnivores.

Testing individual land-use decision making in an agent-driven virtual environment

Spottiswood, Lucy A
Department of Geomatics
The University of Melbourne
Melbourne Victoria Australia 3010

Ian D Bishop
Department of Geomatics
The University of Melbourne

Email: l.spottiswood@pgrad.unimelb.edu.au

Keywords: agent-based modelling, computer visualisation, land-use change

Abstract: The development of effective rural land-use policy requires a thorough understanding of the factors that drive land-use decisions at the individual farm level. A virtual decision-making environment has been developed that can be used to investigate the responses of individual land managers to a range of external conditions. The system consists of an agent-based model (ABM) running within a geographic information system (GIS) which is linked to a computer visualisation that displays, in real time, the land-use changes made in the GIS. Each computer agent in the ABM represents an individual farmer who makes a land-use choice each year based on a variety of environmental, economic and social factors. A human participant replaces one of the computer agents, and makes land-use choices based on information provided via a simple database and computer visualisation. Participants operating in the virtual environment will not only be influenced by the content of the information presented, but also by the mode of presentation. This research will investigate the extent to which individual responses in the virtual environment are influenced by both of these aspects. Two elements of the system will be tested, the social component, as represented by the ABM, and the visualisation component. Participants' responses will be compared when they are provided with varying levels of social context (no ABM, ABM, ABM and additional information) and when the information is presented using different modes of visualisation (eg. 2D v 3D, dynamic v. static, high resolution v. low resolution). This paper will outline the results of an initial pilot study and proposed further testing of the system.

Understanding individual trade-offs and resource management alternatives through time: A case study in the southeast Yukon

Spyce, Amanda
Department of Rural Economy
University of Alberta
Edmonton AB Canada T6G 2H1

Vic Adamowicz
Department of Rural Economy
University of Alberta

Marian Weber
Alberta Research Council

Email: aspyce@ualberta.ca

Keywords: Indicators; Choice Experiments; Inter-temporal Modeling; Aboriginal and Northern communities

Abstract: Resource managers and planners would benefit from improved understanding of the tradeoffs associated with alternative development projects, especially in light of potential conflicts with traditional land uses and habitat sensitivity. This project aims to develop a better understanding of the inter-temporal preferences for land use alternatives and development trajectories in the Southeast Yukon. The information will then be integrated into a large scale simulation model as preference weights that should enable decision makers to understand and incorporate the tradeoffs associated with alternative projects.

The research utilized focus groups and expert consultation to design a choice experiment survey that quantifies tradeoffs between a set of indicators. The choice experiment section asked participants to vote for a development trajectory: the current path, or an alternative. Each development path was described by four attributes over three time periods (up to 100 years). The four attributes were regional population, the percentage of local residents who have jobs, the number of moose (an indicator of wildlife populations), and the fish catch rates (an indicator of aquatic ecosystem health).

The data analysis provides information on attribute tradeoffs and implicit rates of time preference. A conditional logit model, modified to account for the temporal choices, provides estimates of preferences and the variability of preferences over various groups in the Yukon.

The novel components of this research include the administration of a temporal choice experiment and the elicitation of Aboriginal and non-Aboriginal preferences over land use options.

Exploring racial discrimination in parks: An empirical study

Stanfield McCown, Rebecca E
Rubenstein School of Environment and Natural Resou
University of Vermont
Burlington VT USA 05405

Robert E Manning
Rubenstein School of Environment and Natural Resou
University of Vermont

Megha Budruk
School of Community Resources and Development
Arizona State University

Mryon Floyd
College of Natural Resources
North Carolina State University

Email: rstanf1@uvm.edu

Keywords: National Parks; Race; Ethnicity

Abstract: Research dating back to the 1960s has reported under-representation of racial and ethnic minorities in outdoor recreation. There are three hypotheses to explain such under-representation. The marginality hypothesis purports that historic discrimination has left minorities without economic or educational resources to visit parks and related areas. The subculture hypothesis suggests that traditional recreation areas maybe outside the cultural value system of racial and ethnic minorities. The discrimination hypothesis suggests that overt and/or institutional discrimination may discourage minorities from visiting recreation areas. The discrimination hypothesis has been advanced relatively recently and has received little empirical testing. This study explores the discrimination hypothesis by measuring 1) how visitor perceptions of crowding are affected by the racial composition of other visitors encountered, and 2) visitor attitudes toward management actions designed to address under-representation of racial and ethnic minorities in parks and recreation areas.

The research objectives outlined above were addressed through design of a survey questionnaire and administration of the survey to park visitors in the Pittsburgh city parks. The survey questionnaire included 3 sets of photographs showing a varying mix of White and Black visitors. Each set had a series of 5 photographs illustrating a range of use densities along a generic section of trail. Respondents were asked to rate the acceptability of each photograph in a single set, and the resulting data were used to test for existence of racial

discrimination. Respondents were also asked attitudinal questions from the General Social Survey to allow for comparison of our sample with the general population. Other components of the questionnaire included respondent attitudes toward management actions designed to address under-representation of racial and ethnic minorities in parks, and broader racially-related attitudes and experiences. Study findings show few differences among acceptability of the photographs with varying mixes of White and Black visitors. The implications of these findings may be to focus on reasons other than discrimination to explain racial and ethnic minority under-representation in national parks.

Sense of place epistemology and ontology in search of an analogy: Standing at a crossroads? Or fitting together the pieces of the puzzle

Stedman, Richard C
Pennsylvania State University
University Park PA USA

Email: rstedman@psu.edu

Keywords:

Abstract: Recently, there has been a spate of attention on the relative utility of different approaches utilized in the study of sense of place, with some suggesting the utility of conventional positivist models, others advocating for holistic, non-reductionist approaches, and others suggesting that the need for a convergence of approaches.

Rather than dealing in broad generalizations, this paper outlines some of the major issues in sense of place inquiry and attempts to locate them in this debate. These issues include: the linkage between sense of place and community; the utility of “component” or attribute-based models (in the context of others who emphasize the totality of place; the role (if any) for the material environment in the production of place; and the importance and nature of place meanings.

For which questions is the area of inquiry broad enough to accommodate multiple approaches? Under what circumstances should these be seen as “competing” and when should they be seen as complementary?

Managing recreation on the North Shore -- responding to a change in demand for trail use: diagnosis and recommendations

Stegemann, Andrew P
School of Resource and Environmental Management
Simon Fraser University
Vancouver BC Canada V7M 2L4

Email: apstegem@sfu.ca

Keywords: Outdoor Recreation; tourism; public participation; collaboration; municipal planning

Abstract: Above the residences of Vancouver's North Shore, a mass of trails cross through a forested mountain setting. A changing pattern of demand for the trails have caused user volumes to increase and skew towards mountain biking. The results have been increased pressure on environmental and social conditions in the area. This study examines the history of trail use across the North Shore, identifying a number of emerging issues including degradation of wilderness, conflict between users, public safety concerns, and a greater need for cooperation. The response to these issues by land management agencies is outlined and assessed against a wide body of literature. While this diagnosis reveals a number of positive management objectives being implemented across the North Shore, a number of areas that could be improved are also discovered. Mostly, there is a need for increased levels of cooperation between the stakeholders involved. Fortunately, the analysis of current management objectives on the North Shore reveals increased momentum towards participatory processes to meet this need. By harnessing this momentum, it is suggested that management agencies across the North Shore implement a stakeholder partnership to collaboratively manage trail use. Even in conditions that are socially and environmentally complex, innovative management such as this has been shown to increase incentives for cooperation between all stakeholders resulting in planning and management that better achieves sustainability in the long-term.

The Swiss national research programme landscapes and habitats of the Alps

Steiger, Urs
Swiss National Research Programme «Landscapes and
Swiss National Science Foundation
Luzern Switzerland 6003

Email: u.steiger@bluewin.ch

Keywords: Landscape, Sustainable development, Alps, perception, change,

Abstract: The cultural and ecological diversity of the Alps are crucial foundations for agriculture and tourism in the Alpine region. However, increasingly the Alpine regions are prey to far-reaching alterations, climate change being partly to blame, as are the increasing consumer and conservation demands of a growing number of people. At all times and on all sides, the call for true wilderness contrasts with demands for instantaneous, easy-to-consume 'adventure experiences'. The needs and development plans of the inhabitants are caught between the two poles, and risk being submerged.

The NRP 48 National Research Programme «Landscapes and Habitats of the Alps» provides answers to the following key-question: What developments are discernible, socially desirable, ecologically sound and economically viable. In short: What does sustainable development in the Alpine area mean, and what is needed to set it in motion?

From the point of view of the humanities and social sciences and the natural sciences the NRP 48 analyses the following key-questions in the 35 research projects: How do people perceive landscapes and habitats? How and why are landscapes and habitats of the Alps changing? How can joint objectives be agreed and achieved for the development of Alpine landscapes and habitats? What is the economic value of these landscapes and habitats? How can landscape development be directed from an early stage?

Taking into consideration the importance of research results for practical activity in the Alpine regions, NRP 48 accentuates the transdisciplinary approaches of the research. The stage of intensive research of the NRP is completed. During the phase of synthesis in progress, the results of the projects will be grouped in five thematic syntheses and transposed as recommendations for practical action.

The aim of NRP 48 is to yield results that are applicable not only to Switzerland, but to the entire Alpine region. Collaboration and exchange with parallel research endeavours on the European and international forum guarantees that the various research initiatives in Switzerland are made available to EU and international programmes.

Pathways: A multi-layer cognitive mapping instrument for researching environmental experience

Steven, Michael L
Faculty of Architecture
University of Sydney
Wellington New Zealand 6001

Email: mike.steven@xtra.co.nz

Keywords: recreation; visitor experience; environmental perception

Abstract: Pathways is a multi-layer cognitive mapping instrument developed for researching the 'sensemaking' experiences of recreationists on short duration nature trails within natural environments. The poster introduces the philosophical and methodological origins of Pathways, specifically the work of Denis Wood (Wood & Beck, 1976) and his Environmental A experimental mapping language. The protocols for its application in the field are introduced and some examples of completed Pathways maps are illustrated. A brief introduction to the analysis of Pathways data is provided.

Some procedural and analytical issues arising from the use of the instrument are highlighted, together with some suggestions for the further development and application of the Pathways instrument. While developed for researching the experience of natural environments, Pathways has potential application across a broad range of environmental contexts.

Social learning through public dialogue about place

Stewart, William
Recreation, Sport, and Tourism
University of Illinois
Champaign IL USA 61821

Troy Glover
Recreation and Leisure Studies
University of Waterloo

James Barkley
Recreation, Sport, and Tourism
University of Illinois

Kevin Reader
Recreation, Sport, and Tourism
University of Illinois

Email: wstewart@uiuc.edu

Keywords: participatory action research, conservation, decision making process

Abstract: The process of landscape change elicits divergent reactions from citizens within any locale. Community groups hold distinct visions for relationships between themselves, their landscapes, and growth of their community. Understanding these visions is central to develop a community-based model of landscape change, and understanding stakeholder ability to learn other visions besides their own is an important step in advancing community-based planning. Many scholars have argued for a civic science, and championed approaches to inquiry that allow people to express aspects of their lived experiences to others, that potentially leads to social learning. The objectives of this study involve understanding relationships between public dialogue about place meanings and social learning. The study was focused on a mid-size metropolitan area within central Illinois that is rapidly growing, expanding into agricultural lands, and generally concerned about open space and restoring native prairie. Participants were recruited from a park district advisory committee that met on a monthly basis and represented a diverse cross-section of neighbourhoods within the community. Photo-elicitation was used as a method to identify place meanings. Focus groups (or learning circles) were conducted with two sets of participants to share their meanings. During and after the focus group processes, participants' were assessed for revisions to their place meanings. Preliminary results indicate that such revisions included incorporation of others' place meanings into one's own, changes in one's view of the

others' intentions, and increased understanding of place meanings other than one's own. There remains a strong need for landscape planners to facilitate ways in which citizens can express values about landscapes. In addition, there is a need for forums that allow public dialogue about meanings of landscape change. Photo-elicitation coupled with learning circles is a promising strategy for consideration and assessment in this role.

Stakeholder perspectives on barriers and opportunities to converting woody biomass to energy in Oregon

Stidham, Melanie A
Department of Forest Resources
Oregon State University
Corvallis OR USA 97333

Email: melanie.stidham@oregonstate.edu

Keywords: small diameter tree utilization; rural economic development

Abstract: Within Oregon there is considerable interest in the possibility of converting woody biomass to energy. This interest is primarily driven by the desire to reduce the threat of wildfire by removing excess material from the forests. An important secondary driver is to stimulate rural economies that are dependent on forest products. There have been a number of studies to assess the feasibility of wide-scale conversion of biomass to energy. These studies have largely focused on technical barriers to the use of biomass for energy rather than social barriers. Our study seeks to confirm reported barriers and opportunities as well as add social context to the discussion of technical barriers through stakeholder interviews. This study was exploratory in nature, using a semi-structured interview format. Thirty interviewees were purposively selected from the following Oregon stakeholder groups: federal and state agencies, elected officials, rural communities, environmentalists, forest industry, Tribes, energy utilities and energy non-governmental organizations. Interview topics consisted of five thematic areas: current forest conditions; definitions of commonly used terms such as biomass, bioenergy and forest health; opinions on barriers and opportunities to converting biomass to energy; management strategies needed to implement biomass projects; and predictions on the future of a biomass industry. This work is part of a larger effort whose primary purpose is to consolidate existing information on biomass utilization in Oregon.

Intersectionality and skiing: Class, gender and ethnicity in nature tourism and outdoor recreation

Stoddart, Mark C
Anthropology & Sociology
University of British Columbia
Vancouver BC Canada V6T 1Z1

Email: mcjs@interchange.ubc.ca

Keywords: outdoor recreation; tourism; landscape; social justice; gender; ethnicity; class

Abstract: In this paper, I explore how environmental sociology has dealt with the intersection of gender, class and ethnicity as factors related to social power and inequality. The notion of “intersectionality” has become increasingly salient in recent years. Instead of debating whether class, gender, or race is the primary factor related to social power and inequality, sociologists increasingly recognize that these factors work together in complex ways to shape social life. I also discuss how my own research on skiing as a social practice may be informed by an intersectionality perspective that takes class, ethnicity and gender seriously. Skiing is an interesting site of research because it is an important part of the North American outdoor recreation and nature tourism economy. This “attractive” economy has been linked to environmental politics in public discourse about “sustainable development.” Given the general absence of a critical analysis of outdoor recreation and nature tourism, a sociology of skiing should prove to be valuable. Through this paper, I will demonstrate that an analysis of skiing as a social practice can be enriched through an engagement with the notion of intersectionality.

Angler preferences in the Omineca region, British Columbia, Canada

Stussi, Steven H
Resource Recreation and Tourism/Fish and Wildlife
University of Northern British Columbia
Prince George BC Canada V2N 4Z9

Patrick T Maher
Resource Recreation and Tourism
University of Northern British Columbia

Email: stussi@unbc.ca

Keywords: recreational fishing; outdoor recreation;
access; days fished; crowding

Abstract: Trends in angling and fisheries management are dynamic over time, and new information is frequently needed to achieve management and conservation objectives. Understanding angler preferences and behaviors can help to manage a sustainable fishery, while meeting the needs of the angling public. This information also provides valuable insight into the human dimensions of nature-based recreation. In this study 20000+ anglers holding licenses in the Omineca region were utilized to assess preferences and distribution. Questionnaires, including a combination of multiple choice tick boxes, scaled tables, and open ended questions were mailed to a random sample of 929 anglers. Questions were formulated with input from staff at the Ministry of Environment – Omineca regional office in Prince George, BC. The following questions outline some of the information sought from anglers: Where in the Omineca region do they expend their effort and where do they prefer to fish? What species do they target and at what times of the year? What factors influence the location and timing of their fishing trips, as well as the quality of their experience? What type of fishery is most desired; stocked or wild? Is there a trade-off between fish size and catch rate? The aim of the study was to provide fisheries managers in the Omineca region with information that would allow them to better focus their management efforts through these specific questions about angler preferences. Thus, potential declines in populations and conflicts with the angling public may be prevented. This study is underway at present, and thus results are not available for the abstract, but will be available for presentation.

The eroding(?) Legacy of literary giants in the land: Exploring the relationship between communities, historic sites with literary significance, and manager goals & objectives

Styles, Margaret
Interpretation
National Park Service
Danville CA USA 94526

Email: margaret_styles@nps.gov

Keywords: heritage tourism; public history; stakeholder
outreach; community persona; theatre appreciation

Abstract: Approximately 57 American literary figures are commemorated at individual protected homesites in the United States (Burke, 1998). Some of these sites are similar to Eugene O'Neill National Historic Site (NHS) in that they commemorate Pulitzer and Nobel Prize winners. Some of these sites have a vital connection to the local community, both economically and in terms of the community's sense of identity, while other sites struggle to maintain relevance to the local population.

Eugene O'Neill NHS lacks active stakeholders from the Danville community. The level of site awareness and the meanings the community ascribes to the site is currently undetermined, yet the lack of local visitation and the absence of community public relations efforts point to an underlying disconnect between the community and the historic site.

The purpose of this study is examine community–literary site relations at approximately 15 protected literary homesites in the U.S., paying particular attention to the factors that influence community relations and the strategies literary sites use to strengthen community relations. The study will also explore the meanings, significance and degree of place attachment ascribed to Eugene O'Neill NHS by the current Danville community, and, if possible, reasons for changes that have occurred over time. A combination of phone and focus group interviews were used to elicit site manager and local stakeholder perceptions. Themes that emerged from the literary site interviews and the focus groups involving Danville community residents will be presented in conjunction with a discussion regarding implications for site management.

Spatial analysis of crime statistics in Chicago urban parks: A comparison between Crimestat iii and Arcgis.

Suau, Luis J
Tourism, Recreation and Sport Management
University of Florida
Gainesville FL USA 32614

John J Confer
Tourism, Recreation and Sport Management
University of Florida

Email: luisj@ufl.edu

Keywords: Geostatistics, GIS, Crime, Urban parks

Abstract: Given the increased level of concern in American society with safety and security it is not surprising that these issues have escalated in importance for park and land managers. Spatial analysis of crime statistics has been of interest to police and city planners to better understand causes and distribution of criminal activities. Recently there has been a growing recognition by park, recreation and land managers that crime in parks is a constraint to visitors and an impact on visitor satisfaction. GIS has been utilized to understand relationships between crime densities and patterns. Programs like ArcGIS have been proven effective to spatially represent these relationships but these multipurpose systems are expensive and require extensive training to use. There are however simpler and low-cost programs, like CrimeStat III which can produce similar results.

There were two main purposes, to ascertain if crime and neighborhood demographics are spatially related to parks location and if a shareware program such as Crime Stat might perform as well as a traditional full-function GIS software system. This study utilized publicly available crime data from areas around the parks of Chicago, IL for the last 5 years. The data was compared to the areas' socio-demographic makeup to determine if a relationship with these characteristics exists. Further analyses were completed to identify any trends from 2000 to 2005 in crime distributions adjacent to selected parks and open-space. Finally, all of the analyses were repeated using both ArcGIS and Crime Stat to compare the processes and results.

Changing property rights in floodplain fisheries in Bangladesh

Sultana, Parvin
Flood Hazard Research Centre
Middlesex University
Enfield London United Kingdom EN3 4SA

Email: parvin@agni.com

Keywords: community based management, integrated floodplain management

Abstract: Much of the floodplains of Bangladesh are private farmland, but for centuries in the monsoon season deeply flooded areas have been a common pool fishery where the poor could fish. In recent years since hatchery produced carp fingerlings became available, rich land owners tend to enclose areas to culture fish during the monsoon season. In addition landowners increasingly control the capture fishery by digging ditches in their land to trap fish as floods recede and then dewater the ditches to catch all the fish. In 1990 in one area 50% of the fish consumed by landless households reportedly came from their own floodplain catch, by 1999 this fell to 10% as these areas were converted to more intensive private uses.

Two approaches to develop group or community rights over these fisheries and enhance productivity are reviewed. One 250 ha floodplain is a common pool fishery accessed by all local households. Since 1997 community based management has been piloted by creating small sanctuaries and reaching agreement that nobody would fish during the breeding period, consequently fish catches have increased. In 2005 catches increased by 23% when many farmers agreed to change to less water hungry crops in the dry season so that more water would be left for fish, this increased productivity of both private land and the common fishery.

Increasingly group-based culture fisheries are practiced in the monsoon: the initiators of this typically sell shares to the other landowners, but disputes over management mean this is often a stop-start practice. In eight small floodplains NGOs organized landless people to stock carps in moderate to deeply flooded rice field areas through share agreements with the landowners. Because the landless participants had rights over the fish, they delayed all fishing so in addition to the cultured fish the catch of wild fish (120 kg/ha) was higher than in similar control sites (50 kg/ha) which were over-fished. Consequently participants had higher fish consumption. However, seeing these profits in subsequent years the landowners excluded the landless, suggesting that

management approaches that have higher expenditures and profits are more likely to be captured and controlled by the better off landowners.

Why do people drop out of fishing, and how can we get them back?

Sutton, Stephen G
Tropical Environment Studies and Geography
James Cook University
Townsville Queensland Australia 4811

Kara Dew
QLD Dept of Primary Industries and Fisheries

Email: stephen.sutton@jcu.edu.au

Keywords: fisheries; angling; drop-out; displacement

Abstract: Between 1996 and 2004, the percent of the population in Queensland, Australia participating in recreational fishing declined from 28.1% to 20.6%, and the number of active recreational fishers in the state declined from 882,200 to 733,400. These statistics indicate that people are being displaced from recreational fishing in Queensland and are not being replaced with new recruits to the activity. In 2005, a survey of Queensland residents who reported ceasing participation in recreational fishing was undertaken to understand constraints on fishing participation, reasons for discontinuation of fishing, and factors that would influence former fishers to resume participation. The most commonly cited reasons for ceasing participation were lack of time (26%), resource-related issues (e.g., not enough fish, poor quality of fish) (16%), loss of interest (15%), access issues (e.g., lack of access, lack of opportunities close to home) (10%), and social reasons (e.g., loss of fishing partner) (9%). Results suggest that ceasing fishing had little effect on overall level of recreation participation and overall recreation satisfaction for most respondents. About 50% of respondents reported a desire to fish more often; however, most did not believe it likely that they would participate in fishing in the following 12 months. The most commonly cited factors that would encourage individuals to resume fishing participation were more time (28%), resource improvements (more fish to catch, less commercial fishing) (21%), and finding someone to fish with (15%).

The Co-management of Climate Change in Coastal Communities in British Columbia: Social Capital, Trust and Capacity

Sydneysmith, Robin
Anthropology and Sociology
University of British Columbia
Vancouver BC Canada

Ralph Matthews
Sociology
University of British Columbia

Terre Satterfield
IRES
University of British Columbia

Nathan Young
Anthropology and Sociology
University of British Columbia

Email:

Keywords:

Abstract: This presentation provides an introduction and progress report of our project, “Co-management of Climate Change in Coastal Communities in British Columbia” (aka “C5 Project”). The effects of climate change and variation along the BC coast are already implicated in a number of ecological and social changes taking place in the region. We are currently interviewing key community decision makers and other “knowledge leaders” involved at the local or regional level. Interviews are intended to uncover “mental” or “cultural models (Kempton et al 1995) that describe perceptions and awareness of environmental change in general and climate change and variability in particular. Through a social capital and co-management lens the project will also look at the social, institutional and governance barriers and opportunities that affect the ability of communities to adapt or respond to climate change impacts.

The research builds on existing research on community resilience and social capital in the context of social, economic and environmental change. The research area encompasses three distinct regions of the BC coast and is focused on both civic and First Nations communities in each region.

Recreation impact assessment on the natural based recreational areas of Taiwan

Tang, Hsing-Fen
Leisure and Recreation Management
Asia University
Taichung Taiwan Taiwan 413

Chun-Yen Chang
Horticulture
National Taiwan University

Kuan-Chieh Sung
Horticulture
National Taiwan University

Ying-Hsuan Lin
Horticulture
National Taiwan University

Email: tangmail@asia.edu.tw

Keywords: Recreation, Impact, Assessment, Natural based

Abstract: This study analyzed the indicators of landscape ecological structure, the landscape spatial pattern, and the wildlife community structure, followed with the on-site survey of the natural environmental impacts due to the recreational activities. To depict the relationship between landscape ecological structures and natural environmental impact in the ecotourism areas.

The findings of the first year from the on-site investigations of soil compactness, vegetation cover, roots exposures, which were investigated in the next year. However, the preliminary survey of the bird investigation shows the Steer's Liocichla (*Liocichla steerii*) has the highest frequency observation rate in the high mountain area. From the visitors' interviews, visitors' cognition of crowding, too many traffics, over-development, few wildlife observed, and the bad landscapes of power lines and pipelines.

The relationships between landscape ecological structures were found. Under the hierarchy of 100 m investigation radius, the farmland, the waste land, and the built area were found to have significant relationship with the bird ecological indicators. Under the 50 investigation radius, only the grassland and the waste land have significant relationship with the bird ecological indicators. The Mean Patch Fragmental Dimension (MPFD) and its related indicators are good indicators in the indicator groups of landscape ecological structures in regard to the farm and grassland. It shows

multi-significant relationships with the bird ecological indicators.

Towards an understanding of legitimacy in conservation

Tanner, Randy J
Society and Conservation
University of Montana
Missoula MT USA 59801

Email: randy.tanner@cfc.umt.edu

Keywords: legitimacy, conservation policy, conservation philosophy,

Abstract: Over the past two decades, the global practice of conservation has often been characterized in terms of polarizing debates. These debates are often framed in terms of ideas such as preservation vs. utilization, technocratic vs. indigenous knowledge, national vs. local interest, and/or centralized vs. decentralized management of resources. While these debates have been helpful in marking important issues in conservation, in practice they may contribute little to the resolution of the challenges that conservation faces. In fact, by arguably perpetuating extremism, these debates may serve as a hindrance. Recognizing the inability of these ideas (e.g., preservation, utilization, centralization, etc.) to be practiced in their purest forms, conservationists have begun to call for “legitimate” modes of governance (see, e.g., “Beyond the Square Wheel,” Brechin, Wilshusen, Fortwangler, and West, 2002). Despite the importance of legitimacy, it has received relatively little attention within the context of conservation, and when attempts have been made to define or more thoroughly understand the concept, scholars have frequently relied upon only one or two epistemological traditions (e.g., Weberian sociological theory). In this presentation, I propose that there is much to be learned about legitimacy in conservation from a broad array of epistemological traditions including communication theory, democratic theory and deliberative democracy, human rights theory, law (international and domestic), political science, political philosophy, public administration, social psychology, and sociology. After exploring the idea of legitimacy within the context of these traditions and arriving at a conservation-relevant definition of legitimacy, I conclude by proposing that the framework of legitimacy – in opposition to the debates identified above – may serve as a more useful tool in confronting the governance-related challenges that conservation faces.

**Evaluating regional planning arrangements for
natural resource management: progress,
constraints and directions in northern
Australia**

Taylor, Bruce M
Sustainable Ecosystems
CSIRO
Brisbane Australia 4067

Geoff T McDonald
Sustainable Ecosystems
CSIRO

Tim Smith
Sustainable Ecosystems
CSIRO

Cathy Robinson
Sustainable Ecosystems
CSIRO

Sonja Heyenga
Sustainable Ecosystems
CSIRO

Suzanne Hoverman
Natural Resources, Mines and Water
Queensland State Government

Email: Bruce.Taylor@csiro.au

Keywords: watershed; evaluation; governance; planning system; regions; collaboration;

Abstract: A three-year program of evaluation has tracked the effectiveness of new regional arrangements for natural resource management in seventeen regions in northern Australia. These arrangements promote non-statutory 'regional bodies' as the focal point of integrating NRM efforts in regions through collaborative planning. Evaluation criteria explored contextual, structural, process and outcome-based aspects of these initiatives. Some of the more significant themes in the analysis include the impacts of political commitment, clarity of roles and responsibilities in regions, and, assumptions underpinning target setting for regional resource condition. Findings against the criteria have been used to inform adaptive management of policy, governance and planning practices underpinning these arrangements.

**An approach to more integrated planning and
management of tourism in natural areas: A
case study of the Catlins in New Zealand's wild
south east**

Taylor, Nicholas
Director
Taylor Baines and Associates
Rangiora New Zealand

Janet Gough
Taylor Baines and Associates

Email: n.taylor@tba.co.nz

Keywords: natural area tourism; management strategies; community planning

Abstract: Natural areas attract considerable tourism growth, with increasing public concern about managing the effects of tourism on natural areas and host communities. The focus of the research is development of a more integrated approach to planning and managing natural areas for tourism and related activities in New Zealand, adopting coordinated application of tools rather than the common focus on single tools to solve part of a complex problem. These tools include methodologies, frameworks, and responses to issues that arise in the contexts of integrated planning and management, including social, political and cultural contexts. The Catlins case study is one of four action-research studies used to develop and extend the integrated approach. The Catlins, encompassing an area in south-east New Zealand, has natural values including indigenous forests, a wild and varied coastline and marine wildlife. The case study analysed the strengths and weaknesses of particular tools, and practical aspects of capacity building relating to use of these tools to help implement a community strategic tourism plan across several small communities. Six sets of tools broadly inform the recognition and setting of limits to tourism growth and activity; processes around community participation in strategic planning; social, biophysical and cumulative impact assessment; valuation and allocation of natural resources for tourism; land-use and tourism planning; and marketing and interpretation to attract and direct visitors, modify their behaviour and enhance their experience. Together, the tools provide the basis for building community, industry and agency capacity to manage natural areas in a more integrated way for tourism.

Generalizability of onsite study results over time: A g-study of visitor motivations and preferences at the Kennecott National Historic Landmark

Taylor, Steve C
Resources Management
University of Alaska Fairbanks
Fairbanks AK USA 99775-7200

Peter J Fix
Resources Management
University of Alaska Fairbanks

Email: steviet@alaska.net

Keywords: EBM; National Parks; recreation experience preference scales; visitor management

Abstract: Recreation research often is undertaken to support planning in parks and protected areas. When research results are used as the basis for a management plan, the study must not only address management questions but also represent the users relevant to the planning timeframe. We applied principles from experience based management to gather information to support a facilities management plan at the Kennecott National Historic Landmark in Wrangell – St. Elias National Park and Preserve, Alaska and employed a generalizability study to assess the representativeness of study results over time.

The first phase of the study, summer of 2004, gathered data on visitors' motivations, (based primarily on REP scales), preferences for potential management actions, and trip characteristics. A K-means cluster analysis on responses to motivation statements revealed five unique groups of visitors (n=206), with differences on trip characteristics and management preferences.

The study was replicated in 2005 to assess the generalizability of study results. Utilizing generalizability theory and cluster profiling, results suggest the same five visitor types were present at Kennecott in 2005 (n=198). However, a group defined by a lack of dominant motivations exhibited weaker consistency in trip characteristics than other groups and may require further monitoring. Two motivational domains developed for this study, although highly reliable in both years, demonstrated lower generalizability than the utilized REP scales. Preferences for the five management options exhibited evidence of generalizability across time. Results suggest careful consideration must be given to cluster characterization and caution is recommended in creating scales for studies that employ cluster analysis.

Wildlife value orientations in the United States

Teel, Tara L
Human Dimensions in Natural Resources Unit
Colorado State University
Fort Collins CO USA 80523-1480

Michael J Manfredo
Human Dimensions in Natural Resources Unit
Colorado State University

Email: tteel@lamar.colostate.edu

Keywords: values; stakeholder analysis; human dimensions of wildlife; attitudes

Abstract: The effectiveness of specific wildlife conservation efforts is dictated largely by human values. This is one of two proposed presentations that will describe a micro-macro level conceptual model, empirical findings, and on-going efforts of a research program directed at understanding these values. Part 1, the current abstract, will focus on the micro level by presenting the wildlife value orientation concept, measurement approach and results for 19 Western U.S. states. It will also explore the predictive validity of the orientations. Data were collected using a mail survey approach with 12,670 respondents allowing generalizations at the state level. Non-response analysis was conducted by telephone with 7600 respondents. Structural equation modeling confirmed 4 wildlife value orientation dimensions; mutualism, utilitarianism, attraction, and concern for safety. Multidimensional scaling revealed the oppositional nature of mutualism versus utilitarianism and attraction versus concern for safety. Between and within states, we found considerable variability among people's value orientations. Those with a utilitarian orientation differed greatly from those with a mutualism orientation on attitudes toward preferred forms of wildlife management. This finding suggests the predictive validity of the wildlife value orientation concept and the foundation for wildlife conflict in the United States. The presentation will conclude with a brief overview of current attempts to apply the wildlife value orientation concept to enhance our understanding of the social basis for human-wildlife conflict in other countries.

The ecological and socio-economic sustainability of the reef fisheries of Pulau Banggi, Sabah, Malaysia

Teh, Louise
Fisheries Centre
University of British Columbia
Vancouver BC Canada V6T 1Z4

Annadel Cabanban
Borneo Marine Research Institute
Universiti Malaysia Sabah

Rashid Sumaila
Fisheries Centre
University of British Columbia

Dirk Zeller
Fisheries Centre
University of British Columbia

Email: l.teh@fisheries.ubc.ca

Keywords: marine reserve; community based management; local fisher knowledge; live fish trade

Abstract: Coral reef fisheries in tropical developing nations are often marginalized from policy makers, leading to a lack of effective management and a poor understanding of these socio-economically valuable fisheries. The small-scale reef fisheries of Pulau Banggi, Sabah, Malaysia, are of significant importance to the livelihood of the island's coastal communities. However, the status of Banggi's reef fisheries is unknown, as they have not been actively studied, monitored, or managed before. In this study, we use a multidisciplinary approach, combining quantitative methods (monitoring catch landings and ecosystem modelling) with fisher interviews to characterize and assess the ecological, social, and economic sustainability of Banggi's reef fisheries. This research demonstrates that a sufficient amount of baseline fishery and socio-economic data can be collected, analyzed, and used to support the process of reef fisheries management, even with limited funds and time.

Opinions and expectations of tourism in southern Banggi: Assessing social limits to change for sustainable tourism development

Teh, Lydia
Resource Management and Environmental Studies
Institute for Resources, Environment and Sustainability
Vancouver BC Canada V6T 1Z4

Email: clteh@interchange.ubc.ca

Keywords: coastal resource management; limits of acceptable change; marine conservation

Abstract: The introduction of tourism can potentially impact negatively on local communities and the environment. Social assessments, in addition to biophysical assessments, that are conducted prior to major tourism change can highlight local residents' 'social limits' to development and enhance prospects for sustainable tourism management. Even so, few studies have assessed the perceptions and preferences of local residents for the purpose of planning tourism prior to development. This is the case in Pulau Banggi, Sabah, Malaysia, a relatively undisturbed island where ecotourism development seems imminent.

In this study, I used semi-structured interviews to investigate local residents' expectations and perceptions of future environmental and social change that could arise from tourism development. Their preferences were evaluated through scenario building exercises with visual aids. Scenarios tested residents' willingness to trade-off environmental and social values for economic benefits associated with tourism. I found that human expectations of economic benefits might demand tourism development on a scale not compatible with existing biophysical capacity. Prospects for sustainable tourism in Pulau Banggi can be enhanced through small scale development operating under a community based approach, and institutionalised within a Marine Protected Area framework.

A national portrait of community forestry on public land in Canada

Teitelbaum, Sara
Faculty of Forestry and Environmental Management
University of New Brunswick
Fredericton NB Canada E3B 6C2

Email: h14f1@unb.ca

Keywords: community-based management; public participation; local governance

Abstract: Despite the enthusiasm surrounding community forestry, there is little published research on initiatives currently underway in Canada. This paper presents the results of a nation wide survey of community forestry initiatives on public land. The survey focused on characteristics of community forests such as their objectives, organizational structures, tenure types and financial self-sufficiency. The research revealed that there are one hundred initiatives that fall under our definition of community forestry, mainly in Ontario, Quebec and British Columbia. Close to half operate on Crown land while the other half operate on land owned fee simple by local government. The average age is 10 years and the median size of land base is 4200 hectares. Four different types of community forests were elucidated from the survey: local government on fee simple land, conservation authority, local government on Crown land, and forest organization.

Las Vegas of the north, changing image and built form in Niagara falls, Canada

Telfer, David J
Tourism Studies
Brock University
St Catharines ON Canada L2S 3A1

Atsuko Hashimoto
Tourism Studies
Brock University

Email: dtelfer@brocku.ca

Keywords: Niagara Falls, image, planning

Abstract: Well known for the waterfalls, Niagara Falls, Canada is in the midst of a construction boom with a new and enhanced focus on man-made attractions and accommodations. The addition of or enhancements to casinos, hotels, water parks, wineries, aquarium and themed entertainment facilities has altered the image being marketed and the built form of the destination. Interviews with visitors at Table Rock, the main viewing area for Niagara Falls illustrate the dissonance in the visitor's mind between the natural resource of Niagara Falls and the expanding man-made themed built environment. The built form has changed towards more man-made attractions facilitated by planning decisions. What was once a 30 storey height limit has been surpassed by recent approvals of buildings of 58 and 59 storeys in height. Since the construction of new high-rise buildings in the Fallsview area on top of the moraine overlooking Niagara Falls there has been a reduction of sunlight and an enhanced misting effect on Table Rock. This paper will examine the changing image of Niagara Falls as a destination in the minds of visitors in the context of the physical development.

Impediments to produced water reuse

Theodori, Gene L
Recreation, Park & Tourism Sciences
Texas A&M University
College Station TX USA 77843-2261

William E Fox
Texas Water Resources Institute
Texas A&M University

David B Burnett
Global Petroleum Research Institute
Texas A&M University

Email: g-theodori@tamu.edu

Keywords: brackish water; brine; desalination; natural gas; oil;

Abstract: Scientists and engineers at Texas A&M University have developed and tested affordable technology that removes contaminants from the brine produced in oil and gas field operations, treats and purifies this produced water, and, in turn, ultimately creates a beneficial freshwater resource. While the technology currently exists and continues to be refined, the extent to which widespread adoption and diffusion of both produced water treatment technology and treated produced water will occur are empirical questions. We hypothesize that several impediments must be addressed before such adoption and diffusion will transpire. One major impediment involves the lack of market mechanisms and incentives for the oil and gas operators to treat water and make it available as a commodity. Second, current local, state, and federal regulations classify produced water as waste material, not as a byproduct to be treated and reused. And third, it is not clear if community leaders and members of the general public are aware of produced water treatment technology and the potential beneficial uses of treated produced water. In this paper, we provide an overview of current research programs and activities focused on produced water. Next, we describe current produced water management and disposal behaviors. Lastly, we examine in detail the aforementioned impediments to widespread adoption and diffusion and present possible solutions.

Building sustainable recreation-planning decisions on federal lands: The role of “authentic” public participation in southern Utah

Thomas, Marianne
Environment and Society
Utah State university
Logan UT USA 84321

D. Layne Coppock
Environment and Society
Utah State university

Dale J Blahna
Environment and Society
Utah State university

Steven E Daniels
Sociology, Social Work and Anthropology
Utah State university

Email: mthom@cc.usu.edu

Keywords: Procedural/Distributive Justice; Trust; Collaboration; Relationship Building; Sustainable Decisions

Abstract: Recreational use of off-highway vehicles (OHVs) in the United States has rapidly grown. Federal agencies, including the Forest Service and the Bureau of Land Management, are developing management plans that protect natural resources while allowing for multiple uses, including motorized recreation. Use of OHVs on public land has become a contentious issue, especially in the western U.S., often resulting in social conflicts and litigation. Research was undertaken in southern Utah during 2005 to investigate two public land decision processes that occurred dealing with OHV travel planning in 1998-9, but resulted in very different levels of stakeholder satisfaction and local support for final management decisions. These processes took place on the Dixie National Forest and the Grand Staircase-Escalante National Monument. Unique to this situation were individual stakeholders that participated in both processes.

The interconnectedness of social-psychological factors associated with process and outcome were evaluated to determine what creates “authentic” public participation, an organizing interpretive paradigm used to evaluate the two cases. This research relied primarily on qualitative interviews of 27 stakeholders, including agency personnel, to determine their level of satisfaction with either or both processes and its outcomes. Analysis of the data revealed that factors such as seeing the actual

use of public input through face-to-face communication and on-the-ground evaluation by participants of resource problems played a key role in increasing stakeholder satisfaction. The findings of this research will provide land managers with a potential framework for conducting future decision-making processes in an attempt to make public participation more authentic.

Cougar-human interactions on the west coast of Vancouver Island

Thompson, Danielle
Biology Department
University of Victoria
Victoria BC Canada

Email: thompdani@yahoo.ca

Keywords:

Abstract: Over the past five years, cougar-human interactions appear to have increased in frequency and intensity in Pacific Rim National Park Reserve (PRNPR) and Clayoquot Sound UNESCO Biosphere Reserve (CSUBR) on the west coast of Vancouver Island. Resource managers are concerned with growing visitor numbers compromising the utility of cougar habitat while increasing the potential for negative interactions to occur. It is necessary to understand the factors influencing cougar distribution in areas of human use to ensure cougar conservation and human safety in protected areas. However, traditional methods to study this far-ranging and elusive species are not feasible in densely vegetated, west coast environments. To overcome these complexities, we will assess the use of various spatial data to identify and locate cougar-human encounter 'hotspots'. Habitat attributes at hotspots will be compared to those at random sites to determine if particular landscape features increase the likelihood of cougar occurrence. Non-invasive detection methods will be employed to substantiate our hypotheses and assessed for their efficacy and long-term monitoring capabilities specific to coastal habitats.

Land use and water quality in the upper midwest, USA: Biophysical and social themes emerging from the public discourse

Thompson, Janette R
Natural Resource Ecology and Management
Iowa State University
Ames IA USA 50011-3221

David Bengston
North Central Research Station
USDA-Forest Service

Andrea Schmid
Natural Resource Ecology and Management
Iowa State University

Email: jrrt@iastate.edu

Keywords: newspaper content analysis, non-point source pollution, natural resource management, public opinion

Abstract: The impact of land use in the Upper Midwest, USA on water quality in lakes, streams and rivers reaches well beyond that region's geographic boundaries. The ability to design and implement viable alternatives for land use patterns and practices that lead to better water quality will be enhanced by first understanding the public's perceptions of the relationship between land use and water quality. This poster will present results of a content analysis of 10 regional-circulation newspapers in the Upper Mississippi River Basin over a 5-year period conducted to assess (i) the nature of the public discourse about land use and water quality, and (ii) public attitudes and values expressed about water quality. We coded articles based on biophysical themes related to either improving or deteriorating water quality, as well as social themes related to values, priorities, and actions. Of 1,057 articles coded, 58% of expressions were about improving water quality, although the balance between reports of improving or deteriorating water quality varied among the newspapers examined. The strength of the connection between specific land uses and water quality also varied depending on the news source. Overall, social themes were dominated by expressions of willingness to act (50%) to improve water quality. We suggest that scientists, planners, and policy-makers should engage in more dialogue with the public to emphasize the relationships between specific land use practices and water quality, and to increase awareness of alternative practices that could improve water quality.

Place dependence at Voyageurs National Park, Minnesota

Thompson, Jerrilyn L
Forest Resources
National Park Service
St. Paul MN USA 55108

Dorothy H Anderson
Forest Resources
University of Minnesota

Joe M Schertz
Forest Resources
University of Minnesota

Email: jerrilyn_thompson@nps.gov

Keywords: communities; social capital; non-economic benefits

Abstract: This paper explores place dependency of community members living in areas adjacent to public lands. Specifically this paper looks at five dimensions of place dependency among individuals living in communities adjacent to Voyageurs National Park located in northern Minnesota. The level and type of place dependency community members report can impact the ability of land managing agencies to manage resources under mandated authorities. Moreover, communities and community members are unlikely to attain the benefits that land managers provide through their management of public lands when place dependency is not understood or recognized by the land managing agency. A random sample of individuals living in communities near or adjacent to Voyageurs NP was conducted in fall 2005. Data were collected on place dependency, perceived community benefits, levels of trust between community members and agency personnel, and socio-demographic characteristics of community members. Data were analyzed to determine how place dependency influences community members' trust in agency management activities and its influence on community members' perceptions of the benefits they attain as a result of agency activities at Voyageurs NP. Results indicate the agency managers would be more effective in their jobs (trust between them and community members would be greater) and community members would be more likely to attain non-economic benefits from management of public lands near their communities if manager's understood place dependency and the impacts of their management on the various dimensions of place dependency. Management strategies to address place dependency and trust issues are outlined.

Culture based fisheries in Bangladesh: Winners and losers

Thompson, Paul M
Flood Hazard Research Centre
Middlesex University
Enfield London United Kingdom EN3 4SA

John Valbo-Jørgensen
Inland Water Resources and Aquaculture Service
FAO

Email: paul@agni.com

Keywords: Stocking; fisheries management; equity

Abstract: In spite of decreasing yields from the inland capture fishery, fish continues to be the most important source of animal protein in the diets of the Bangladeshi population. The advent of carp hatchery technologies and donor support for aquaculture in the 1980s set in motion such rapid growth in fish production from ponds that the concepts spilled over into projects and initiatives for culture based fisheries and large scale stocking in the floodplains and beels (lakes) that were capture fisheries. This paper reviews trends in stocking in fisheries and the implications for fishing communities, including group-based and community wide initiatives.

Influential people tend to dominate attempts at community based management when there are financial attractions such as subsidies for stocking and the opportunity for easily controlled profits. In some sites these interests gave up when lower cost more resilient practices such as sanctuaries were adopted.

Culture based fisheries have relatively high production, but need strictly enforced closed seasons to allow fish to grow up, excluding poor subsistence fishers. Local equity issues are partly mitigated when poor people are allowed to catch small (non-stocked species) for food. In the floodplains stocking has not been sustained as access to these larger open systems is difficult to control, and participants are unable to capture enough benefits or raise funds from the wider community when landowners tend to free ride and catch more of the stocked fish. In smaller more closed waterbodies groups of fishers are able to control access and can profit but the risks and need for capital are high.

The role of traditional ecological knowledge in tribal-federal collaboration

Thompson, Sara A
Forest Resources
Oregon State University
Corvallis OR USA

John C Bliss
Forest Resources
Oregon State University

Ellen M Donoghue
U.S. Department of Agriculture
Forest Service

Email: sara.a.thompson@oregonstate.edu

Keywords: natural resource management

Abstract: In the last decade natural resource managers have begun to explore the traditional ecological knowledge (TEK) of tribes as an approach to holistic resource management. The goal of this research is to understand factors influencing the use of TEK in natural resource management collaborations between tribes and federal agencies. This includes what evidence exists that TEK is being used, what tribal factors influence the use of TEK, what agency factors influence the use of TEK, and how different collaborative arrangements influence the use of TEK. This research uses a case study approach and multiple sources of data to understand three collaborative agreements between American Indian Tribes and Federal Agencies in natural resource management. The three case studies consist of one case representing a co-management agreement and two cases representing contractual agreements. Data sources include interviews with tribal and federal managers and decision makers, the observation of management practices and meetings, and the analysis of secondary data such as meeting minutes and project implementation documents including the written agreement, communication protocols, and NEPA documents. Findings from this research indicate that TEK can be incorporated into natural resource management through a collaborative agreement. However, tribes need to be clear on how TEK is defined and how it is going to be applied. Failure to do so may jeopardize the agreement by introducing conflict into the project. Furthermore, the findings also tell us that the distribution of power, organizational capacity and the collaborative process impact the success of the collaborative agreements.

Community control of resources and improving local livelihoods: The success and failure of community forestry in Nepal

Thoms, Christopher A
Environmental Studies
Knox College
Galesburg IL USA 61401

Email: cthoms@knox.edu

Keywords: Common pool resources; community management; rural poverty; inequity

Abstract: Community forestry in Nepal vests rights of access, use, exclusion, and management of national forestland to local user groups. As originally conceived, community forests were meant to 1) protect forest resources, and 2) meet the subsistence needs of a community. According to the 1993 Forest Act, user groups may also benefit financially by generating income from their community forest. Thus, there is strong potential for community forests to serve as the basis for improving the quality of life and the status of livelihoods in rural Nepal while conserving forest resources. The preponderance of both anecdotal and more rigorously empirical evidence clearly indicates that community forestry is improving forest protection and regeneration. Frequently, however, community forest user groups are dominated by local elites who choose to close access to community forestland for several years. As a result, it appears that Nepalese community forestry is more successful at forest conservation than at improving rural livelihoods. This paper presents data from 2871 household surveys and 28 case study reports of Community Forest User Groups in seven hill districts of Nepal on forest resource dependency, livelihoods status and power disparities among community forest users. Based on these data, I argue that community forestry is having rather limited success at improving livelihoods. The livelihoods potential of community forestry is constrained by unequal power relations at the local level, and such pre-existing local power disparities are actually reinforced by the way community forestry is implemented by the government of Nepal and supported by foreign aid.

Enhancing the role of civic organizations in creating International Parks and protected areas

Thurau, Brooke K
Forestry
Southern Illinois University
Carbondale IL USA 62901

Ian T Cumpston
Forestry
Southern Illinois University

Ryan M Smith
Forestry
Southern Illinois University

Andrew D Carver
Forestry
Southern Illinois University

Kara W Throgmorton
Forestry
Southern Illinois University

Jean C Mangun
Forestry
Southern Illinois University

Email: brookeb@siu.edu

Keywords: Tropical conservation; Ecotourism; Park planning; Civil organizations; Environmental organizations;

Abstract: The creation and management of parks and protected areas in the tropics is often considered the purview of international environmental non-governmental organizations (NGOs) and their local affiliates whose primary mission is biodiversity conservation. However, the application of this model within peri-urban areas can serve to polarize environmentalists and developers (i.e., local business interests). The success of many conservation projects relies not on opposing the business community but instead relies on their inclusion as conservation partners. The objective of this poster is to introduce a conceptual model for the creation of parks and protected areas which relies on an enhanced level of collaboration among the civic community and conservation organizations. This poster highlights the creation of a public park in the Republic of Panama made possible by an innovative partnership between the Club Rotario Panamá Nordeste (Rotary Club Panama Northeast) and traditional conservation organizations which include the Panamerican Conservation Association and the U.S.

Forest Service International Institute of Tropical Forestry. Known as EcoParque Panama, this 400 ha. portion of the former U.S. Rodman Naval Base will conserve lowland tropical rainforest and improve the quality of life for residents of the expanding Panama City metropolitan area.

Visual Preference Surveys as a Guide to Land Use Planning and Natural Resources Management: Rural Character

Tilt, Jenna
College of Forest Resources
University of Washington
Seattle WA USA 98195

Email: gbradley@u.washington.edu

Keywords:

Abstract: Zoning and design standards to protect rural character do not fully capture the idea of rural character and may be misleading by failing to fully understand the cognitive responses to rural character. Through a case study involving a photo-questionnaire and other social science methodology, it is argued that protecting an area with zoning densities and/or design guidelines does not equate with what is perceived by residents and outsiders as rural character. Zoning and design guidelines need to incorporate an aspect of functionality that draws upon cognitive aspects associated with rural character, such as a sense of community. Suggestions on how to implement this functionality are offered. This case revolves around the development of local land use plans as a requirement of the Washington State Growth Management Act.

Evaluating ecological and sociocultural effectiveness in National Parks.

Timko, Joleen A
Dept of Forest Resources Management
The University of British Columbia
Vancouver BC Canada

Email: jatimko@telus.net

Keywords: indigenous co-management; parks and protected areas; ecological effectiveness; evaluation

Abstract: National parks worldwide remain the cornerstone of efforts to protect biological integrity. Recently, the ecological effectiveness of parks and their sustainability over the long term has come into question; critics have claimed that parks cannot continue to protect the biological resources and ecosystem processes within their borders, and there is a widespread sense that many of these areas are simply not working. At the same time, the socio-cultural effectiveness of parks is in doubt, with many local and indigenous communities continuing to be negatively impacted by the existence of parks. This has led to an increased emphasis on the co-management of parks with local people. However, there is little empirical evidence that co-management initiatives are enabling parks to achieve ecological goals, and there is concern over the inconsistent application of co-management and lack of evidence that these initiatives are functional.

This presentation will present the rationale and preliminary results to a comparative analysis conducted in parks in South Africa and Canada. The purpose of this research is to determine if there is a correlation between ecological and socio-cultural effectiveness of case study parks. An evaluation framework will be presented which evaluates parks against several key ecological (e.g.: species at risk, exotic species, and landscape processes) and socio-cultural criteria (e.g.: access/use rights, participation in decision-making, sustainable livelihoods). This research is timely and relevant to national parks worldwide for several reasons including: there is a recognized need for a systematic approach to evaluating the effectiveness of protected areas, and there is every reason to believe that the push for co-management around the world will continue to increase as will the involvement of protected area neighbours in broader landscape conservation programs.

The social determinants of individual participation in an anti-environmentalist movement.

Tindall, David B
Department of Anthropology and Sociology
University of British Columbia
Vancouver BC Canada V6T 1Z1

Celine Mauboules
Department of Anthropology and Sociology
University of British Columbia

Email: tindall@interchange.ubc.ca

Keywords: anti-environmentalism

Abstract: In this paper we 1) focus on network structure and processes amongst members of a countermovement.; 2) provide a comparison of network processes amongst a countermovement with those amongst a corresponding social movement; 3) provide a comparison of personal network structure and processes between countermovement members and the general public. Almost all research on networks and micromobilization has focussed on progressive social movements or instances of local collective action. Less is known about the structure of personal networks among those who participate in countermovements and if similar network processes are at work. Theoretical predictions have argued that individuals who have ties to opposing groups will moderate their participation in a social movement. However, in this study of a community countermovement organization in Port Alberni, B.C. that mobilized against the provincial environmental movement we find that the number of outgroup ties (the range of ties to environmental organizations) held by individuals is the strongest predictor of countermovement activism amongst countermovement members. Drawing upon both theory and substantive information, we discuss the implications of this novel finding. We also provide some suggestions for future research on networks and countermovement participation.

Place informed management: Conceptual and technical advances toward applying human values to forest and protected area planning

Titre, John P
Institute for Place Applications
Park Studies
Windsor USA 80550

Peter Williams
Inventory and Monitoring Institute
USDA-Forest Service

Christopher Jones
School of Community Resources and Development
Arizona State University

Email: parkstudies@att.biz

Keywords: forest planning, sense of place, place attachment, deep ecology, protected area management

Abstract: US federal land management agency planning efforts often address human values spatially through ROS designations and Scenery Management System (SMS) objectives. Yet, these spatial depictions often lack an empirical basis for portraying human interactions within the dynamics of a specific ecosystem. A framework called Place Informed Management (PIM) and set of analytical tools have been developed to capture an integrated understanding of human relationships to place. These tools “tier down” into human/place relations as changes occur in resource settings. PIM obtains three levels of detail to produce a continuous, yet strategic flow of information. TIER I captures coarsely granular low-resolution knowledge to identify forest places that deserve greater attention. TIER II assembles a diverse and in-depth information base using rapid assessment procedures to include participant observation combined with semi-structured, key informant, and focus group interviews. With this information, managers can: 1) make informed strategic decisions, 2) design collaborative efforts, or 3) recognize needed fine-filtered information. A fine-filtered survey, TIER III, describes human dimensions of place as levels of attachment. Using cluster analysis, respondents are segmented into dependents, generalists, or explorers. Since those with stronger affective bonds often have passionate responses to place change, such information allows a collaborative planning effort to recognize and understand plausibly controversial forest issues. This framework makes better utilization of existing information and integrates data gathered from ROS and SMS, as well as other sources. It combines forest issues with actual places on the ground leading to informed

collaboration while potentially building trust within forest communities.

Perceptions of off-highway vehicle recreation management strategies and policies of off-highway vehicle riders and Forest Service managers.

Tomczak, Lisa M
School of Forestry
Northern Arizona University
Flagstaff AZ USA 86001

Email: lmt45@nau.edu

Keywords:

Abstract: This study explored the perceptions that off-highway vehicle riders and Forest Service managers have regarding management strategies and policies for off-highway vehicle recreation. Data was gathered using a mail survey. Two populations were sample: off-highway vehicle rider who recreate in northern Arizona and Forest Service managers working to national forest sin northern Arizona. Results show that managers and riders show some agreement of off-highway vehicle management strategies such as interaction among riders and manager, developing volunteer programs, and holding workshops in informing the public of off-highway vehicle recreation issues. Data on perceptions of proposed off-highway vehicle management policies indicate that riders and managers differ on the possible implications of the proposed policies, including increased arbitrary trail closure, increased creation of social trail, increase trail removal, increased cross-country travel of off-highway vehicles. Results of the manager survey indicated some manager feel the proposed policy changes may minimize resource damage, decrease cross-country travel, and increase access to off-highway vehicle trails. These results suggest both off-highway vehicle rides and Forest Service managers agree interaction and cooperation between the two groups are effective management strategies. Results also suggest that differences in perceptions regarding proposed policy changes might require increased education and interaction between the two groups. Qualitative analysis of open-ended questions show riders and managers collaborate on many off-highway vehicle recreation management activities resulting in positive relationships between the riding community and the Forest Service.

Crowding perceptions and encounter norms in marine settings: A case study of snorkelers in Koh Chang Marine National Park, Thailand

Topelko, Karen N
Marine Protected Areas Research Group
Department of Geography, University of Victoria
Victoria BC Canada V8V 2S5

Phil Dearden
Marine Protected Areas Research Group
Department of Geography, University of VICTORIA

Rick Rollins
Marine Protected Areas Research Group
Department of Geography, University of VICTORIA

Email: ktopelko@uvic.ca

Keywords: recreation; tourism; social carrying capacity; coral reefs; social norm curve; specialization

Abstract: Research about the carrying capacity of coral reefs for tourism activities has focused almost exclusively on the relationship between density of visitors (e.g., SCUBA divers) and impacts on biological resources. Research on social carrying capacity in marine settings is minimal, and as a result, our ability to protect the quality of coral reef environments for marine tourism and recreation is compromised. This paper examines encounter norms and perceptions of crowding among visitors with (1) different cultural backgrounds, and (2) differing levels of experience in marine recreation. Snorkelers visiting the coral reefs of Koh Chang Marine National Park in Thailand were asked to complete a self-administered questionnaire (n=716). Crowding was measured using a 9-point Likert scale. Visitors' encounter norms were measured by asking respondents to rate the acceptability of 6 photographs illustrating different numbers of people snorkeling. Self-reported level of experience was used to differentiate visitors into high and low specialization subgroups. Results indicate that there are significant differences (at the $p=.05$ level of confidence) between Thai and European respondents in perceptions of crowding and normative evaluations of acceptable encounters with others. Europeans felt more crowded and reported a lower encounter norm than Thais. Consistent with the recreation specialization framework, some significant differences between high and low specialized snorkelers were reported for crowding perceptions and crowding norms, with high specialized visitors feeling more crowded and reporting lower encounter norms than low specialized visitors. The implications of these findings for managers are discussed.

**The big, salty, buggy, stinky Great Salt Lake:
Attachment to a mixed amenity place**

Trentelman, Carla Koons
Sociology
Utah State University
Logan UT USA 84322-0730

Email: Carlakt@aol.com

Keywords: sense of place; qualitative research; fragile ecosystem

Abstract: Great Salt Lake (GSL) is known for amazing sunsets and migrating bird populations. However, many in northern Utah think of more negative characteristics when they talk about the lake, so much so that one local conservation group calls people with these perceptions members of the Big Salty Buggy Stinky Club, from the adjectives heard most about GSL. Since residents who live closest to the lake are likely to experience these more negative aspects of it within immediate proximity of their homes, my research question is why these neighbors of GSL choose to live near the lake; whether they choose to do so because of the lake, or in spite of it. Most place attachment literature has considered attachment to high amenity places; this study examines attachment to a very mixed amenity place. I use focus groups and key informant interviews for this first exploration of these questions.

The influence of collaborative learning and stakeholder engagement on environmental public policy development in the regulating and regulated communities

Triplett, James R
Biology
Pittsburg State University
Pittsburg KS USA 66762

Email: jtriplett@pittstate.edu

Keywords: Public participation; Conflict management; Wastewater; Point source

Abstract: Collaborative Learning processes require a substantial shift in role perception held by the communities that develop and enforce regulations for environmental protection, the communities that are subject to those regulations, and the stakeholders. As a result, public policy must change in the short term for the CL process to occur. In the long term, the shifts in how these communities view their role in the processes should produce changes in the way public policy is developed and implemented. I compare the short term and long term changes in public policy development and implementation resulting from the use of CL processes to set site-specific water quality standards for ammonia on the Kansas River by Johnson County and the City of Topeka, Kansas.

Perils and prospects for urban forestry and ecosystem services: Research and applications

Troy, Austin
Rubenstein School of the Environment and Natural R
University of Vermont
Burlington VT USA 05405

Matthew Wilson
School of Business Administration and the Gund Ins
University of Vermont

J. Morgan Grove
Northern Research Station
US Forest Service

Email: atroy@zoo.uvm.edu

Keywords: Ecosystem Services Urban Forestry Baltimore LTER

Abstract: Ecosystem Goods and Services are the benefits people obtain either directly or indirectly from functioning ecological systems. Assessment of Ecosystem Services focuses principally on three issues: measurements of ecological functions, estimates of values for specific ecological functions, and the spatially explicit transfer of valuation estimates from study sites to policy sites. An Ecosystem Service approach has been proposed as a compelling framework for natural resource management because it provides a framework for assessing diverse tradeoffs (Farber et al. 2006). In the case of urban forestry research and applications, however, important issues need to be addressed before an Ecosystem Service approach will be useful in general.

In this presentation we discuss some of the perils and prospects for adopting an ecosystem service approach with examples from Baltimore Ecosystem Study (BES) research and Revitalizing Baltimore (RB) applications. These issues include the following questions. Do the measurements of ecological processes and valuation of those processes correspond to the resolution at which urban forestry occurs? Do our valuation estimates account for interactions among social and biophysical processes? Are existing valuation estimates related to urban forest ecosystem services similar enough in context to be transferred to Baltimore? Do our estimates of ecosystem service values depend upon linear relationships or constant variation over space? We conclude with a discussion of the challenges and limitations to value transfer approaches as well as future opportunities in making this analysis spatially and contextually specific.

Maintaining grizzly bears in the Moraine Lake area of Banff National Park

Tucker, Wayne R
Ecological Integrity Branch
Parks Canada
Ottawa ON Canada

Hal Morrison
Parks Canada

Email: wayne.tucker@pc.gc.ca

Keywords: grizzly bears, access restrictions, compliance

Abstract: The Moraine Lake area of Banff National Park, Alberta, Canada, is one of the most popular tourism destinations in Canada. The same area is used on occasion by at least three individual grizzly bears (*Ursus arctos horribilis*). Since 1995, one of these grizzly bears has made this landscape part of its home range. Bold behavior exhibited by this "resident" bear has resulted in conflict between human and bear use of the area. During the 1970s and 1980s bears that persisted in the area were relocated or destroyed. Between 1995 and 1998 area warnings and area closures were used in an effort to maintain the bear population and address public safety concerns. Despite these management efforts, sightings and aggressive encounters escalated during the period of 1995 -1998 with six aggressive encounters in 1998 alone. The use of area closures also resulted in severe restrictions to public use of the area. Further actions to address the situation included the development of a Restricted Access management protocol in 1999. The option, triggered by the presence of a bear in the area, legally required that people hike in a tight group of six or more. Between 1999 and 2001, the social and ecological effects of the program were evaluated. In this paper, we focus on the effectiveness of the protocol to: 1. reduce the potential of negative bear/human encounters, and 2. influence and understand social reactions to the protocol.

During the evaluation period, there have been five aggressive grizzly bear encounters, characterized by vocalizations only. This level of aggression is in contrast to 1998 and years previous where behaviors included bluff charges, vocalizations and hikers being followed. The social experiences of users of the area have not been negatively affected by the implementation of the protocol, although it requires people to fundamentally alter the way they travel in back country settings. Restricted access has been adopted as a site specific protocol, commencing 2002 and will continue to be evaluated as a bear management option in the Moraine Lake area.

A theory based approach to assessing landscape change using visual indicators

Tveit, Mari
Landscape Architecture & Spatial Planning
Norwegian University of Life Sciences
Aas Norway

Gary Fry
Landscape Architecture & Spatial Planning
Norwegian University of Life Sciences

Åsa Ode
Landscape Change
Macaulay Institute

Email: mari.tveit@umb.no

Keywords: landscape structure; landscape aesthetics; quantifying visual change; indicator criteria

Abstract: This paper presents a theory based approach for analysing landscape visual character using visual indicators. A literature review related to landscape perception identified nine key concepts describing visual landscape structure; stewardship, coherence, disturbance, historicity, visual scale, imageability, complexity, naturalness and ephemera. The nine visual concepts are presented in a framework of four levels of abstraction, where the focus is on knowing what we want landscape indicators to indicate. The steps from abstract visual concepts to measurable visual indicators are described, and links are made to theories of landscape preferences and perception. The paper includes a discussion on the selection of appropriate landscape indicators through a suggested filtering process. The relationships between the concepts, the ability of visual indicators to capture changes in landscape character and issues related to interpretation of indicators are discussed.

Applying GIS to visualize crime hot spots in US National Forests

Tynon, Joanne F
Forest Resources
Oregon State University
Corvallis OR USA 97331

Michael G Wing
Forest Engineering
Oregon State University

Email: jo.tynon@oregonstate.edu

Keywords: crime mapping, spatial analysis, LEIMARS

Abstract: We used GIS as an investigative tool to conduct a visually-based examination of the spatial distribution of crime incidents on national forest lands in the U.S. We used the national forest's GIS crime database that contained over 45,000 spatially referenced crimes including felonies, infractions, and misdemeanors. We were particularly interested in identifying patterns in the spatial distribution of crime and whether patterns were correlated with other landscape features. We also examined crime violation types for different administrative levels. We used several visualization techniques, including quartic kernel density estimation and quadrat analysis, to identify crime patterning and crime hot spots. Our visual exploratory analysis and statistical results describing the types and intensities of national forest crime provide insight about crime impacts in various national forests management units.

Integrating experienced values of urban woodlands and other open space into land-use and green area planning

Tyrväinen, Liisa H
Rovaniemi Research Unit
Finnish Forest Research Institute
Rovaniemi Finland 96300

Kirsi H Mäkinen
Forest Ecology
University of Helsinki

Email: liisa.tyrvainen@metla.fi

Keywords: Forest recreation; Local knowledge; Social value mapping; Urban forest benefits; Urban planning

Abstract: Social values of urban woodlands and other open space are not often taken into account sufficiently in urban planning. Therefore, new tools are needed to analyze social values and meanings of urban woodlands and other open space and bring them into land-use and green space planning processes.

This paper presents a synthesis of four studies conducted among residents in Helsinki Metropolitan Area, Finland. Social values and meanings of green areas were collected through mail surveys involving 4100 respondents. In the study local residents were asked to identify areas that had specific positive qualities, such as beautiful scenery, peacefulness and a sense of a forest as well as to locate areas with negative features. A map displaying all the different green areas was attached to the survey in each study area. The results were analyzed by using SPSS and compiled in a map form using GIS.

The most important qualities of open space were tranquillity, a sense of being in a forest, and naturalness of the area. The social value maps show highly valued areas which should be sustained also in the future but also development areas where positive values are currently missing. For land-use planning the synthesis maps show the locally valuable areas where urban development should not be allocated. The method facilitates communication of green area values, and silent groups can also express their opinions. The results suggest that systematic collection of residents' valuations towards the green areas early enough in an urban planning process may decrease conflicts over land-use decisions if the local information is used as one of the criteria in decision-making.

How can we solve social dilemmas? Quantitative analysis of pro-environmental behavior in Japan.

Umino, Michio
Department of Behavioral Science, Arts & Letters
Tohoku University
Sendai Miyagi Japan 980-8576

Mikiko SHINOKI
Faculty of Policy Studies
Iwate Prefectural University

Email: umino@sal.tohoku.ac.jp

Keywords: public goods; waste management; waste separation; urban problems; environmental policy

Abstract: This paper presents the way to solve social dilemma (SD) in terms of quantitative analysis of survey data on environmental attitude and behavior in three cities in Japan. Theoretically speaking, SD is impossible to solve, as Mancur Olson described in *The Logic of Collective Action*. But does the people in the real world think and act just like Olson's assumption? To answer the question, we classified the sample into 8 categories by crossing three relevant components of SD regarding household garbage problems: actor's sense of cost (COST) to do pro-environmental behavior (PEB), actor's sense of growing environmental crisis (CRISIS), and actor's sense of apathy (APATHY) on PEB. Based on the result, we constructed POSA (Partial Order Scalogram Analysis) diagram to find the following results: (1) Most of the people (about 95%) have CRISIS on domestic waste problems, while around half people have COST or APATHY. (2) POSA analysis suggests that the most efficient route to arrive at Pro-environmental attitudinal status is to conquer APATHY firstly, then to conquer COST. (3) To conquer either APATHY or COST enhances actor's PEB considerably, but to have both senses increases actor's PEB slightly.

Environmental preferences in urban forest reserves: A view of comfort and safety.

Vadala, Carin E
Parks, Recreation and Tourism Management
Clemson University
Clemson SC USA 29631

Robert D Bixler
Parks, Recreation and Tourism Management
Clemson University

William E Hammitt
Parks, Recreation and Tourism Management
Clemson University

Email: cvadala@clemson.edu

Keywords: setting management; trails; wildland urban interface; open space; environmental socialization

Abstract: Visitor concerns about comfort and safety in urban forest settings could result in their decision not to use these areas, reduced visitation or use of only the most developed areas in urban forests. Negative attitudes toward the setting that recreational activities take place in are largely intrapersonal constraints. This study tested whether preferences for different urban forest settings were based on concerns about comfort and safety.

The study was conducted within six urban forest reserves in northeastern Ohio. Visitors were intercepted in three different settings of the parks. The settings were developed grassy picnic areas, paved multi-purpose trails running along roadways, and dirt hiking paths through wooded areas. Using a modified Dillman technique, surveys were mailed to 571 park visitors of which 401 were returned for a response rate of 70%. The questionnaire included a photograph scale measuring environmental setting preferences. An additional scale addressed comfort and safety concerns.

Linear statistics and cluster analysis were used for analysis. Results reveal preferences for park setting were constrained by concerns about comfort and safety. Constraints included, but were not limited to, law enforcement not present, rabid animals, getting lost on a hike, seeing a snake, no trail map, and unfriendly dogs off their leashes. Managers can ease some of these constraints by developing or enforcing regulations for the parks. Furthermore, visitor's perceptions of comfort and safety in urban forest reserves support the importance of park planning and design, and programs that help children and adults develop comfort in wild places.

Enhancing visual research with computer animation: A study of crowding-related standards of quality for the loop road at Acadia National Park

Valliere, William A
Rubenstein School of Environment and Natural Resou
The University of Vermont
Burlington VT USA 05405

Logan OB Park
Rubenstein School of Environment and Natural Resou
The University of Vermont

Jeffrey C Hallo
Rubenstein School of Environment and Natural Resou
The University of Vermont

Rebecca E Stanfield McCown
Rubenstein School of Environment and Natural Resou
The University of Vermont

Robert E Manning
Rubenstein School of Environment and Natural Resou
The University of Vermont

Email: William.Valliere@uvm.edu

Keywords: Visual Research, Carrying Capacity, Standards of Quality, Norms

Abstract: Visual research methods have been employed to help study normative standards for crowding and other recreation-related impacts in parks and outdoor recreation areas (Manning and Freimund, 2005). Recent applications of this research have typically used a series of computer-edited digital images to illustrate a range of recreation-related impacts, including crowding, conflicting uses, and environmental impacts. For example, a series of five images of a range of automobile traffic density on the Loop Road at Acadia National Park was used to measure crowding-related standards of park visitors. The Loop Road is an approximately 20-mile, two lane road that connects many of the Park's primary visitor attractions. The Ocean Drive portion of the Loop Road (where this study was conducted) is one-way. Respondents were shown the five study photographs and asked to rate the acceptability of each on a nine-point scale that ranged from -4 ("very unacceptable") to +4 ("very acceptable"). However, the images used in this research (as well as other applications) were still pictures that may not fully represent the dynamic nature of recreation use and associated impacts. To explore this issue, a series of five computer animations were developed that illustrated the same five traffic density levels on the Acadia National

Park Loop Road as used in the study noted above. Each computer animation consisted of an approximately 30 second video clip that illustrated automobile traffic in motion. A representative sample of park visitors was asked to rate the acceptability of each of the video clips using the same response scale as described above. A one-way analysis of variance was used to compare the results from the still photographs with the results from the computer animations. Tukey's Honestly Significant Difference test was used to test for statistically significant differences in respondent ratings of the still photographs and computer animations. In general, the normative standards derived from the computer animations did not differ from those derived from the still photographs.

Divide and commodify: The fetishization of viewscales in U.S. and Norwegian amenity communities

Van Auken, Paul M
Department of Rural Sociology
University of Wisconsin-Madison
Madison WI USA 53706

Email: pmvanauken@wisc.edu

Keywords: rural restructuring; commodification of nature; amenity communities

Abstract: This paper is part of a cross-national collaboration between researchers at the Center for Rural Research Norway and the Department of Rural Sociology at University of Wisconsin-Madison exploring the impact of amenity-led migration and related development on rural communities. In recent decades, new communications and transportation technologies, migration processes, and economic restructuring have engendered profound change in rural communities in Western industrialized nations. Communities with rich endowments of natural amenities and recreational infrastructure have experienced population growth, increases in second home construction, and development pressure as nature has been commodified in the U.S., phenomena that appear to be growing in importance in Norway as well. Relatively little, however, is known about the social, ecological, and economic impact.

This paper describes the initial phase of the project, which involves local stakeholders in rural communities in Bayfield County, Wisconsin and Sør-Trøndelag, Norway photographing, discussing, and comparing changes in the local landscape resulting from the development of recreation- and tourism-based economies in both countries. Such changes may be inconsistent with goals such as the preservation of farmland, forest, open-space, affordable housing, community and rurality itself. The paper includes a discussion of the apparent strengths and limitations of a novel utilization of the photo elicitation methodology and the key themes emerging from the initial fieldwork in both study sites. It is proposed that a fetishization of viewscales is a critical factor in the growing commodification of nature and its concomitant impacts on local community and ecology.

Sustaining multiple functions in the rural countryside of the Netherlands

Van der Heide, Martijn
Public Issues Division
Agricultural Economics Research Institute (LEI)
The Hague Netherlands 2585 BE

Roel Jongeneel
Public Issues Division
Agricultural Economics Research Institute (LEI)

Email: martijn.vanderheide@wur.nl

Keywords: Multi-purpose land use; Land use model; Spatial planning; Land allocation

Abstract: The rural countryside in Europe has many functions, which is encapsulated by the term multifunctionality. While for many locations multifunctional land use is becoming increasingly important, land users and policy makers nevertheless have to make choices between different, and usually competing, land uses. Due to the various functions of the rural countryside and the multiple actors – such as farmers, tourists and inhabitants – involved, land use allocation problems are complex planning problems.

Another complicating aspect of land use in the rural countryside is the complex interaction between ecological processes and economic activities. It is therefore widely recognised that modelling land use and land cover change should satisfy both certain ecological and certain economic criteria. Our study aims to give insight into interdisciplinary strategies for sustainable land use management, thereby taking into account the multifunctional role of landscapes. It is innovative by including four elements: (i) feedbacks loops between institutions and land use; (ii) representation of multi-actor decision making; (iii) integration of various scientific disciplines (landscape ecology, institutional economics, social sciences, and land use modelling); and (iv) use of field survey data as an input to actor behaviour.

We approach our task by introducing a spatially explicit, multi-scale model that is based on an integrated analysis of socio-economic and biophysical factors. This model – the so-called CLUE-S model (the Conversion of Land Use and its Effects at Small regional extent) – makes it possible to simulate multiple land use functions simultaneously. We apply the model to a case-study area in the Netherlands.

Meta-regression analysis of costs of carbon sequestration in forest ecosystems: an update

van Kooten, G. Cornelis
Department of Economics,
University of Victoria,
Victoria BC Canada V8W 2Y2

Man Wang
Department of Economics,
University of Victoria

Pablo Benitez
Department of Economics,
University of Victoria

Email: kooten@uvic.ca

Keywords: Carbon sequestration, climate change mitigation, policy, regional development

Abstract: Compared to fuel switching and reduced fossil fuel use for lowering atmosphere CO₂, carbon terrestrial sinks are seen as a low-cost alternative, and carbon offsets are likely to play an important role in meeting Kyoto targets for the first commitment period. To determine the potential for carbon offset credits to compete with emissions reduction, we employ meta-regression analysis of 1001 estimates from 60 studies of the cost of creating carbon offsets through forestry activities. The base case project is one that relies on conservation in tropical forests, and ignores the opportunity cost of land. In comparison to the base case estimates of carbon-uptake costs, tree planting and agroforestry projects have significantly higher costs, while forest management projects cost less than the base case. When carbon pools associated with the end-use of timber (e.g., wood products, biomass burning) are taken into account, costs of carbon uptake are quite a bit lower. Projects that discount physical carbon and ones that take into account the opportunity cost of land generated much higher cost estimates, *ceteris paribus*. Location was also an important factor, with the Great Plains region being the most cost-effective area for terrestrial carbon sequestration. But even for this region, marginal costs of carbon uptake greatly exceeded average costs and were, in general, much higher than costs of emissions reductions. Interestingly, studies that were peer reviewed produced higher cost estimates than those that did not undergo rigorous review. Finally, the results indicate that, while there is room to use forestry activities to reduce the concentration of CO₂ in the atmosphere, this is not a magic bullet and costs are frequently much higher than they are for investments in projects that reduce emissions.

A communitarian model of accountability for multi-stakeholder organisations

Van Wilgenburg, Hendricus A
School for Resource and Environmental Studies
Dalhousie University
Halifax NS Canada B3H 3J5

Email: hwilgenb@dal.ca

Keywords: accountability; multi-stakeholder organisations; participatory democracy; communitarian; well-being

Abstract: In this paper I explore the question of the democratic accountability and implications for governance within multi-stakeholder, transnational organisations. I propose a communitarian model of participatory democracy that appreciates the social dimension of human lives amid the pressing problems of global environmental change. This model of democracy affirms that humans are constitutive of and embedded within a community. This conception of community is one that prizes liberty, as well as individual and cultural diversity. The argument is situated within the context of contemporary liberal societies in which democracy is generally understood as being inextricably linked with justice (i.e., fair practices and procedures), a perspective that privileges the person as a self-interested, unencumbered bearer of individual- and civil-rights. In this thesis, communitarian participatory democracy exploits the conditions of inclusion, equality, reasonableness, and publicity to provide direction to pragmatic political processes. While communitarian participatory democracy may not establish an ideal global community, nonetheless, it strives to distribute among its members greater power-sharing, subjective well-being, and community and environmental well-being via the interplay between private and public-private actors, partnerships, and international organisations. The sort of community that emerges is made up of members who are involved in its decision-making, are listened to, have their identities as members of sub-communities affirmed by, and extend equal respect to others. This is inevitably a community in which alternative values are strong and people may feel alienated from, but will feel committed to belonging. The discussion highlights procedural implications of democratic accountability for multi-stakeholder organisations with issues of global environmental change as their mandate.

Museum outreach as nrm extension: The committing to place project

Vanclay, Frank M
Tasmanian Institute of Agricultural Research
University of Tasmania
Hobart Tasmania Australia 7001

Ruth Lane
School of Social Sciences and Planning
RMIT University

Jo Wills
Tasmanian Institute of Agricultural Research
University of Tasmania

Ian Coates
National Museum of Australia

Damian Lucas
Tasmanian Institute of Agricultural Research
University of Tasmania

Email: frank.vanclay@utas.edu.au

Keywords: community engagement, participation, capacity building, cultural heritage

Abstract: The Committing to Place research project was an Australian Research Council Linkage Grant funded project based at the Tasmanian Institute of Agricultural Research (TIAR), University of Tasmania, and conducted in partnership with the Murray-Darling Basin Commission (MDBC) and the National Museum of Australia (NMA). The overarching aim of the research was to investigate means of activating and maintaining community participation in natural and cultural resource initiatives in the Murray-Darling Basin. The main research activity of the Committing to Place project was to evaluate and reflect on a series of outreach, extension and education projects. The Committing to Place research project considered three research questions:

1. In what ways do these outreach and education activities engage diverse communities?
2. Do these outreach and educational activities influence engagement in NRM issues?
3. What methods are useful for organisations to use in developing and implementing outreach and educational activities that are meaningful for communities?

The key learnings from this work are that:

- (1) There are considerable advantages in using indirect ways to promote natural resource management;
- (2) There are considerable advantages in developing outreach programs that integrate the principles of

community engagement into the development and delivery of collaborative and participatory projects; (3) There should be a continued focus on local places in outreach and extension projects, however, in order to appeal to broader audiences, there needs to be an embedding of these local stories in wider contexts.

The impacts of mountain biking on wildlife and people: A review of the literature

Vandeman, Mike J
221 W. Winton Ave., # C300
World Without Cars
Hayward CA USA 94544-1212

Email: mjvande@pacbell.net

Keywords: habitat conservation

Abstract: The sport of mountain biking is expanding rapidly, fueled partly by the mountain bike and tourism industries, the Olympics, and other competitive events (recently, e.g., "adventure racing"). It is putting intense pressure on wildlife habitat, worldwide, as well as inhibiting efforts to protect additional lands. It is important, therefore, to assess its impacts on wildlife, people, and the environment. I reviewed all the available studies, focusing primarily on physics and conservation biology. All of the studies on mountain biking that attempt to compare the impacts of hiking and mountain biking (which address primarily erosion, but also intimidation of wildlife, horses, and other trail users) conclude that their impacts are essentially the same. However, their research designs all have serious flaws: they ignore speed and distance travelled, and nearly all ignore impacts on wildlife; they also make no attempt to test mountain biking under realistic conditions (e.g. normal speeds). A more accurate conclusion from the data presented would be that the impacts of mountain biking are actually from two to six times those of hiking, due in part to the greater speed and distance travelled by mountain bikers. Children need this information early, before they become "hooked" on mountain biking. This is important, because some land managers have used this research as justification for opening trails to bikes. In the District of North Vancouver, in particular, most wildlands have been "ceded" to the mountain bikers, and other trail users have had to either share the trails with them or, more likely, stop using the trails altogether.

Fishermen's adaptation strategies to a growing seal population: Action on sea and on political forums

Varjopuro, Riku
Research Programme for Environmental Policy
Finnish Environment Institute
Helsinki Finland FIN-00251

Email: riku.varjopuro@ymparisto.fi

Keywords: nature conservation conflict; coastal zone; policy advocacy; local knowledge; participation

Abstract: The grey seal population was declining in the Baltic Sea the whole 20th century until a ban on hunting of seals and reduced contamination turned the trend in late 1980s. The grey seal is today abundant in the northern half of the Baltic Sea. This positive turn had severe consequences on coastal fishing that today has to (again) adapt to an environment, in which the seal is an important factor causing economic losses to fishers. The grey seal is protected under international conventions and EU regulations that are implemented in national protection measures. The conservation policy sets limits on possible measures to reduce the loss of catch or damage to the nets caused by the seals.

Based on participatory observation, interviews of fishermen and their organizations in a coastal region in Finland and on newspaper articles this paper studies the fishermen's strategies to adapt to this latest change in the environment. Fishermen have chosen strategies that work in two different areas. First, they have modified their fishing methods and gears to minimize the damage that seals cause and, second, they have initiated societal advocacy to change policies that limit or allow mitigation measures. In the study area a successful collaboration between interest groups had been a channel for fishermen to voice their needs and wishes to policy makers in national and even on international levels. In other words, this paper explores local responses to a positive large-scale environmental change in a situation when international policies influence the possible adaptation strategies.

Judgments of responsibility: Applying attribution theory to human-bear conflict

Vaske, Jerry J
Human Dimensions in Natural Resources Unit
Colorado State University
Fort Collins CO USA 80523

Doug Whittaker
Confluence Research and Consulting

Andrew W Don Carlos
Human Dimensions in Natural Resources Unit
Colorado State University

Shea Harlow
Human Dimensions in Natural Resources Unit
Colorado State University

Email: jerryv@cnr.colostate.edu

Keywords: human dimensions, wildlife management

Abstract: Understanding linkages between judgments of responsibility and acceptability of wildlife management actions can enhance agency efforts to abate human-wildlife conflict. This presentation examines this attribution process in human-bear conflicts. Data were obtained from a survey of registered voters in Anchorage, Alaska (n = 971). Respondents evaluated 3 non-fatal (e.g., nuisance bear in garbage) and 3 fatal (e.g., aggressive bear kills hiker) human-bear interaction scenarios. For each scenario, respondents were asked to: (a) assign a judgment of responsibility to each of 3 potential causal agents (person involved, bear, or Alaska Department of Fish & Game [ADF&G]), and (b) evaluate the acceptability of destroying the bear. Between 22% and 48% of respondents judged the human to be solely responsible in 5 of the 6 scenarios; the exception was when an aggressive bear kills a hiker where only 7% judged the human solely responsible. Between 13% and 35% considered the bear to be responsible. Less than 7% believed ADF&G was solely responsible in all scenarios except for the scenario involving an aggressive bear (25%). Across all scenarios, humans and bears were judged equally responsible, on average, by 12% of respondents. Approximately 11% of respondents judged all 3 agents (human, bear, ADF&G) to be equally responsible. Judgments of responsibility influenced acceptability ratings for destroying the bear. For example, killing the bear was unacceptable if the human (either solely or in combination with the bear and/or ADF&G) was judged responsible. Implications of these findings for managing human-wildlife conflicts are discussed.

Local and state government responses to wildfire: Mitigation, responses, and change

Vaughn, Jacqueline V
Political Science
Northern Arizona University
Flagstaff USA 86011-5036

Hanna J Cortner
Cortner and Associates

Email: Jacqueline.Vaughn@nau.edu

Keywords: wildland-urban interface; public policy; disasters; federalism; human dimension

Abstract: Natural disasters and catastrophic environmental events provide social science with a window of opportunity to address existing policies or to put new policy ideas on the political agenda. Recent wildfire seasons (as well as the 2004 tsunami and the 2005 hurricanes) have opened up for scrutiny and debate basic questions of federalism, especially the relative roles and responsibilities of federal, state, and local governments, as well as community groups, in disaster mitigation, preparation, response, and recovery. The historically preferred policy responses have been technical fixes, such as enhanced coordination among fire responders, new technologies in building materials, and state-of-the-art fire equipment, rather than the human dimension, the values that place people in danger's path, human behavior, the creation of fire-adapted human communities, or altering institutional arrangements.

This study is a comparative examination of the response of four Southern California counties along three dimensions -- pre, during and post fire -- from 1985 to 2005. Each county experienced a series of wildfire events and thus has experience in dealing with the threat and actuality of fire. Research indicates that local governments respond to wildland-urban interface fires in different ways, depending upon the perceived likelihood of wildfire, the level of threat that would result in significant damage or loss of life, support for community-based efforts, funding, and the prioritization of tasks. Changes in policy would reduce the need to concentrate federal resources on protection and treatment in the interface, and would free up dollars for ecological restoration on the rest of the public lands.

Warmwater fisheries: Implications of angling specialization for resource management

Virden, Randy J
School of Community Resources & Development
Arizona State University, PO Box 874703
Tempe AZ USA 85287-4703

Heidi J Hase
Research and Marketing
Greater Laconia-Weirs Beach Chamber of Commerce,
NH

Email: rjvirden@asu.edu

Keywords: warmwater fisheries; human dimensions; angling specialization; fisheries management

Abstract: Warmwater fisheries (lakes, rivers and streams) are common in the southern and southwestern states. The name reflects the relatively higher water temperature found in freshwater resources, most often caused by southern latitude, lower elevation, depth insulation and/or rainshadow desert influences. Since Hobson Bryan (1977; 1979) awakened the leisure research community to recreation specialization, there have been numerous studies examining specialization within a variety of recreation settings including angling (Chipman and Helfrich, 1988; Ditton, Loomis, and Choi, 1992; Graefe and Kauffman, 1987; Lee and Scott, 2004; Scott and Godbey, 1994; Wellman, Roggenbuck, and Smith, 1982; and Williams and Huffman, 1985). This study examines the influence of warmwater angling specialization on a variety of management relevant behavioral indicators including species preference, angling motives, satisfaction, perceived problems and management preference. The sample was derived from 977 on-site anglers on-site at two warmwater reservoirs in the Southwest; a subsequent mail survey was returned by 61 percent of the respondents. A nine-item specialization index was constructed and anglers were assigned to low, medium or high specialization groups based upon their overall index score. The results indicated that high specialized anglers are differentiated by their species preference, motives, sensitivity to other recreation users and management preferences toward development. High specialized anglers also reported significantly higher levels of angling satisfaction and greater support for user fees than low specialized anglers. The discussion suggests that warmwater resource managers may want to consider different management strategies for areas that attract or target high specialized anglers.

Agent-based modelling as a tool to protect endangered habitats and species – Experiences of two model projects in Europe

Visschedijk, Peter
Alterra
Vienna Vienna Aurstria 1180

Ulrike Pröbstl
Dep. of Landscape, Spatial, Infrastructure Science
BOKU

Email: ulrike.proebstl@boku.ac.at

Keywords: Natura 2000; management plans; deterioration; visitor management

Abstract: The European Commission is establishing a network of biotopes and habitats –called Natura 2000 – by decree of two directives, which all member states must comply with. Once established, adequate management shall ensure a favourable conservation status. Two separate research programmes founded by EU-grants, one in the Netherlands, Great Britain and France (so called PROGRESS) and one in Austria, Slovenia, Germany and Italy (so called ALPNATOUR) are designing and assessing these management plans in intensively used recreation and tourism areas. Both projects try to find cost efficient tools for data collection, analysis and management in different ecological environments. For example, the applicability of GPS, aerial photos, and agent-based modelling with the program MASOOR have been tested.

This presentation will show that the combination of GPS and agent-based modelling is a suitable and helpful tool in several different locations. The operating expense for the data collection can be reduced. Therefore the use of agent-based modelling makes a remarkable contribution to reduce the costs of the planning process. Furthermore agent-based modelling also contributes positively to a participatory planning process, because the use and the distribution of different user groups in the site can be visualized. Compared to a simple GIS based mapping, the disturbance and the regional distribution during the day or the season can be shown.

On the other hand there was a need to adapt the program MASOOR to the different ecological conditions and sites. Compared to the Netherlands, the alpine area is characterized by different user groups such as climbers and cross country skiers. Furthermore the access is different, as most hikers use the cable car to reach areas with endangered species. In the Natura 2000 sites in France and Great Britain most of the visitors are arriving by car. In summary, these new technologies

offer promising directions, but significant amounts of further research will be needed to support the planning process in various protected sites all over Europe.

Economic dependency on a National Forest and fuel management views

Vogt, Christine A
Community, Agriculture, Recreation and Resource St
Michigan State University
E. Lansing MI USA 48116

Greg Winter
Cornerstone Strategies

Sarah McCaffrey
North Central Research Station
USDA Forest Service

Email: vogtc@msu.edu

Keywords: fuels management, WUI residents, forest-dependent employees

Abstract: Recent research on acceptability of wildfire and fuels management has provided communities, resource managers, and the public a clearer picture of issues and concerns about wildfire and the health of a forest. One stakeholder group of great importance to local and regional areas includes individuals earning a living from forest resources (timber, recreation or other economic activities). Based on past studies, we would expect these economically dependent households to be more supportive of management that enhances economic prosperity, than households with no economic dependency. A study of households in a six-county area near the Mark Twain National Forest found mixed results. About one-quarter of the respondents to a mail questionnaire about views on fuels management indicated working in a job dependent on the Forest. Responses were evaluated using constructs from the Theory of Reasoned Action. While those employed in forest-related jobs held stronger positive attitudes about the use of prescribed burning as a fuel management approach than the other respondents they did not show any difference in attitude toward mechanical fuel reduction. This is notable given that those employed in forest-related jobs rated both fuel management approaches to be more important to them personally than other respondents. Other cognitive factors were also evaluated (shared goals between FS and respondent, trust in FS to manage fuels) and found to not differ across groups. Implications for studying forest dependent jobs and firms on fuels planning by resource managers and scientists will be discussed.

Using a mobile, integrated bioenergy system to convert cellulosic and lignaceous biomass from forests and agriculture into methanol to produce electricity, transportation fuels and chemical commodities

Vogt, Kristiina
Forest Systems and Bio-Energy
University of Washington
Seattle WA USA

Daniel Vogt
University of Washington

Michael Andreu
Forest Systems and Bio-Energy
University of Washington

Ravi Upadhye
Lawrence Livermore National Lab

Email: kvogt@u.washington.edu

Keywords: renewable energy, sustainability, land management

Abstract: Biomass materials have been difficult to convert to biofuels and biobased products because of the difficulty of converting recalcitrant compounds such as cellulose and lignin in biomass into forms capable of being used to produce other products. Some agricultural and forest biomass materials are high in cellulose and lignin. Today, these biomass materials can today be efficiently converted into products such as methanol or bio-oils that can substitute for fossil fuels used in energy production and therefore help avoid the emissions of CO₂ that result when fossil fuels are combusted in the transportation and electrical production sectors. This integrated system would not compete with current products produced from biomass but would be very compatible and allow regional markets to form for a diverse number of end-products from cellulosic and lignaceous biomass materials (e.g., biodiesel production, alcohol supplement in gasoline, supply chemical commodity markets, produce electricity with fuel cells).

Protected area - local community interactions in Germany: Causes and potential solutions for the lack of local support for National Parks

von Ruschkowski, Eick
Institute for Environmental Planning (IUP)
University of Hannover
Hannover Germany 30419

Email: ruschkowski@umwelt.uni-hannover.de

Keywords: national parks, protected areas, participation, land use conflicts

Abstract: I. Introduction

In the recent past, the establishment of Large Protected Areas (LPA) in Germany has led to conflicts with local communities, requiring park managers to put more focus on socio-economic issues. Although many reasons for the lack of local support have been determined, actual approaches to solve the dilemma have been scarce.

This PhD project, sponsored by the Scholarship Programme of the German Federal Environmental Foundation, addresses the current gap between research findings and the implementation of a pro-active strategic management approach to improve the relations between LPA administrations and communities (stakeholder management). The research objective is to develop an action catalogue that will serve as a manual for park administrators to raise support among communities on questions of LPA and biodiversity conservation. The project will be concluded by August 2005.

II. Case Study and Method

To clearly separate conflict analysis and recommendation development, a multi-step approach was chosen. As an empiric basis, a case study was carried out in the Harz National Park in Northern Germany in 2005 to identify local stakeholders and the key issues in administration-community interactions, using standard quantitative survey methods. Survey findings were reconfirmed by qualitative interviews thereafter, identifying the main reasons of concern among the local communities.

The second key segment contained a field study in Yosemite National Park (USA) in order to identify approaches taken to address similar issues here and their potential transferability to the Harz and German National Parks in general.

Integrating social expectations and technical values in urban stream and riparian assessment

Wagner, Mimi M
Landscape Architecture
Iowa State University
Ames IA USA 50011

Stephanie A Snyder
North Central Research Station
USDA Forest Service

Email: mimiw@iastate.edu

Keywords: biophysical data, values, perceptions, restoration, protection

Abstract: Land use, development, and management choices over the last century have significantly altered the extent and condition of many remaining urban riparian areas. Management, preservation, and restoration policies and actions are needed to safeguard their value and functions. Previous research identifies critical relationships between social perceptions and riparian planning. We integrate biophysical data about urban stream function and condition with local perceptions, beliefs, and values concerning riparian quality.

We utilize metrics from Stream Visual Assessment Protocol (USDA NRCS) and other ecologic assessment indicators to evaluate riparian area functionality and condition, and then integrate the results with statistically representative survey findings of riparian condition perceptions from watershed residents. Stream assessment metrics are redeveloped based on survey findings and reapplied to measured stream conditions. Resulting scores are compared with SVAP scores and identify specific stream and riparian issues where residents and the technical assessment diverge. How respondents defined the extent of riparian limits are also compared with various disciplinary definitions based on conditions in the case study site. Results also identify critical riparian areas for protection and restoration based on survey results.

We found that people have a great deal of uncertainty in assessing stream condition overall, despite their ability to intuitively apply individual SVAP metrics. Results allow public land managers and conservation organizations to target technical assistance, restoration priorities, and educational materials to more effectively meet their riparian goals, and in particular, connect with local residents' values and perceptions.

Public values for marine protected areas in the northeast U.S. exclusive economic zone

Wallmo, Kristy
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Silver Spring MD USA 20910

Steve Edwards
National Marine Fisheries Service
National Oceanic and Atmospheric Administration

Email: Kristy.Wallmo@noaa.gov

Keywords: Stated preference: choice experiment: non-use value: survey: random utility model: economics

Abstract: Executive Order 13158 instructs federal agencies to protect the natural and cultural resources of the marine environment by establishing a diverse network of marine protected areas (MPAs). In doing so, agencies are instructed to incorporate science-based criteria, and in addition, assess the economic effects of alternative MPA designations. These economic effects cannot be fully assessed without incorporating public values of MPAs; however, to date there have been limited economic studies that address this need. Further, most studies that have been conducted focus on use values such as tourism and recreation, largely ignoring non-use or existence values the public might hold. In this paper we present a utility-theoretic model for alternative MPA networks in the northeastern U.S. Exclusive Economic Zone, where allowable uses within the network range from no-take to limited commercial fishing. We conduct a choice experiment survey ($n=1,037$; response rate = 77%) to estimate models for varying combinations of network size and allowable uses. Preliminary results suggest that after a threshold of approximately 22% of the area in the northeast EEZ, increases in network size provide diminishing marginal utility. Results also suggest that no-take MPAs provide the least utility in the spectrum of allowable uses, followed by MPAs that allow limited commercial fishing. To relax the restrictive properties of the base class of multinomial logit models, we estimate two additional models that include a nesting structure and a latent class specification. We illustrate differences in welfare effects calculated from all models and suggest an appropriate model specification for policy relevant applications.

Mapping the cognitive environment of fifth graders: an empirical analysis for environmental planning

Wang, Hurng-Jyuhn
Graduate Institute of Environmental Policy
National Dong Hwa University
Hualien Taiwan 97401

Shin-Shien Wu
Taiwan Forestry Research Institute
Council of Agriculture, Republic of China (Taiwan)

Email: hjwang@mail.ndhu.edu.tw

Keywords: Cognitive mapping; children; location schema; development psychology; Taiwan

Abstract: Cognitive map has been a considerable tool for environmental planning and management since Kevin Lynch's studies in 1960's. This study conducted an experiment to investigate the fifth grade children's cognitive maps of a remote village environment, which was composed of landscape characteristics of paths, landmarks, nodes, edges, and districts. Thirty-three fifth graders enrolled in public elementary school were given verbal and little drawing assistance to complete cognitive maps. The results of analyses reveal Piaget's theory that older children of age around ten and up begin to use projective and Euclidean concepts. We had done two aspects of analyses in this study. Important landscape elements and showing frequencies in the cognitive maps were tabulated and re-portrayed as layout maps. Furthermore, we made structural analyses of inaccurate cognitive maps. Incompleteness, distortions, and augmentation for real environments were found at some sampling maps. Finally, gender differences in children's environmental cognition in terms of representing symbols in the cognitive maps are of special interesting in our case study. Boys used far more variety of symbols to represent one landscape contour, a cultural temple, than the girls did. However, we have not much comment for this result yet.

Participatory assessment of management effectiveness for a protected area: Applying WWF Rappam on Wu-Wei-Kang wildlife refuge, Ilan, Taiwan

Wang, Mu-ning
Forestry and Resource Conservation
National Taiwan University
Taiwan 330

Dau-Jye Lu
forestry and resource conservation
national taiwan university

Email: b90605211@ntu.edu.tw

Keywords: Management Effectiveness of protected areas, Participatory workshop, WWF RAPPAM, WWK, Taiwan

Abstract: Assessing management effectiveness is one of the major issues and challenges for protected areas in the world. This study used the Wu-wei-kang Wildlife Refuge as a case study to try to apply WWF RAPPAM methodology in Taiwan. It adopted methods of literature review, interview, participant observation and focus group to collect information and materials. Also a workshop consisted of primary stakeholders was took place to try to identify common grounds for pressures and threats, objectives, and major management items of this refuge.

The result of this case study showed that it would be difficult to implement WWF RAPPAM methodology while lacking baseline information, and as there were different attitudes of stakeholders and oppositions between local communities and the authorities. There were two turning points for this study: one was that the local authority finally joined the workshop and conversation, the other was that all primary stakeholders could recognize and be appreciated with efforts of different sectors while sharing information organized and provided by the research team.

This study revealed that the essence of a protected area mainly was a political and social process which should be considered and operated within the local context. For the participatory assessment on management effectiveness of protected areas, it needs more delicate arrangements and time to collect social acceptance in order to reach to common grounds. A very key point is the involvement of the authority of the protected area and its willingness to empower local communities.

Mountain biking in Lake Tahoe: A case study of user perceptions, stakeholder concerns, and ecological impacts

Waskey, Matthew T
School of Community Resources & Development
Arizona State University
Tempe AZ USA 85287

Dave D White
School of Community Resources & Development
Arizona State University

Chris Jones
School of Community Resources & Development
Arizona State University

Email: troy.waskey@asu.edu

Keywords: KEYWORDS: Recreation ecology; recreation conflict; regional planning

Abstract: The rapid expansion of mountain biking has led to concerns about the potential for undesirable social and ecological impacts to recreation environments. In some cases, managers have implemented spatial and temporal zoning, dispersal strategies, and trail closures to address concerns. The Lake Tahoe Basin is such an area. Here, recreation managers from a conglomeration of land management agencies and local municipalities are faced with making critical decisions regarding mountain biking. The prevalence of social and ecological issues accompanied by the collaborative planning environment in the region make the Lake Tahoe Basin an excellent case study location for learning valuable lessons needful for other locales. To address these issues we conducted a Lake Tahoe case study during the summer of 2005. In-depth group interviews (n=5) were conducted with local, state, and federal land managers representing all of the stakeholders in the region and on-site semi-structured interviews (n=18) were also conducted with mountain bike users to assess their perceptions of ecological impacts, crowding, conflict, and management prescriptions. Additionally, ecological impact assessments were conducted on more than 90 miles of mountain bike trails. Understanding visitor perspectives towards management of ecological conditions and management actions can inform sustainable recreation management practices while meeting agency mandates. It is therefore expedient to address social and ecological conditions in tandem to gain a more complex and nuanced understanding of the relationships between the users, the management agencies, and the resource. The findings highlight the need for inter-agency coordination, rider education,

stewardship, and ecological monitoring to ensure sustainability.

Managing parks down under: The role of place attachment in benefit attainment and conservation action in Australian parks.

Weber, Delene L
School of Natural and Built Environments
University of South Australia
Mawson Lakes South Aust Australia 5095

Dorothy H Anderson
Department of Forest Resources
University of Minnesota

Michael Cuthill
Community Engagement Centre
University of Queensland

David C Fulton
Department of Fisheries and Wildlife
US Geologic Survey

Email: delene.weber@unisa.edu.au

Keywords: benefits-based management;
engagement;social capital;trust

Abstract: Understanding and promoting the benefits of park experiences has become increasingly important to protected area managers in Australia. Providing benefits such as improved fitness, stronger family bonds, reduced tension and increased understanding of the natural environment has been heralded as an important contribution of park organisations during a period when personal stress, obesity and general pressure on the environment have become commonplace. This presentation argues that while a comprehensive understanding of the way parks contribute positively to the lives of individuals and the community is significant, there is a need to expand our model of benefits-based management if we are to optimise the use of this information from a management perspective.

An investigation of four Australian parks suggests that place attachment may be the linchpin that connects the already established links between settings, activities and benefits, to other important outputs such as conservation action. Structural equation modelling was used to investigate the relationship between such variables. Data was collected from park visitors at two large National Parks in south-east Australia and two metro parks in capital cities. Although the range of benefits most desired were similar across the parks, attainment tended to be greater at the regional parks. Place attachment varied between the parks, as did levels of trust, individual networks and conservation action. The multi-park approach provided a useful test of the

strength of the relationship between key variables. It is proposed that promoting those benefits that lead to stronger place identity will improve conservation action and stewardship.

Designing Economic Instruments for Biodiversity Conservation and Sustainability

Weber, Marian
Alberta Research Council
Canada

Victor Adamowicz
University of Alberta

Steven Kennett
Canadian Institute of Resources Law

Email: george.hoberg@ubc.ca

Keywords:

Abstract: The boreal forest provides a number of environmental goods and services such as clean air and water, climate management, and habitat which are not valued by traditional markets. Governments allocate fiber and mineral rights on public forest lands through a variety of mechanisms including timber quotas, and area based timber supply areas and mineral leases. This has created a checkerboard of overlapping tenures for different resource rights which vary in terms of delegation of responsibility for managing environmental outcomes on public land. The need for integration to coordinate use of infrastructure, and minimize cumulative impacts on biodiversity and other non-market values is an on-going policy challenge. Integrated resource management (IRM) is a way of using and managing the environment and natural resources to achieve economic, social and ecological objectives. However decentralized incentive instruments for achieving IRM objectives have not been systematically explored on public lands. Incentive instruments are defined as aspects of law and regulation that encourage behaviour to meet environmental objectives through prices and other information signals about the quality and quantity of resources. Examples of incentive instruments include ecological taxes, tradable land rights or offsets, and conservation easements. In theory, incentive instruments allow firms flexibility and can be cost effective means of achieving conservation objectives. In this paper we provide an overview of barriers and opportunities for the use of incentive instruments for meeting IRM objectives in the boreal forest. Specific challenges which will be addressed include setting landscape objectives, distributional impacts, and policy frameworks.

Changing socially motivated behaviors: Embedding persuasion in its social context

Werner, Carol M
Psychology
University of Utah
Salt Lake City UT USA 84112-0251

Email: carol.werner@psych.utah.edu

Keywords: behavior change, household hazardous waste (hhw), nontoxic solutions, water quality

Abstract: Many environmentally harmful behaviors are “socially motivated,” -- done to earn praise or at least avoid censure in others’ eyes. Desires to fit in lead to water-intensive plantings in arid landscapes, brush (“wildfire fuel”) untrimmed and close to homes, and yard care based on toxic products. The premise behind “guided group discussion” is that such socially motivated behaviors are most easily changed in a social context. Our education program was developed to protect water quality from toxic household chemicals, but can be adapted to change many other environmentally harmful behaviors. This presentation describes “guided group discussion” as an education/persuasion process, provides data from high school audiences about its effectiveness compared to a traditional lecture format, and explores what it is about the discussion that leads to persuasion.

The goals of the program are to persuade people to reduce their use of toxic products, increase proper disposal of toxic leftovers, and increase their use of effective nontoxic alternatives. We randomly assigned 29 high school classes (over 600 students) to either a lecture or “guided group discussion.” Among the females (using a nested design), we found a significant main effect, with discussion more effective than lecture, even though message content was the same. Lecture vs. discussion was mediated by students’ beliefs that other students endorsed the information; that is, as hypothesized, discussion led to attitude change because students believed others agreed with the information. Audio-recordings are being analyzed to determine what kinds of comments led students to believe others accept the message.

Understanding perception of risk by urban anglers: An ethnographic inquiry

Westphal, Lynne M
Natural Environments for Urban Populations
USDA Forest Service, Northern Research Station
Evanston IL USA 60201

Mario Longoni
Center for Cultural Understanding and Change
Field Museum of Natural History

Cherie L LeBlanc
Natural Environments for Urban Populations
USDA Forest Service Northern Research Station

Alaka Wali
Center for Cultural Understanding and Change
Field Museum of Natural History

Email: lwestphal@fs.fed.us

Keywords: risk perception, fishing, contamination/pollution

Abstract: Fishing is popular in many urban areas, but can pose risks from eating contaminated fish. We conducted an ethnographic study to uncover how anglers think about and perceive their risk. We found that these anglers often eat their catch, and their perception of risk combines both a sophisticated understanding of pollution and habitat with questionable practices and glaring gaps in understanding. Information about risks matches some of the advisory information, while much the detail of advisories is lost. The findings will be discussed in the context of risk perception theory and their management implications.

Scenario-based technique as a tool for collaborative forest management. A case study of the consultation procedure between forestry and reindeer herding industry in Sweden

Widmark, Camilla M
Department of Forest Economics
Swedish University of Agricultural Sciences
Umea Vasterbott Sweden 90594

Camilla Sandstrom
Department of Political Science
Umeå University

Jon Moen
Department of Ecology and Environmental Science
Umeå University

Email: camilla.widmark@skon.slu.se

Keywords: co-management, conflict resolution, focus group discussions, renewable natural resources, land use

Abstract: The boreal forest in the northern part of Sweden is a resource for several land-users, causing conflicts where both economical and cultural values are at stake. Two conflicting industries, the forest industry and the Sámi reindeer herding industry, are using the forestland in parallel, although for different purposes. The cultivation and extraction of timber is negatively influencing the amount and availability of lichens, which is a critical winter resource for reindeer. The common pool resource character of this situation has made it difficult to find sustainable solutions for co-existence, even though consultation procedures were introduced in 1979 to reduce conflicts. However the consultation procedures do not seem to fulfill its purpose as conflicts between the two industries still occur.

The purpose of this project is to use scenario-based techniques and analyses in order to clarify the possibilities for each of the two industries to consider each other's needs and to identify strategies for co-existence. Within the project a broad range of scenarios was developed and tested among a selected group of stakeholders. The array of scenarios demonstrating implications of different choices, desirable and undesirable cases, stimulated dialogue and enabled the two groups to better understand each others resource use.

Prevalence of health benefits sought at two water-based recreation areas: An examination of differences in perceived health benefits based on visitor activity and trip type

Wilhelm, Sonja A
Forest Resources
University of Minnesota
Saint Paul MN USA 55108

Ingrid E Schneider
Forest Resources and Tourism Center
University of Minnesota

Email: wilh0065@umn.edu

Keywords: fitness, exercise, natural areas

Abstract: Physical inactivity is identified as a cause of many of negative health conditions. Yet while the health benefits of physical activity are recognized and well documented, many Americans remain inactive. The importance of health benefits related to public recreation lands has recently emerged as an important issue at the National level, as recreation and park visits has been shown to contribute to physical activity and improved health. In fact, President Bush's Healthier U.S. initiative mandates public land agencies to promote the use of recreation areas for improved health benefits. However, prior to effective health benefit management and enhancement, an understanding of the perceived and currently realized health benefits is required. This study explored perceptions of importance of health benefits at two U.S. Army Corps of Engineers sites. Differences in health benefits perceptions were examined by activity group as well as day verses overnight visitors. Summer visitors across two years were contacted onsite and asked to respond to questions on trip characteristics, benefit importance and attainment, activity and demographics. Statistically significant differences were found in ratings of the importance of health benefits by main activity and day verses overnight trips. For example, visitors that reported relaxation/stress reduction or swimming as the main activity rated health benefits as more important than did anglers. Similarly, overnight visitors rated health benefits as more important than did day visitors. These findings highlight opportunities to provide additional health information at sites as well as opportunities for marketing and planning to meet these needs and contribute to a healthier U.S. population.

Lessons from two Oregon watersheds: Public knowledge and involvement in adaptive ecosystem management

Williams, Robert L
Portland Office
RESOLVE, Inc.
Portland OR USA 97205

Bruce A Shindler
College of Forest Resources
Oregon State University

Email: rwilliams@resolv.org

Keywords: Public involvement, adaptive management, forestry, watershed, knowledge, trust, information

Abstract: Explore the bridge between social science research and the public involvement profession with a comparative case study of the McKenzie and Santiam Watersheds in western Oregon. A mixed model social assessment, combining quantitative (mail survey) and qualitative (interview, focus group, and participant observation) techniques, was undertaken by the investigator while a graduate student at Oregon State University. Findings focused on knowledge differences between attentive, general, urban, and rural publics. Discuss the application of these findings through the investigator's current role as a facilitator and public involvement specialist.

Public forests and community expectations

Williamson, Jim
Environmental Science
Murdoch University
Perth Australia 6008

Sue Moore
Environmental Science
Murdoch University

Carol Warren
Asian Studies
Murdoch University

Email: jimwe@westnet.com.au

Keywords: forest management; public involvement

Abstract: The publicly owned eucalypt forests of south west Western Australia have been the focus of lively discussions over the last decade or two. The discussions have become polarised between those who want to stop logging and those who consider logging and regeneration are legitimate uses of publicly owned forests. But there is much more to a forest than logging and regeneration. A preliminary survey using open ended interviews, together with a detailed questionnaire incorporating a Likert scale, explored the individual expectations of those interviewed relating to 176 activities, products and other things associated with publicly owned forests. Over 40 people were interviewed covering a range of ages and occupations and included some aboriginal people and some young people. Preliminary findings suggest that tranquillity is a major desirable feature of forests. And there are many other expectations including rejuvenation and renewal as well as logging and regeneration. What does this mean for forest managers, for the community, for the environment and for the economy?

The politics of race in the U.S. community forestry movement

Wilmsen, Carl
College of Natural Resources
University of California
Berkeley CA USA 94720

Email: cwilmsen@nature.berkeley.edu

Keywords: racialization, multiculturalism, social equity

Abstract: In the late 1990s a national community forestry organization in the United States began to diversify its personnel and the issues it addresses. Although there are now people of color in positions of power in the organization, the organization's social justice agenda has been only partially implemented. This has led to internal conflicts which seem to turn on a disconnect between power within individual organizations, and the power of people of color in society at large to engage effectively in natural resource policy formation and management practice. This situation echoes the broader societal debate about racism. On the one hand, the fact that there are people of color in positions of power in government, industry, and academia is taken as a sign that racism no longer exists and poor people of color only have themselves to blame for their disadvantaged position. This leads to neglect of the issues of communities of color because of the view that people of color need to accept personal responsibility for their own situation. On the other hand, having people of color in positions of power may lead to benign neglect because liberals may lack a sense of urgency for social justice issues and because of the momentum in favor of tending to what are construed as purely environmental issues first. This underscores the strong need to fully integrate social justice and environmental issues, and suggests that there is a need to incorporate a more nuanced understanding of power relations into cultural competency trainings.

Re-thinking urban sprawl in rural Pennsylvania: Mitigating ecological impacts through spatial analysis.

Wilson, Randall K
Environmental Studies
Gettysburg College
Gettysburg PA USA 17325

David R Conrad
Environmental Studies
Gettysburg College

Stuart E Brown
Environmental Studies
Gettysburg College

Emily R Chessin
Environmental Studies
Gettysburg College

Linton N Samantha
Environmental Studies
Gettysburg College

Rapoza M Lauren
Environmental Studies
Gettysburg College

Ziegler S. Andrew
Environmental Studies
Gettysburg College

Email: rwilson@gettysburg.edu

Keywords: environmental planning, sustainable development, GIS, urban sprawl, Southcentral Pennsylvania

Abstract: The rapid expansion of unplanned urban development in the non-metropolitan United States is commonly associated with an array of negative ecological and social effects. However, local governance institutions in rural areas often lack effective tools and strategies for mediating these impacts. This project seeks to provide such a tool through an examination of urban sprawl in rural Pennsylvania. Research focused on a case-study of a proposed 2029-unit development in Adams County. The research objectives were two-fold: 1) to provide a quantitative measure of the ecological impacts of land cover change associated with the proposed development, and 2) use these data to develop an alternative model allowing for sub-division growth while minimizing the negative ecological and socio-ecological outcomes. The study employs Geographic Information Systems and the Citygreen extension

created by American Forests. Results demonstrate the feasibility of an alternative design using methods that may serve as tools for local governments in mitigating the negative effects of urban sprawl in rural Pennsylvania.

Rethinking nonmarket valuation: The social construction of environmental value

Winthrop, Robert H
Division of Planning and Science Support
USDI Bureau of Land Management
Washington DC USA 20002

Lucinda P Power
Division of Planning and Science Support
USDI Bureau of Land Management

Email: robert_winthrop@blm.gov

Keywords: discursive democracy; cooperative conservation; land use planning

Abstract: The management of public lands and resources involves allocating places to alternative uses, such as energy development, recreation, conservation, and subsistence. In principle, such decisions should be informed by a comprehensive understanding of the value created by the alternative uses of land and resources. In practice, while resource economics provides well established tools for calculating the value of goods and services within a market framework, there is no similar consensus on the best means of estimating the value of goods and services existing outside of markets.

This paper addresses the challenge of identifying defensible methods for valuing nonmarket goods and services for purposes of resource planning within a large public agency, the U.S. Department of the Interior's Bureau of Land Management (BLM). While much of the literature on nonmarket value has focused on the validity of particular economic techniques such as contingent valuation, less attention has been given to the logic justifying the use of a consumer utility model of environmental value. Drawing on an alternative perspective to environmental value developed by such scholars as Mark Sagoff and Thomas Dietz, we suggest how discursive, citizen-based approaches for estimating environmental value might be incorporated into the resource planning activities of agencies such as BLM. We propose that such approaches can better accommodate conflicting agendas, more complex valuation criteria, and collaborative methods of natural resource management.

Mountaintop removal and environmental injustice in southern Appalachia: A case study of mountain justice summer

Wishart, William R
Sociology
University of Tennessee
Knoxville TN USA 37996

Robert E Jones
Sociology
University of Tennessee

Email: wwishart@utk.edu

Keywords: Earth First!; environmental justice; cross-ridge mining; direct action; Appalachian Voices;

Abstract: The paper examines socio-environmental impacts and injustices in rural Southern Appalachia and past and current responses to them. Issues concerning coal production, mountain-top removal and how groups have responded to them are discussed. In particular, it examines how local residents and concerned citizens, mainstream and radical environmentalists and other coalition members launched the Mountain Justice Summer Campaign. Its objectives were to inform the public about the impacts of mountain-top removal, organize public opposition to it and pressure government agencies to respond to its problems. The bridges and barriers they encountered in pursuing these goals are identified and assessed. Comparisons are made between their grassroots tactics and others within the environmental justice framework and considerations for future environmental justice efforts in Southern Appalachia and other resource-dependent areas.

Visualisation tools for aiding participation: Case study Switzerland, Entlebuch Unesco biosphere reserve

Wissen, Ulrike
Institute for Spatial and Landscape Planning
ETH Zurich
Zurich Switzerland 8093

Olaf G Schroth
Institute for Spatial and Landscape Planning
ETH Zurich

Eckart Lange
Department of Landscape
University of Sheffield

Willy A Schmit
Institute for Spatial and Landscape Planning
ETH Zurich

Email: wissen@nsl.ethz.ch

Keywords: 3D-visualisation, landscape planning, participation, application examples, tool effectiveness

Abstract: The EU project VisuLands, a transdisciplinary research project among six countries, analysed public preferences for scenarios of future land use to produce a set of new visualisation tools that facilitate public participation in landscape management. Relationships between visual qualities and other landscape functions such as biodiversity, cultural heritage, amenity and sustainable production were communicated to support a sound stewardship of the rural and peri-urban landscape, and an increased understanding of change. The research took place in six case study sites, where methods from social sciences were applied to assess the benefits of the visualisation tools for the participation process.

In this paper, the results for the Swiss case study site, the Entlebuch UNESCO Biosphere Reserve (UBE), are presented. A first key issue in the UBE is the landscape change as a result of abandonment of agricultural areas. In tourism, stakeholders are concerned about the possible impact of climate change on winter sports. Furthermore, a consensus was sought among tourism stakeholders and hunters during the approval of a new forest management plan. The research team took part in workshops on these topics and contributed interactive landscape visualisations to the process.

During the workshops, the assessment of the benefits of these tools was conducted by qualitative empirical methods, e.g. participant observations, group discussions

and interviews. In addition, a quantitative questionnaire was conducted during a local exhibition and an international group of end-user representatives assessed the overall potential of the tools. The case study concludes with a critical assessment of the effectiveness of the visualisation tools to facilitate participation. In this context, the requirements in means of representation and interactivity are analysed in greater detail and suggestions for future research are given.

Ecological citizenship and agrarian reform: Emergent spaces for community land use planning in Mato Grosso, Brazil

Wittman, Hannah
Sociology and Anthropology
Simon Fraser University
Burnaby BC Canada V5A 1S6

Email: hwittman@sfu.ca

Keywords: land reform; CBNRM; sustainable development; protected areas; participation

Abstract: Agrarian reform offers a unique opportunity for environmental planning and the renegotiation of the human relation to nature as part of the redistribution of control over rural land. This paper analyzes the evolution of environmental and community land use planning in Brazil's largest and most successful agrarian social movement, the Landless Rural Workers Movement (MST). Based on fieldwork conducted between 2002 and 2005 in the center-west state of Mato Grosso, I argue that the MSTs socio-environmental praxis is based on both practical concerns around agricultural production and ideological concerns about the sustainable management of agro-ecological landscapes. This praxis is illustrated through a case study of one land reform settlement in which settlers engage in several fronts of collective action around environmental planning. In the transition to agro-ecological production and in the protection of community forest and river reserves within the settlement, settlers engage in newly deliberative processes of collective decision making. This case illustrates how grassroots agrarian reform creates emergent spaces for public participation in nature conservation on the one hand, and spaces for the exercise of ecological citizenship, on the other.

The influence of transportation mode on visitors' significant and meaningful experiences in Yosemite National Park, USA

Wodrich, Jill A
School of Community Resources and Development
Arizona State University
Tempe AZ USA 85287-4703

Yolonda L Youngs
Department of Geography
Arizona State University

Dave D White
School of Community Resources and Development
Arizona State University

Email: Jill.Wodrich@asu.edu

Keywords: Visitor use management; alternative transportation; park planning

Abstract: Transportation systems in national parks affect the quality of both visitor experiences and environmental resources and thus transportation is an important consideration for the NPS as the agency implements its core mission. Research on the impact of transportation systems on visitors' experiences is necessary to improve social scientific understanding of people-environment interactions and to inform transportation policies. The issue of how transportation systems impact visitor experiences and park resources is especially salient for Yosemite, where parking availability, traffic congestion, and air pollution have emerged as significant problems.

Data for this study were collected via semi-structured interviews with 160 adult park visitors in August and October 2005 in the Yosemite Valley. Interviews focused on visitors' most significant or memorable experiences and the effects of different transportation modes on their experiences. Interviews were transcribed verbatim and qualitative analysis using QSR N*Vivo produced thematic categories; inter-rater reliability among two independent coders was 90%.

Features of the natural landscape, such as valleys, waterfalls, mountains, and granite domes were most frequently cited as contributing to significant experiences. Cultural landscape elements and social interaction by comparison received far less attention. Almost no visitors indicated their mode of transportation negatively influenced their most memorable or significant experience and numerous positive aspects for different modes of travel were mentioned. Most commonly cited positive influences

were an enhanced sense of personal freedom, unique access and opportunity for access to the park, and opportunities for learning. Findings suggest that visitors' experiences can be enhanced by transportation policies that protect freedom and choice while encouraging close interaction with the natural landscape.

What to do about climate change? Actors' perceptions of climate impacts, and societal responses and responsibilities in two coastal communities in British Columbia

Wolf, Johanna
Tyndall Centre for Climate Change Research
University of East Anglia
Norwich United Kingdom NR4 7TJ

Email: j.wolf@uea.ac.uk

Keywords: climate change, perceptions, awareness, responses, attitudes, coastal communities

Abstract: Global climate change is considered one of the greatest challenges facing humankind. Literature and policy suggest to respond to climate change by both adapting to its impacts and mitigating future impacts by reducing greenhouse gas emissions. Largely, these responses are uninformed by perspectives of individuals. This paper illustrates the results of social research, including interviews, a Q-sort, and focus groups, conducted in two British Columbia coastal communities. It argues that individuals perceive impacts directly and indirectly, have formed ideas about societal responses and local vulnerabilities, and feel incrementally responsible for causing climate change. Despite varying underlying attitudes, a common responsibility constitutes the core of individuals' understanding of how society should respond to a changing climate.

Policy innovation in urban forestry: An evaluation of portable science

Wolf, Kathleen L
College of Forest Resources
University of Washington
Seattle WA USA 98195

Email: kwolf@u.washington.edu

Keywords: local planning; innovation diffusion; human dimensions; policy; community

Abstract: Planning for trees in the midst of high-density human settlements entails a complex mosaic of land use conditions, diverse stakeholders and institutional practices. There have been many successful instances of technology transfer regarding on-the-ground best practices for urban tree management.

The status of urban forestry is still at the "public idea" level in many communities, evolving to become adopted policy in some U.S. municipalities. Policy technology transfer is another endeavor in urban forestry, as key decision makers may not be adequately aware of the benefits and functions of trees in cities. A diverse stakeholder base in cities necessitates attention to dispersal of knowledge about "why" as well as "how" with regard to urban forestry programs.

Building on the author's personal efforts concerning technology transfer, this paper will describe a formal appraisal and assessment of the impacts of urban forestry science outreach on municipal policy and programs. The research is being done throughout the U.S. using a case study approach. Specific evaluation goals include: 1) development of evaluative performance guidelines for print materials, 2) methodologies for tracing and tracking materials diffusion pathways, 3) monitoring the performance of technology transfer efforts, in terms of innovation adoption, from outreach to action, 4) focused assessment of "problem pioneer" and "champion" activities and influences, and 5) opportunities for integration across multiple technology transfer centers and programs, considering potential efficiencies and synergies.

Tools and designs of planning: Cross-cultural comparison of U.S. traditional and Navajo traditional planning paradigms

Wolf, Sue D
Four Corners Environmental Planning
Sedona AZ USA

Email: coswolf@earthlink.net

Keywords: Indigenous people; Native American; conflict resolution; natural resource planning

Abstract: The discipline and practice of planning provide: a forum for public discourse regarding present problems and future visions; a framework for resolving potential differences in perceptions of problems and potential solutions; and, a forum for shaping local environments and institutional frameworks to achieve desired futures. Planning has been considered a neutral technical tool which aids in shaping futures; however this “neutral tool” defines the type and structure of knowledge included in the planning process, who the planners will be, which goals are desirable and achievable, the duration of the process and how the process will be undertaken.

Cross-cultural conflicts in resource management and public planning have been apparent in the U.S. for decades. Analyses have generally focused on identifying cultural differences which may contribute to this conflict, and reshaping the planning tool to incorporate these differences (eg., broader forms of scientific knowledge, decision-making structures). Analyses have not explored whether the overall structure of the planning tool conflicts with other cultural conceptions of planning, and rather than a neutral tool, is one which produces only certain types of designs.

This presentation briefly describes cross-cultural analysis of traditional U.S. and traditional Navajo planning paradigms, providing insight into general similarities and differences in the “tools” of planning of each culture, and the type of designs each tradition creates for the future. Differences provide insight into conflicts which appear at the interface of Tribal and non-Tribal planning in the U.S. Similarities provide insight into common ground, and potential evolution of the U.S. planning tradition.

Monitoring and analysis of recreational boat use in sensitive wildlife areas in Prince William Sound, Alaska: A simulation approach

Wolfe, Phillip E
Forest Resources
Oregon State University
Corvallis OR USA 97331

Brian Garber-Yonts
Alaska Fisheries Science Center
NOAA Fisheries

Randall S Rosenberger
Forest Resources
Oregon State University

Email: phillip.wolfe@oregonstate.edu

Keywords: visitor flows; agent-based simulation; wilderness

Abstract: This study measures recreational boating use of Prince William Sound, Alaska. With improving access conditions over the last several years, the Sound has become a focal point of growth in outdoor recreation among both residents and out of state tourists. A principal concern of managers is the conflict between recreational use, wilderness, and wildlife protection. A large marine environment with highly dispersed recreation use, however, poses difficulties in applying conventional methods of visitor monitoring, and identifying where potential conflicts might occur is a challenge. Previous efforts to monitor recreation use in the Sound have employed wildlife monitoring techniques, and this study is the first to employ rigorous social science survey methods. Survey participants provided mapped travel diaries, and the data were digitized and analyzed using GIS and the Recreation Behavior Simulation (RBSim) model. Preliminary analysis indicates the presence of distinct travel corridors and destination areas used by three different users groups – paddlers, cruisers, and hunters/fishers. Combining these travel corridors with mapped sensitive wildlife areas identifies locations and intensity of recreation/wildlife conflicts. Simulation also provides the opportunity to project the redistribution of recreation use under hypothetical condition such as improved access to the Sound or development of facilities to extend boat travel, thus providing managers with insight into problem areas likely to emerge. This project provides a tool to aid land managers in the decision-making process regarding recreation and wildlife issues in Prince William Sound, Alaska.

When voluntary is prescribed but mandated is necessary: Confronting the realities of collaboration at the ecosystem scale

Wondolleck, Julia M
School of Natural Resources and Environment
University of Michigan
Ann Arbor MI USA

Susan Lurie

Email: sue.lurie@comcast.net

Keywords: conflict resolution, collaboration, ecosystem management, water resource management

Abstract: In late November 2005 the Directors of the US Office of Management and Budget (OMB) and Council on Environmental Quality (CEQ) issued a joint Memorandum on Environmental Conflict Resolution, directing federal agencies "to increase the effective use of environmental conflict resolution and build institutional capacity for collaborative problem-solving." The memo summarized twenty-five years of scholarship and professional practice in a set of eight core principles, one of which is to ensure "Balanced, Voluntary Representation."

Increasingly, broad and interrelated ecosystem scale issues require collaboration across multiple stakeholders and agencies, yet the political and organizational context poses a formidable barrier to interaction. Simply put, the voluntary emergence of a collaborative process is unlikely; a mandate is often required. What are the qualities associated with a voluntary process that have made it a central tenet of collaboration? What happens when a process is mandated instead? Can voluntary qualities be established in a mandated process?

We explore these questions through an analysis of the CALFED Bay-Delta Program (CALFED), a six-year, multi-party negotiation process at the interface of California's contentious environmental and water resource issues. Despite an executive directive that mandated the collaboration, and despite an organizational and political context that discouraged serious collaboration with the diverse stakeholders and agencies, CALFED has made some important headway. The process created new institutions, highly innovative programs, new knowledge, and new relationships. Collaboration took root and persists today despite a weakening of the mandate, a major restructuring of the organization, and the defection of some parties.

An integrative approach to managing visitor-caused impacts to cliff resources in Shenandoah National Park

Wood, Kerry T
Department of Forestry
Virginia Polytechnic and State University
Blacksburg VA USA 24060

Steven R Lawson
Department of Forestry
Virginia Polytechnic and State University

Jeffrey L Marion
Department of Forestry
Virginia Polytechnic and State University

Email: ktwood@vt.edu

Keywords: Recreation Impacts; Visitor Observation; Rock Climbing; Shenandoah National Park

Abstract: The rock outcrops and cliffs of Shenandoah National Park provide habitat for several rare and endangered plant and animal species. Also, the location of the world-famous park tour road, Skyline Drive, along the ridgeline makes many outcrops and cliffs within the park readily accessible to the park's 1.2 million annual visitors. Consequently, visitor use of cliff areas has led to natural resource impacts, including marked decreases in size and vigor of known rare plant populations. Despite the clear ecological value and potential threats to the natural resources at cliff areas, managers possess little information on visitor use of cliff sites and presently have no formal planning document to guide management. Thus, a park wide study of cliff sites was initiated during the 2005 visitor use season. As part of this research effort, our study integrated data from resource impact measurements and visitor use observation to help assess the effects of recreational use on the natural resources of one heavily used cliff site in the park. Results of resource impact measurements indicate that several nodal areas of high disturbance (bare soil) are present on the cliff top and cliff bottom. Additionally, observation data point to several possible factors that may contribute to cliff top impact including high use levels among certain visitor types coupled with a high percentage of observations of soil and vegetation trampling. The information from this study will help assist the park in developing a cliff resource management plan that will protect park resources while providing opportunities for visitor enjoyment.

Shrimp and the seafood tourist: Results from the 2004 South Carolina coastal tourism survey

Woosnam, Kyle M
Parks, Recreation, & Tourism Management
Clemson University
Clemson SC USA 29634

William C Norman
Parks, Recreation, & Tourism Management
Clemson University

Laura W Jodice
Parks, Recreation, & Tourism Management
Clemson University

Sajna Shenoy
Parks, Recreation, & Tourism Management
Clemson University

Email: woosnam@clemson.edu

Keywords: Shrimp tourism; market segmentation; sustainable harvest; South Atlantic; South Carolina

Abstract: Despite record high domestic shrimp consumption, the U.S. Southeast shrimp harvest has been challenged by competition with low priced imports of farm raised shrimp. According to a 2004 NOAA Fisheries report, U.S. shrimp landings comprised only 11% of shrimp available in the U.S. and the South Atlantic region contributed only 8% to the domestic harvest. The impact of low priced, imported farm raised shrimp has dramatically decreased the number and profitability of shrimpers in South Carolina. In response, the South Carolina shrimp industry has explored marketing the state's shrimp based on premium quality, domestic branding, source identification, safety, and fishery sustainability. This included marketing domestic shrimp as a specialty product by building linkages between local seafood harvest and coastal tourism. The 2004 Clemson South Carolina Coastal Tourism survey (introduced at ISSRM 2004) was designed to identify tourist segments relevant to shrimp consumption. An overview of survey results is presented, including analysis of the relationships between importance of shrimp sustainability and other shrimp selection attributes, knowledge of shrimp, and purchasing behavior among South Carolina tourists. This analysis of the role of sustainability in the decision making of coastal tourists is important in that the Monterey Bay Aquarium's Seafood Watch® guide ranks South Atlantic shrimp "good" compared to imported shrimp which was placed in the "avoid" category. This ranking was based on bycatch reduction success and an exhaustive review demonstrating little evidence of

adverse effects of trawling on soft bottom, high-disturbance, benthic ecosystems and due to aquaculture impacts on mangrove ecosystems.

Reconciling visitor use and ecological integrity

Wright, Pamela
Resource Recreation and Tourism
University of Northern British Columbia
Prince George BC Canada V2N 4Z9

Email: pwright@unbc.ca

Keywords: protected areas; parks; ecological integrity; recreation; monitoring;

Abstract: Parks and protected areas serve many societal values and reconciling recreation and tourism values with conservation objectives is an ongoing struggle. In 2000, the federal Panel on the Ecological Integrity of Canada's National Parks noted that the ecological integrity of parks are at risk and that significant attention must be paid to rethinking recreation experiences in this context. These issues are not unique to national parks as other agencies and organizations are looking for ways to redress ecological risks while providing memorable visitor experiences. Identifying and assessing values at risk, both ecological and recreational, are critical tasks in this reconciliation. This session will highlight some of these key issues and profile tools and techniques used in particular by BC Parks to identify and monitor values at risk.

Personal and organizational challenges to the use of scientific innovations by natural resource managers

Wright, Vita
Aldo Leopold Wilderness Research Institute
USDA Forest Service Rocky Mountain Research Station
Missoula MT USA 59801

Email: vwright@fs.fed.us

Keywords: science application, technology transfer, research dissemination

Abstract: Knowledge from several social science disciplines, including communication studies, organization theory, decision theory, and social psychology will serve as a backdrop for understanding discussions with United States land management agency decision makers and staff specialists about what influences their decisions of when to adopt scientific innovations. Specifically, the presentation will an overview Diffusion of Innovations theory, emphasizing both the process of adoption (knowledge acquisition, evaluation, decision, trial, and implementation) and characteristics of potential adopters that are likely to influence decisions about adoption. Interpersonal communication theory will then be used to explain sources of potential misunderstanding during interactions between science communicators and managers (i.e., potential adopters) that can leave managers with a modified perspective of what the science communicator intended to communicate, with continued uncertainty, and/or lack of interest that lead to passive rejection of innovations. Finally, discussions with managers in the contexts of different management agencies and different resource disciplines will be used to reveal their perceptions of personal and organizational challenges to the effective communication and application of science within their management contexts. Preliminary results suggest challenges include perceptions about science, relevance of research to management goals, conflicting interpretations of research results, heavy workloads, organizational culture, organizational leadership, external pressures to use science, public acceptance of science, and relationships with science communicators. Ultimately, understanding such challenges within the contexts in which targeted management audiences are expected to use innovations may increase the effectiveness and efficiency of science delivery efforts.

The relationship between perceived freedom in leisure and leisure participation: An empirical study from Taiwanese university students

Wu, Homer C
Graduate Institute of Environmental Education
National Taichung University
Taichung Taiwan 40306

ChungHsien Lin
Department of Land Management
Feng Chia University

Yu-Hsi Wang
Graduate Institute of Environmental Education
National Taichung University

Wen-Shiung Huang
Graduate Institute of Environmental Education
National Taichung University

Email: hcwu@mail.ntcu.edu.tw

Keywords: leisure, perceived freedom in leisure, leisure participation, Structural Equation Modeling, cross-validation

Abstract: The purpose of this research was to establish a conceptual model integrating perceived freedom in leisure and leisure participation and examining on Taiwanese university students. The specific objectives were as follows: 1. to understand Taiwanese university students' perceived freedom in leisure and leisure participation; 2. to explore the relationships among students' sociodemographic characters, perceived freedom in leisure, and leisure participation; and 3. to examine and validate the structural relationships between perceived freedom in leisure and leisure participation.

A total of 1019 valid questionnaires were collected through face-to-face survey at National Taichung University. The questionnaire consisted of three parts, the first part was perceived freedom in leisure which included 15 questions comprising 2 constructs (perceived leisure competence, and perceived leisure control); the second part was leisure participation which included 40 questions comprising 6 constructs (mass media, cultural activities, sports, social engagements, outdoor recreation, and personal hobbies); and the third part was student's sociodemographic characters.

The calibration (510 subjects) and validation samples (509 subjects) were randomly selected. The overall model evaluation for the calibration sample model was

reasonably fit the data (GFI=0.98, AGFI=0.96, SRMR=0.035, RMSEA=0.055, CFI=0.98, PNFI=0.66, PGFI=0.52, CN=391.92). After conducting the Structural Equation Modeling, the results showed that students' perceived freedom in leisure positively and significantly influenced leisure participation ($\beta=0.39$, $p<0.05$). The structural relationships of the calibration sample model were tested by the validation sample to fulfill cross-validation requirements. The difference of minimum fit function chi-square ($\Delta MFF\chi^2$) between the tight replication strategy model and loose replication strategy model was 3.50 ($df=7$, $p>0.05$), indicating the stability of this model.

The implications for leisure education and academicians are discussed, the suggestions for leisure curriculum in university level were also provided.

Integrating science and common sense for watershed conservation decisions

Wulfhorst, J.D.
Agricultural Economics & Rural Sociology
University of Idaho
Moscow ID USA 83844-2334

Kyle Hawley
Latah Soil & Water Conservation District

Jan Boll
Biological and Agricultural Engineering
University of Idaho

Bob Mahler
Plant, Soils, and Entomological Sciences
University of Idaho

Larry Van Tassell
Agricultural Economics & Rural Sociology
University of Idaho

Email: jd@uidaho.edu

Keywords: Watershed conservation, participatory methods, engagement

Abstract: Watershed conservation in the western U.S., and the Pacific Northwest more specifically, increasingly draws critical attention as an area of joint community and academic concern. Complexity of watershed systems continues to expand because of landscape fragmentation; owner vs. operator decisions regarding land-use patterns and practices; the regulatory environment; shifting demographics resulting from both ex-urban growth and the aging agrarian population; and, overlaps in these. These factors affect decisions as to what watershed scale becomes constraining or manageable for analyses. This paper highlights a unique USDA Conservation Effects Assessment Project (CEAP) underway in a watershed in northern Idaho that analyzes cumulative effects of conservation to optimize operator and agency decisions about conservation practices. The project includes hydrologic, social, and economic data combined in an integrated optimization model to forecast scenarios of conservation effects. This paper describes two components of the overall project: 1) the theoretical basis and intensive methodological processes for establishing working partnerships with the operators and landowners in the watershed; and, 2) a rationale as to the need for integrated research teams to consider alternative methodologies for data collection at watershed scales. Our approach recognizes that participants' knowledge (often labeled 'common sense' by non-academics) about the watershed becomes

critical in the process to determine when and how we arrive at scientific evaluations and answers. In this context, we analyze obstacles to best management practices such as cultural barriers of adoption, mechanical and philosophical differences in approach, and transaction costs between those collecting data and those with the local knowledge.

Examining the effectiveness of conservation initiatives through community benefits and place dependence: A study of the Community Baboon Sanctuary, Belize

Wyman, Miriam S
School of Forest Resources and Conservation
University of Florida
Gainesville FL USA 32609

Taylor V Stein
School of Forest Resources and Conservation
University of Florida

Email: mwyman@ufl.edu

Keywords: community-based conservation, Belize, protected areas

Abstract: The 4,800 hectare Community Baboon Sanctuary (CBS) protects one of Belize's few black howler monkey populations (*Alouatta pigra*). The CBS was set aside by private landowners from seven Creole communities situated along 33 kilometers of the Belize River. CBS communities have participated in two conservation initiatives since 1985: nature-based tourism and a voluntary, written, public pledge for private landowners to leave riparian forests and forested corridors on their lands that provide habitat connectivity for howler monkey populations, the main tourism attraction.

These collective action initiatives show the community places high value in riparian forests, but little is known about the communities' perceived benefits of riparian forests and the function of place dependence as an incentive to conserving forests, in addition to the role that these two conservation initiatives play in managing community benefits. This paper examines the impact of community benefits and place dependence on riparian forests within the CBS and land-owners' decisions to protect this important howler monkey habitat.

Semi-structured interviews and nominal group meetings were used to identify benefits. Structured surveys collected quantitative and qualitative data on perceived social, environmental, and economic community benefits and residents' feelings of place dependence values on riparian forests of the CBS. Results show the collective action in the CBS has resulted in unique perceived benefits and nature-based tourism plays a key role in providing opportunities for residents to attain those benefits. The pledge system is also important in forest protection, but perceived and attained benefits are not as clear.

Visual aesthetic quality of the middle landscape in a catchment basin

Yamashita, Sampei
Civil and Urban Design Engineering
Kyushu Sangyo University
Fukuoka Fukuoka Japan 813-8503

Naofumi Nakamura
Center for Landscape Research
Kyushu Sangyo University

Email: samp@ip.kyusan-u.ac.jp

Keywords: Scenic landscape assessment; GIS; landscape perception; Japan

Abstract: Suburban areas, or middle landscapes, can make an ideal human habitat and demonstrate how the human-environmental system can be sustained. However, without a proper evaluation and management, development of the middle landscape may be haphazard leading to its moving to the artifices of the city. This study deals with a catchment basin of a Japanese river and explores, both biophysically and perceptually, the value of the middle landscape within it. The structure of the middle landscape is determined by using the spatial soil data, water, vegetation, land use and possible inundation in the catchment area. The perceptual assessment involves panoramic video images (both upstream and downstream) taken from all the bridges across the mainstream of the river. Forty people (college students) watched the images and rated them by preferences. Scenic Beauty Estimation (SBE) procedure was employed to standardize the perceptual assessment data obtained. View-shed areas within the frame of each of the panorama images were calculated for both individual biophysical data and the middle landscape based on them. Results indicate that the visibility of middle landscapes, especially the residential areas with ample vegetation, has a positive impact on the view from the river. The study also examines how the evaluation of the middle landscape can contribute to the planning and management of the environment within the watershed.

Nature-based tourism impacts in I-lan, Taiwan: Business managers' perceptions

Yang, Joe Y
School of Forest Resources and Conservation
University of Florida
Gainesville FL USA 32611-0410

Taylor V Stein
School of Resources and Conservation
University of Florida

Email: joeyang@ufl.edu

Keywords: social, economic, environmental impact; social exchange; cost/benefits

Abstract: Nature-based tourism (NBT) is an emerging industry in Taiwan. In Taiwan's export-import oriented economy, I-Lan County has served as a leader – promoting NBT since the 1980s. Based on I-Lan's experience in NBT, this paper reports on research that examines the tourism business owners' perceptions of the social, economic, and environmental impacts nature-based tourism has had on I-Lan County. The framework of this study uses social exchange theory for costs/benefits analysis.

Data were collected in fall, 2005 (N=286; 92% response rate) from fifteen types of business managers in I-Lan County. Perceptions of NBT impacts were assessed through examination of participants' socio-demographic characteristics and type and level of involvement in tourism planning.

Results indicate that 83% of respondents were raised in I-Lan and 41% operated their business between two and six years. Most business owners reported that NBT had a moderate impact on their business – contributing approximately 30% of their annual sales and 31% of customers. Participants believed benefits to the social/cultural environment were the most apparent impact in I-Lan, followed by economic benefits. Environmental, social/cultural and economic costs were not considered major problems. Neither gender nor education related to participants' perception of impacts, but participants who were raised in I-Lan rated economic costs higher than newer residents. The type of business participants operated also related to their perceived impacts. Results show that with a better understanding of business owners' perceived impacts, county tourism planners can improve the collaborative management of nature-based tourism in I-Lan.

Emerging issues in Florida's natural resources: Shifting gears from participatory planning to community-based management

Yates, Gabriela E
Interdisciplinary Ecology
University of Florida
Gainesville FL USA 32611-0401

Taylor V Stein
Forest Resources and Conservation
University of Florida

Email: yatesg@ufl.edu

Keywords: Community control; co-management; participatory management; ecotourism

Abstract: Filling the gaps in participatory theory is vital as planners shift from community-based planning into community-based long-term management. The Florida Scenic Highways Program implements community-based participation throughout planning and management. This study focuses on four objectives in order to understand how scenic highway groups function during long-term management:

1. Isolate factors contributing to perceived success,
2. Determine if volunteers become fatigued during long-term management,
3. Determine if higher involvement of outside experts is associated with decreased community ownership and
4. Explore participation strategies that widen community representation.

Researchers collected data in four scenic highway cases. The analysis included

1. Multiple regression processes to determine variables that contribute to perceived success,
2. Population proportion tests to identify feelings of fatigue,
3. T-tests to compare community ownership between those with high and low outsider involvement and
4. Chi-square tests to illuminate ideal participation methods for scenic highway members according to their activity level.

This research finds non-monetary resources (i.e., information and skilled personnel), community ownership, and non-governmental organization involvement most important for community-based management achievement. Community ownership goes beyond helping communities feel good about themselves and results in empirical impacts to success. Involvement of experts is not associated with lowered community ownership indicating that insider and outsider knowledge can be brought together successfully.

Participation fatigue surfaced and proposed solutions include increased local government involvement.

This and other tests of participatory theory will help support local and expert voices in coming together to achieve sustainable natural resource management for generations to come.

Linking carbon sequestration science, climate adaptation and local sustainability

Yin, Yongyuan
Adaptation and Impacts Research Division Group (AI
IRES, UBC
Vancouver BC Canada V6T 1Z4

Email: yongyuan.yin@ires.ubc.ca

Keywords: Climate change adaptation and mitigation, sustainable development, local case studies

Abstract: The paper presents an integrated approach to link forest carbon sequestration, resource system adaptive capacity improvement, and local sustainability enhancement. The project improved the capacity of local resource managers in identifying the economic, social and environmental impacts of forestry land use decisions that may increase carbon sequestration and enhance local livelihood in western China. The research and stakeholder engagement activities promoted linkages among carbon sequestration plans, adaptation measures, and sustainable development strategies in the study region. In particular, three questions are addressed in this presentation:

- 1) How would forestry carbon sequestration strategies and adaptation policies affect local sustainability?
- 2) How could forestry carbon sequestration plans be better integrated into adaptation and sustainable development strategies? and
- 3) How could the research results assist resource managers in designing effective sustainable forestry management policies?

Accounting for recreation service of a forest area

Youn, Yeo-Chang
Forest Sciences
Seoul National University
Seoul Korea (south) 151-742

Sang Yoel Han
Forestry
KyungPook National University

Rin-Won Joo

Email: youn@snu.ac.kr

Keywords: Resource Accounting, Demand function, Forest recreation, Valuation, Forest services

Abstract: This study aims to develop a model, which can quantify the demand for forest recreation service provided by a forested area. Simultaneously this study aims to estimate the unit value of forest recreation service provided by a forested area, which can be used to develop a resource accounting of a forest area. This study analyzed panel data including a cross sectional data set covering socio-physical characteristics of forest sites and residential area. The result of analysis suggests that forest recreation demand is affected negatively by distance between the site and residence, and positively by population of the residential area, the size of forest site, and annual social expenditure for social infrastructure by the destination's municipality. In addition, the demand for forest recreation is elastic with respect to the distance while it is inelastic the other variables. This result corresponds to the economic theory of forest recreation demand, specifically to the gravity model.

Reoperationalizing the ROS: Incorporating the concept of spatial valuation zones

Yuan, Michael
School of Outdoor Recreation, Parks & Tourism
Lakehead University
Thunder Bay ON Canada P7B 5E1

Norman McIntyre
School of Outdoor Recreation Parks and Tourism
Lakehead University

Jeffrey Moore
School of Outdoor Recreation Parks and Tourism
Lakehead University

Email: mike.yuan@lakeheadu.ca

Keywords: Crown Lands; Forest Management Planning; recreation values, spatial values

Abstract: In the evolution of forest management planning in Canada, managers have examined adoption of existing recreation models in the Crown Land context. Although still limited in use, the ROS has proven to be the preferred choice due to its application to commercial forest management in many parts of the world and its cook-book approach to recreation zoning. The ROS is a supply-based inventory of recreation opportunities derived from the application of a series of resource criteria (e.g., access, size, naturalness) to a particular resource base. The ROS approach provides a 'coarse' management tool for evaluating proposed forest changes envisioned in the Forest Management Plan process. A major deficiency of the ROS, as originally conceived, is the generally poor predictive relationship between the recreation opportunity as defined by the various resource criteria and recreation activity demand.

To address this deficiency, the concept of spatial valuation zones (SVZ) was developed, essentially identification of micro-level demand values. This approach uses a variety of methods (focus groups, surveys etc.) to derive and spatially locate social values of a particular forest. The importance of these socially derived forest values is that they define areas within a forest that people view as special. These special places give meaning to and drive the socially defined importance of the forest. Concentrations of these socially defined values enable the recognition of SVZs - these areas are then managed independently from their identified ROS class. The parameters used to define SVZs can also be used to predict the location of other SVZs that were not revealed during data collection. In essence, a two-tiered ROS model is proposed with the first tier consisting of the broad-scale, supply-based,

spatial distribution of opportunities provided by the original ROS and the second tier consisting of the more detailed user-defined, site-specific demand indicated by the distribution of SVZs.

Deliberative democracy and co-management of natural resources

Zachrisson, Anna
Department of Political Science
Umeå University
Umeå Sweden 901 87

Email: anna.zachrisson@pol.umu.se

Keywords: common-pool resources; snowmobiling; conflict resolution; Sweden

Abstract: The overall purpose of this paper is to investigate the relation between the concepts of co-management and deliberative democracy in a multi-level institutional setting. The emerging importance of co-management of natural resources is coupled with a similar trend for deliberative forms of democracy more generally. It has also been pointed out that deliberation is a key understudied issue within common-pool resource theory, which focuses on natural resources. Hence, there seems to exist a need to develop the links between co-management and deliberative democracy further. Since deliberative democracy is often criticized for lacking empirical studies and co-management for an under-developed theorization, cross-fertilization between the two would probably be mutually useful. In this paper the two concepts are compared and discussed theoretically, in order to develop a framework for analyzing how deliberative co-management arrangements are and to provide an increased understanding of the mechanisms at work in co-management arrangements.

The framework is then illustrated by a case study of a local co-management process. In Funäsdalsfjällen, a conflict-ridden situation caused by snowmobiles was turned into agreement and the establishment of a municipal regulation area. Central authorities had sought to reduce snowmobiling in the area for a long time without success. In the mid-1990s, the issue became a conflict at the local level. A process was initiated locally and with support from local, regional and national authorities an agreement was finally reached. Deliberative elements are shown to be central to this success, and it is concluded that this perspective indeed do advance the understanding of co-management.

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