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ORAL PRESENTATION
FULL ABSTRACTS

ISSRM 2007
Park City, Utah USA
Valuing Access to our Public Lands: A Unique Public Good Pricing Experiment

In this paper, we report the findings of a unique nation-wide experiment to price access to our public lands. The Federal Lands Recreation Enhancement Act of 2004 mandated a new recreation pass (hereafter, the NRP) to replace the Golden Eagle Passport (GEP) and the National Parks Pass. These existing annual passes cover entrance to federal lands that charge a fee for recreational use. In May of 2005, the U.S. Departments of Agriculture and the Interior issued a national call for scholarly assistance in examining possible prices for the NRP. Our economic and survey research team at the University of Wyoming was selected to complete the task. After submitting our analysis and price recommendations, the price for the NRP was recently announced to be $80 with the new pass set to go on sale in January 2007. This paper discusses the economic issues associated with assisting federal land management agencies in determining the price for the new recreation pass.
Homeowners’ beliefs, shared values and trust as predictors of their opinions about the effectiveness of wildland fire defensible space activities.

Homeowners living in the wildland-urban interface (WUI) are asked, or required, to accomplish a number of landscape and structural actions, commonly termed as defensible space activities, to minimize or abrogate wildland fire losses. Many of these activities are considered useful, if not essential, by fire fighting experts, yet they are far from universally done by homeowners. Resistance and noncompliance is likely due to many causes, including social dimensions such as beliefs and attitudes. Our focus is on a limited set of causes of WUI residents’ effectiveness opinions. The effectiveness of defensible space actions may not be well established in the minds of the homeowners, and the scientific literature suggests that shared values and trust are important variables that might be related to extant levels of effectiveness opinions. This paper looks at this relationship and posits a mediated model of beliefs, values/trust and effectiveness opinions. Data come from a survey of residents living within the wildland-urban interface surrounding Cleveland National Forest in San Diego County, notably from within a half mile zone surrounding the National Forest. Scalar measures of four beliefs (anthropocentrism, biocentrism, responsibility and freedom), two measures of trust and shared value similarity were tested in a model with six different defensible space effectiveness measures (single item indicators of mechanical thinning, prescribed burning, creation of defensible space, firewise construction, and participation in community-based programs). Results suggest that trust and shared values do mediate the relationship and that some value indicators, notably freedom, are more strongly linked to effectiveness opinions. This, in turn, is variable across the six different DS activities studied. Discussion shows how such a textured understanding of these relationships can be used to affect better policy and programmatic compliance for homeowner defensible space activities. Thus, the findings can assist agencies working to educate and better prepare residents for wildfire and to make fire loss reduction programs more effective.
Abubakar, Babagana, Research, Independent Research, Nigeria

Ocean Pollution as a Result of Offshore and Onshore Petroleum Activities in the African Gulf of Guinea Region

The Gulf of Guinea region is located on the Atlantic side of Africa; the sub region has a total population of approximately 190 million people. It comprises of five different countries and their territorial waters, which are as follows: Nigeria, Sao Tome & Principe, Equatorial Guinea, Gabon and Cameroon. The sub region is blessed with many types of natural resources ranging from petroleum, natural gas, bitumen, uranium diamond and gold. However the region in the last two decades has attracted the world’s attention as a result of the continuous increasing discoveries of new oil fields on both its on shores and off shores. The Gulf of Guinea has become a “Gold rush” to the oil companies, attracting almost all the top oil firms in the world including; Exxon Mobil, Shell, Total, Texaco, Agip, Chevron, Slumberger, Stat Oil and Conoco Phillips among many other oil giants. As a result of the geometrically increasing oil activities in the region ranging from drilling, gas flaring, bunkering and exploration activities, there was increase in the general pollution of the region. For example recent reports released in June 2005 by the internationally nongovernmental organization on environmental pollution, the Netherlands based Climate Justice Programme, and the Nigeria’s Environmental Rights Action, under the aegis of friends of the Earth, ranked the region at the top on the world’s total flare, with Nigeria alone accounting for 16 percent of the world’s total flare. This paper discusses possible solutions and recommendations for the variety of social and environmental problems caused by these recent changes.
Review of studies on the recreational carrying capacity in Japan

As a part of efforts to promote sustainable recreational area management, studies on recreational carrying capacity in Japan were reviewed. Recently, the increasing number of studies concerning recreational impact on Japanese National Parks has prompted interest among officials, managers, researchers and visitors toward sustainable management and the carrying capacity of natural recreational areas. In particular, the concentration of visitors in some famous mountainous areas has caused trail degradation, reduced surface cover around campsites, created dissatisfaction and crowding among visitors.

Park administrators have long been concerned with the issues of balancing site development and conservation of natural resources. Following publication of a report in 1970 of the degradation of natural resources and congestion at famous tourist sites, the Japanese Environmental Agency began conducting capacity studies in cooperation with academic researchers at specific sites. Although the number of visitors at some sites had been reported to exceed capacity at that time, the Environmental Agency did not develop any management strategies, and there was also insufficient recognition of and opposition to excess capacity by land owners. In 1990, researchers began to investigate soil erosion on trails, vegetation trampling and visitor crowding perception, referring to North American studies. A boom in hiking among the middle aged and elderly was followed by an increasing number of reports of the over-use of areas. As park managers and stakeholders of natural recreational areas began to consider natural resource impact and visitor experience, studies of carrying capacity of recreational areas were started by some park managers in collaboration with researchers. Some researchers introduced recreational planning frameworks, such as the Recreation Opportunity Spectrum (ROS) and Limits of Acceptable Change (LAC) planning processes. Though some aspects of these frameworks were adopted into the standards for trail maintenance and visitor restriction areas in National Parks, and tentatively for recreational zoning in National Forests, aspects concerning carrying capacity were not adopted into the core planning and management frameworks. Thus, there is still a lack of information and misunderstanding surrounding this issue. Further studies and management feedback are therefore necessary to achieve sustainable recreational area management in Japan.
Examining Differences among Off-Highway Vehicle Riders: An Application of GIS in Visitor Experience Planning

The Travel Management Plan (2005) recently adopted by the U.S. Forest Service requires that all national forests manage for off-highway vehicle recreation (OHV) by providing quality recreation experiences for riders as well as manage for resource conservation. However, many managers currently lack basic knowledge about what factors actually contribute to quality visitor experiences, what may threaten a quality visitor experience, and whether or not all riders should be managed uniformly. Without this knowledge it is difficult, if not impossible, to provide riding opportunities that meet the 2005 management plan objectives. To help address this problem, this project uses the Recreation Opportunity Spectrum and Jacob and Schreyer’s theory of goal interference to examine perceived differences among OHV rider population segments as it relates to tolerance for lifestyle diversity as well as what resource preferences are desired by riders. According to Jacob and Schreyer, in cases where tolerance between groups is extremely low, an unwillingness to share resources may become a source of contention. Therefore, if tolerance is low among OHV user groups, but these groups are managed along the same spectrum of resource and social settings, then the potential for a degraded visitor experience greatly increases and the conservation of resources might be hampered. In order to help spatially reference where preferred resource settings exist within the study area, a modified version of Klishkey’s (2002) recreation terrain suitability index was formulated and mapped within GIS software. In addition, information regarding tolerance between riding groups was inferred into a spatial suitability model in order to pin point areas where conflict would most likely occur, as well as sensitive ecological areas that needed to be managed for conservation. Results of the study indicate that not all riders perceive themselves the same, and some riders showed low tolerance towards different rider segments. The use of GIS in identifying areas where conflict was most likely to occur in conjunction with what areas needed to be managed for conservation proved to be a useful tool in developing management strategies that meet both of the Travel Management plan’s objectives.
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Innovative USDA Forest Service Information Assets Projects: Community Self-Evaluation Toolkit

Communities associated with National Forests and other public lands have made it clear that their needs should be considered in Forest Service planning and management activities. The availability of a current, representative assessment of community residents’ attitudes, beliefs, values, and behavior relevant to the Forest would greatly benefit Forest Service planners and managers, both in developing management alternatives and assessing impacts to communities.

One option available is federal sponsorship of survey research or other types of systematic information collections in communities. However, such efforts cannot be undertaken without being approved by the Office of Management and Budget under the Paperwork Reduction Act of 1995. In addition, community residents can be detached from the research process and do not develop the buy-in and associated benefits of having been intimately involved not just as subjects, but as researchers.

This project is developing a set of tools or protocols that communities could voluntarily use to collect credible information about themselves that would be meaningful and useful to Forest Service planning activities. The Forest Ecosystem Management Assessment Team, for example, cited self-assessments as an important tool for learning about communities in the Pacific Northwest.

A number of examples of community self-assessment tools exist, often in the form of a workbook. These provide a starting point for development of the protocols.

The project is being conducted with input from teams comprised of representatives from a National Forest, leaders from an associated community, and social scientists from an associated university. These teams are providing input at each phase of protocol development to make sure that the self-evaluations are feasible and that the results are meaningful to community residents and useful to Forest Service planning and decision-making.
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An Investigation of Media and Interpersonal Effects on Consumers’ Decisions about Fish and Seafood

As human use of natural resources increases, new technologies promise to help meet demand in a more sustainable fashion. However, modern technologies are frequently perceived as risky or dangerous, leading to public opposition or mistrust. Risks associated with some technologies – such as genetically modified foods – are not directly perceptible to consumers. In these cases, public opinion is strongly influenced by both the media and interpersonal communication networks.

This study used semi-structured interviews with residents of various locations within Washington and Idaho to investigate public perceptions and preferences of fish/seafood as a part of their diet, wild versus farmed fish/seafood, perceptions of the aquaculture industry. In recent years, several scientific studies have documented elevated levels of toxins in farmed salmon, and these studies received widespread media attention. Content analysis of a sample of collected interviews (n=60) is used to explore the extent to which media coverage of the risks of consuming farmed salmon have impacted consumer decision making about fish/seafood consumption, if consumers relate the information about salmon to other types of fish/seafood products (both farmed and wild) and the extent to which decisions are influenced by other types of social influences and decision-making factors.

Preliminary results reveal that many consumers are largely unaware of the controversy over farmed salmon. However, some consumers have been influenced by media stories, although they often cannot remember specific sources or claims. Instead, they tend to rely on simple decision heuristics (e.g., “natural is better,” or “farmed salmon is less healthy,” “wild salmon is more natural”) that appear to have been distilled from the media. This leads most of these “informed” consumers to reject farmed salmon in favor of wild or some other alternative. Nevertheless, the decision making process is complex, as consumers weigh factors such as cost, taste preference, environmental impacts, and nutritional values.

Our results provide insights into the ways in which the public forms judgments about new and potentially risky resource technologies and products. Such information is needed if aquaculture is to fulfill its promise as a sustainable, healthy source of food.
Uncertainty, Robustness, and learning in Sustainable Resource Management

One approach to managing highly uncertain natural resource systems is to develop policies that sacrifice performance (output of ecosystem goods and services) for decreased sensitivity to uncertainty about the system. Such policies are referred to as precautionary or robust. Unfortunately, these policies typically cannot address all types of uncertainty and thus face fundamental robustness-vulnerability trade-offs. This paper analyzes such trade-offs for a large class of policies for a general natural resource management problem. This analysis shows that even mild robustness properties are difficult to achieve in general, and increasing robustness to some types of uncertainty (e.g., biological parameters) results in decreased robustness with respect to others (e.g., economic parameters). This fact has important implications for the way in which societies assess and cope with environmental risks. This paper discusses how characterizing the limits to robust (precautionary) resource management and the associated robustness-vulnerability trade-offs can be used to inform the development of policy and adaptive learning processes for improved resource management under uncertainty.
The New Boomtown: County Officials’ Responses to Energy Development in the Barnett Shale

Traditionally, the social impacts of energy production have been studied in the context of rapid population growth, which often accompanies such development. Recent technological advances, however, have allowed for greater levels of energy development in more metropolitan areas, where substantial population growth may not result from increasing development. The Barnett Shale region of Texas, for example, is the location of the second largest natural gas play in the U.S. It covers 18 counties, and encompasses several large cities, such as Fort Worth. In spite of rapid energy development, population in the region has not increased greatly. Nonetheless, the local people face various consequences and challenges as a result of extensive energy production. The potential for a local area to absorb the impacts that accompany rapid energy production, with minimal social disruption, is largely dependent on the ability of local leaders to meet the needs of the citizens. Preliminary interviews with key informants in two Barnett Shale counties revealed concerns among county officials regarding the level of authority granted them by the State of Texas, and resultant concerns about their ability to adequately respond to their constituents’ needs and problems in relation to energy development. It stands to reason that greater amounts of energy development would exacerbate these concerns. Accordingly, this paper empirically examines the extent to which county officials’ levels of satisfaction with State-granted authority vary in relation to the amount of energy development occurring in the county. Because leaders’ perceptions can be expected to influence their decision-making behavior, it is important to gain an understanding of these perceptions as well as the variables that potentially influence them. This understanding will have implications for policy-makers, government officials, educators, and community members.
Using the Classroom Setting to Empower Students as Citizens in a Participatory Planning Effort: The Sherburne County Green Infrastructure Planning Process

This paper reports on an effort to engage students enrolled in two upper division and graduate level classes during fall 2006 —Landscape Ecology and Sustainable Land Use Planning— with classroom learning activities that would engage them as citizens in developing workable and sustainable management plans for Sherburne County, Minnesota. Land use planning in the U.S. requires citizen input. Sustainable land use planning requires that citizens understand the importance of social capital as well as natural and economic capital in writing and implementing plans. This class gives students a chance to put into practice what is learned in the classroom and raises students’ awareness of their roles and responsibilities as informed and engaged citizens within and outside of the university. In both courses students learn that sustainable planning and management of natural resources is achieved when agreement on landscape goals from public and private landowners and other stakeholders is reached. Agreement is reached by engaging and empowering citizens in the planning and management process. Sustainable land use comes about when the agreement citizens and land managing entities have come to take into account the social, ecological and economic factors of the area. In these classes students were asked to review the comprehensive management plan for Sherburne County in Minnesota and the U.S. Fish & Wildlife Service’s management plan for Sherburne National Wildlife Refuge in Minnesota. The Refuge covers about 33,000 acres and is the largest public land holding in Sherburne County. It is also the largest natural or near natural appearing landscape in the county. Using the Refuge as the central hub, students worked with county officials and the agency to develop a green infrastructure plan for the county. Students learned how to conduct and participate in focus groups, develop and present alternative plans, work with planning and zoning commissions, work with public land managing agencies, negotiate differences, develop consensus around a planning effort, and present their work to professionals and citizen stakeholder groups.

Government-led land restitution in South Africa in places now designated as protected areas has created challenges for land restitution and conservation efforts. Recent settlement agreements in KwaZulu-Natal province have restituted land ownership in highly restricted ways, key of which is that the restituted land be managed under the supervision of a designated government conservation agency. This paper analyzes the challenges wrought by this “restricted ownership” from the perspectives of the land claimants, the government conservation agencies, and other local and non-local actors. Challenges include the introduction of a new ownership system and competing feelings of ownership among actors. The large number of actors who feel ownership of or exert control over the protected area places new landowners in complex decision-making and management situations. The paper concludes that without shifting decision making power and management authority toward claimant landowners, protected area restitution cannot be equitably and effectively implemented. For protected area land restitution to succeed, protected area conservation strategies must adapt to a new ownership system and give claimants a role as land owners, managers, and decision makers.
Regionalized approaches to natural resource and watershed management are being adopted in many western nations in an attempt to improve on centralised government planning and develop more appropriate geographical scales that make it easier to engage local and regional stakeholders. This paper will discuss the model being applied in Australia, which essentially institutionalises a new tier of natural resource governance and a new set of regions, and cuts across previous regional and administrative boundaries. This model can of course be analysed from many perspectives, but the paper will apply a knowledge systems approach and focus on the implications of the model in engaging stakeholders representing different knowledge systems. Implicitly, this model and all other approaches to collaborative natural resource management, have implications in privileging and empowering certain kinds of knowledge and the stakeholders who are its custodians, while possibly disempowering other kinds of knowledge and those who hold it. In particular, these models can disempower stakeholders whose involvement is essential to achieve change 'on the ground', and so compromise chances of achieving more sustainable management practices.

Developing a better awareness of the knowledge and power implications of regional approaches can help identify weaknesses in these approaches and work towards broader and more equitable stakeholder engagement. It can also help develop better models of knowledge integration to apply in western natural resource management contexts.

The social landscape of a park, visitor center, wilderness area, river or other wild land area plays an important role in visitors’ behavior and experience. Changes to the social order of a park have implications for the ways that people experience a park, what activities they undertake, and for the ways managers provide recreational opportunities with a park. Over the past twenty years, there has been a change in the distribution of social groups among overnight backcountry hikers in Grand Canyon National Park (GCNP). In 1984, 45% of the overnight hikers were with groups of friends and 24% with family groups. By 2004, 43% of hikers were in family social groups and 33% in groups of friends. Over the same time period the age structure of the overnight hiker population has become significantly older. In 1984, 72% of the population was age 35 or under, by 2004 69% of the population was over 35 years old. Both the literatures on the social groups approach to leisure behavior and the social networks literature suggest that social group and age are correlated. This paper’s purpose is to test whether an “age effect” or “cohort effect” explanation best characterizes the changes to the distribution of social groups in the overnight hiker population at GCNP. An age effect would predict that the changes to the distribution of the social groups are related to the aging of the visitor population. A cohort effect would suggest that the emergence of a new social order in the backcountry is due not to the aging population, but rather some other fundamental change to the social organization of leisure behavior in wild land settings. Data are drawn from two representative samples of overnight backcountry hikers the first collected in 1984, the second in 2004. Data are analyzed by estimating a series of logistic regressions for five types of primary social groups. Results from preliminary analyses indicate support for the age effects hypothesis. That is, the changes to the distribution of social groups among overnight backcountry hikers are related to an aging hiker population. This finding implies that changing social structural positions of visitors to National Parks can have important effects on the transformation of a park’s social landscape.
Performance-Based Planning and Environmental Management: Desired Environmental Outcomes in Queensland

The purpose of this paper is to evaluate the application of performance-based planning to natural resource and environmental 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. We will provide an empirical evaluation of the effectiveness of performance-based standards in environmental and natural resource management by using Queensland Local Government case studies.

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.

The paper will provide an overview of first, how performance-based planning is being applied using Desired Environmental Outcomes as standards in northern Queensland. We will compare the application of this approach in the built and natural environment, where the same method is being used to manage World Heritage Areas and local township zoning. Case studies will include the Douglas Shire Council in Northern Queensland and surrounding World Heritage areas comprised of the Wet Tropics and Great Barrier Reef. Secondly, the research evaluates the application of performance standards with respect to the strengths and weaknesses of the unique approach adopted in Queensland. We argue that the performance-based methodology is developed for the built environment and does not adequately define suitable standards or even management performance criteria for natural environments such as World Heritage Areas.
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Against the Paper-mills. Road Blockades and the Framing of an International Conflict between Argentina and Uruguay.

In the past 3 years, Argentina and Uruguay -countries traditionally sharing friendly relations- entered an escalating conflict born from the programmed construction of two cellulose factories on the Uruguayan side of the river dividing the two countries. Protests against factories that threaten to contaminate the environment are frequent in Latin American countries, where companies confront few obstacles and the mechanisms of control are not greatly developed. However, there are at least three peculiar factors in this case: 1) the entire town of Gualeguaychú (on the Argentinean side) reacted against these factories, creating an ‘environmentalist assembly’ and using as a strategy the blockade of the routes that link the two countries, thus generating an international conflict that already involved the International Court of Justice, the MERCOSUR, the World Bank, and currently has the King of Spain as mediator, 2) the Argentine government declared the fight against the paper mills a national cause, and supported (or at least did not interfere with) the routes’ blockades, and 3) more than 10 cellulose factories are working today in Argentina, none of which received (or is currently receiving) the attention these particular ones received. Drawing on the literature on social movements and collective action, my paper analyzes how the situation is framed to produce a collective environmentalist identity, emphasizing the role of the state and past experiences of protest in Argentina in the dynamics of the conflict. As well, it explores the absence of protests in other places equally affected by this phenomenon.
In June of 1994 the environmental advocacy group RESTORE the North Woods (RESTORE) unveiled a proposal for a 3.2-million-acre national park in northern Maine that set off a firestorm of public debate. The debate has often been characterized as those for conservation versus those for the “working forest” of Maine. This research employed a qualitative methodology to explore what alternative models of large-scale conservation may be useful for Maine policymakers to consider in their effort to effectively meet the competing values of the forest.

From June 2004 to May 2005 face-to-face interviews were conducted with 21 decision leaders in Maine in order to explore options for large-scale conservation planning not currently being evaluated at the state level. The term decision leaders is used to represent people from business, non-profit, academic and government sectors that have worked in or studied the northern half of Maine for the majority of their career. Interview data were supplemented by numerous informal interviews, meetings, and document research during the same period.

What emerged from the interview data were four alternatives to the national park proposal. The leaders in Maine saw the possibility of one option with full federal control, and that was a national forest. The other options were all federally funded programs with levels of state control. The confidential nature of these findings transcends the stereotyping that has plagued land-use debates in Maine. The park proposal debate created a dualistic argument, when the solution seen by the decision leaders in Maine is one of collaborative partnerships that takes into account all values represented by the Maine northwoods.
Challenges to CAMPFIRE in Zimbabwe's crisis

Zimbabwe's CAMPFIRE program, established in the late 1980s, was an early and influential effort to implement community-based natural resource management on a national scale. Over its first decade, the program showed considerable promise, attracted substantial donor funding, and served as a model for similar approaches elsewhere in southern Africa and beyond. In 2000, however, the program began to experience destabilizing shocks related to profound changes in the external policy environment. First, international donor funding for CAMPFIRE came to an end. Second, Zimbabwe began the descent into its severe and ongoing social, political, and economic crisis. This paper explores the effects of these external shocks by reviewing the results of three case studies, conducted between 2004 and 2006, of previously well regarded CAMPFIRE projects. The study sites are Mahenye Ward in Chipinge District in the southeast lowveld, Nenyunga Ward in Gokwe North District in the northern part of the country, and the larger project involving all wards in Nyaminyami District in the Zambezi Valley. The researchers -- Balint and Mashinya for Mahenye and Nyaminyami, and Mapedza and Bond for Nenyunga -- have previously published individual case study results. The present paper extends this work by synthesizing findings from the three cases and offering tentative conclusions regarding threats to community-based conservation and development initiatives more broadly. With considerable consistency, the three studies found that benefits to households, including socioeconomic gains and human-animal conflict mitigation, declined sharply after 2000. They found further that political and traditional elites now capture much of the CAMPFIRE income that continues to flow to the district or ward level. The studies also found, perhaps surprisingly, that habitat protection and other conservation efforts have been less severely affected. In combination, the three studies suggest that weak points likely to give way when community-based conservation projects face external stresses include institutional accountability, transparency in governance, and local participation and legitimacy.
Land management decisions are often based on incomplete knowledge due to both a lack of scientific research, monitoring and assessment, and the failure to draw on local ecological knowledge (LEK). This paper investigates the use and integration of local knowledge and conventional science in the ecological stewardship and monitoring activities of 7 Community-Based Forestry (CBF) organizations in the United States that were all part of the Ford Foundation Community-Based Forestry Demonstration Program. We found that all the CBF groups incorporated LEK into some aspect of their management or monitoring activities, and that all groups also used conventional science to design or conduct ecological assessments, monitoring or research to inform their management. Four strategies used by CBF groups were the most consistently successful in integrating local knowledge and conventional science: 1) field tours, 2) establishing focused monitoring task forces or sub-committees, 3) training local people in scientific methods, and 4) hiring scientists with interdisciplinary training. These findings suggest that community-based forestry organizations are committed to monitoring as a way to learn and improve management, and use both science and local knowledge in this process, with the effect of redistributing power through the use of different knowledge sources. CBF groups’ capacity to use science effectively was enhanced by partnerships with scientists that helped build the internal science capacity and the scientific literacy of the community. Field tours and other joint hands-on-the-land activities, while not considered formal monitoring, were effective ways to encourage interaction among holders of different kinds of knowledge (scientists, locals and managers), and foster integration of LEK and conventional science.
Co-Planning with Aboriginal Peoples: A Synthesis of Existing Models of Indigenous Governance and Collaborative Planning

“Canada is the test case for a grand notion – the notion that dissimilar people can share land, resources, power and dreams while respecting and sustaining their differences.” This opening statement from the Royal Commission on Aboriginal Peoples (1996), a massive multi-year study of Canadian-Aboriginal relations summarizes not only the challenges faced by Canada, but also by postcolonial states across the globe as they reconstruct their relationship to their founding, indigenous peoples. For natural resource planners and managers, this call for the development of new governance relationships with Aboriginal peoples represents both a challenge and opportunity. Namely, how to extend existing knowledge and experience in collaborative natural resource management to the development of planning relationships that respect and sustain the differences between Aboriginal and non-Aboriginal communities, while not losing sight of their social, economic, political and ecological interdependencies.

To help clarify both the normative and practical dimensions of co-planning with indigenous peoples, this paper links two previously disconnected bodies of literature: conceptual models of indigenous justice and governance – Tully’s (2000; 1995) work on the ‘mutual recognition of difference’ and Schoul’s (2003) model of relational pluralism – and collaborative planning theory. Although both explore the negotiative aspects of governance and policy development, the theories of indigenous governance offer normative visions that could be used to evaluate the quality of planning relationships formed with Aboriginal communities. Collaborative planning theorists, on the other hand, are seen to offer a vocabulary and intellectual frame for clarifying and exploring the conceptual, cultural and institutional barriers to effective cross-cultural deliberation. The paper concludes by briefly summarizing directions for empirical research, emphasizing the importance of complimenting these theoretical models with grounded accounts of how practitioners engage with and make sense of their evolving relationship with Aboriginal peoples.
Guam as a Fishing Community

National Standard 8 of the Magnuson-Stevens Fishery Conservation and Management Act required the National Marine Fisheries Service (NMFS) to consider the needs of fishing communities when managing fisheries. Subsequently, NMFS identified Guam as a fishing community.

Fishing has been a way of life for centuries on the island. Prior to the arrival of Europeans, in the sixteenth century, the indigenous Chamorros possessed large sailing canoes that enabled them to fish on offshore banks and sea mounts. During the 1700s Spanish colonizers destroyed these boats and relocated the population inland, leading to a long gap in practice and knowledge of offshore fishing techniques.

In the 1990s there was a resurgence in offshore fishing, partly in response to the sharp decline in catch per unit effort from Guam’s shore-based fisheries for reef fish. The Guam Fishermen’s Cooperative Association, incorporated in 1977, plays a major role in offshore fishing through benefits to fishermen and its community programs and services. The Co-op encourages conservation through its pricing structure, whereby catches under 100 lbs for several fish species receive the highest price.

The cultural connection to fishing remains strong on Guam, whose people participate in many banquets throughout the year associated with neighborhood parties, wedding and baptismal parties, and especially the village fiestas that follow the religious celebrations of village patron saints. All such occasions require large quantities of fish and other traditional foods. For large segments of the population, fishing still provides supplementary income, nutrition, recreation, and reinforcement of cultural traditions.

A number of current issues face fishermen on Guam, including marine preserves which prohibit or restrict fishing while currently allowing unlimited other activities; military buildup which will benefit the overall economy but create impacts to fishing; and habitat degradation.
But Can I Drink It? Water Quality Awareness and Attitudes in the Hinkson Creek Watershed

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. From the information gained in these focus groups a mail survey was developed and randomly sent to 10,000 people in the watershed. 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.
Sustainable forest management: bridging property and organizational boundaries through partnerships in Vermont

In Vermont, as well as many other parts of the United States, fragmented forest ownership presents challenges to the achievement of sustainable forest management (SFM) on private property. These challenges include that of applying concepts of landscape-scale management over a mosaic of small landownerships while addressing ecological, economic, and social dynamics. In Vermont, partnerships involving environmental non-profit organizations are implementing innovative cross-boundary management strategies to promote SFM. In so doing, non-profit groups are branching out from traditional roles of advocacy and public goods promotion to address not only the ecological, but the economic aspects of forest management. Moreover, unlike conventional forest landowner cooperatives, which focused on gaining economies of scale in timber sales, these new partnerships address issues of forest health and social well being as well as economic viability. Examining the strategies, motives, internal dynamics (with respect to power and access to resources), and perceived permanence of these partnerships provides a greater understanding of the nature of these new institutional arrangements for SFM. This paper asks the question: To achieve goals of sustainable forest management in Vermont, how and why do partnerships involving environmental non-profit organizations work across private property and organizational boundaries?

Drawing on a multiple case study design, we examine the strategies, motives, internal dynamics and perceived permanence of three Vermont SFM partnerships involving environmental non-profit organizations. Data come from in depth, open ended interviews with partnership participants, as well as documents and field observations. Data are analyzed within and across cases to identify, assess, and compare (1) roles of partnering organizations, (2) strategies for cross-boundary work, (3) perceptions of effectiveness and challenges, and (4) perspectives on permanence. Findings increase our understanding of the roles of environmental non-profits in bridging boundaries in the forest management sector, raise key questions about the permanence of such arrangements, and provide insights into partnership practices that may be applied in other settings.
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The next generation of USDA Forest Service community assistance grants programs

The USDA Forest Service granted more than $36 million in National Fire Plan-Economic Action Programs and related community assistance funds in the western U.S. in fiscal years 2001 through 2003 to increase biomass utilization to support implementation of the National Fire Plan. This study examined grants targeted to biomass utilization and the investment approaches that evolved under the first three years of the National Fire Plan. Findings include identification of a strong emphasis on grants leveraging other funding sources; coordination of resources to increase small business capacity and small industrial infrastructure; and regional differences in approaches and conditions. We conclude that success in reducing hazardous fuels is inextricably linked to biomass utilization, but that the sustainability of such depends on lessons learned from past community assistance programs and their investments.
Social indicators and sustainable forest management: Opportunities and limitations

Forest managers are continually seeking quantitative social indicators relevant to sustainable forest management. The rhetoric of sustainability suggests that one third of the puzzle involves social sustainability. This has policy-makers scurrying for meaningful, transparent, sensitive and operable social indicators that are quantifiable and relate directly to forest management actions. Unfortunately, many of the important social indicators do not lend themselves to this sort of quantification. Often the connections between desired social outcomes and specific forest management practices are distant and difficult to track with quantitative indicators. As well, social scientists working in forest management agencies or university departments may find themselves confronted with the “Forestry/Society Means/Ends Confusion”. This refers to the fact that foresters are interested in social indicators as “inputs” to create a more sustainable forest management system as the “output”, while most social scientists would argue that, in fact, forest management should be the means to further social goals.

This paper offers three potential solutions to this social indicator dilemma. First is to identify the subset of relevant social indicators that can be quantified and operationalized in forest management and planning. Furthermore, some of these indicators may serve as effective proxies for additional social indicators. Second, it is important to identify social indicators that are relevant but difficult, if not impossible, to effectively quantify. However, it is possible to demonstrate to forest managers and planners where and how these variables might still be assessed and considered in policy development or forest management and planning processes, despite an inability to quantify them. Third, it is important to continue to push the frontiers of quantifying heretofore difficult or impossible to quantify indicators, even if this is at a rudimentary level. Even simple, dichotomous choice (yes/no, good/bad) assessments may help foresters better satisfy social demands. Examples are given of some innovative work in quantifying problematic but relevant social indicators.
Monitoring public discussion about policy and planning issues: a new approach

Surveys, focus groups, interviews, and other traditional social science approaches to assessing or monitoring attitudes and beliefs have several inherent limitations. Traditional methods: (1) provide only a snapshot in time rather than trends over time, (2) cannot be quickly and easily updated, (3) often produce findings long after they were needed for planning and decision making, and (4) are unable to monitor attitudes and beliefs at multiple spatial scales simultaneously (e.g., from a specific national forest or region to the entire nation). This paper describes a prototype web-based social monitoring system that avoids these shortcomings. The system monitors the public discussion and debate about forest policy issues using computer-coded content analysis of news media stories and other textual data sources (http://ncrs.fs.fed.us/issues). News stories about forest policy issues are obtained through CyberAlert.com, which searches more than 15,000 news sources daily. The news stories are then analyzed using the InfoTrend® computer content analysis method and software, and results are posted to the website on a regular basis. Information provided by this system could help natural resource management agencies monitor public attitudes and beliefs about key issues at the national as well as regional and local levels, assess the salience and geographic coverage of policy issues, and identify the underlying dimensions of issues. Future developments will greatly increase the flexibility of this prototype tool, allowing forest planners, managers, policy makers, public affairs officers, communications officers, and other users to: (1) specify any management or policy issue to monitor (e.g., geocaching, eco-terrorism), (2) specify a location to monitor (e.g., a particular national forest or region), (3) monitor multiple databases of text (e.g., news media discussion, blog discussion of issues relevant to the Forest Service, ethnic and minority news sources, email comments sent to the Forest Service, open-ended comments from surveys or focus groups, etc.), (4) identify emerging issues in the public discourse.
The development of heritage interpretation has added new management directives to the seminal goal of connecting visitors to natural and cultural resources. The additional goals arose from the interaction of recreation practice and theory. The author proposes a model; The Four Conceptions of Interpretation, to illustrate changes in the field and to assess the effectiveness of heritage interpretation’s communication process to achieve multiple management goals. The four conceptions are: 1) connecting visitors to heritage resources, 2) encouraging environmental literacy, 3) influencing visitor resource behavior, and 4) promoting tourism outcomes. The study examines evidence of four goals manifested in recreation practice in the form of National Park Service (NPS) cultural interpretive programs. Indigenous peoples programs were chosen to test the model for visitor understanding of Cultural Resource Management (CRM) because less is known about visitor’s perceptions of CRM than natural resource management. The purpose of the study is to assess the effectiveness of heritage interpretation to achieve multiple goals through the presence of the model’s framework in a trickle down effect from park management to the visitor.

The method used is multiple case design (Yin, 2003). Three NPS sites featuring indigenous, tribal, cultural programs were chosen. The sites are Bandelier National Monument in New Mexico, Fort Smith National Historic Site in Arkansas, and Ocmulgee National Monument in Georgia. Triangulated qualitative data sources include program transcriptions, staff interviews, and 30-day post-program visitor telephone interviews. The interview instrument utilized a semi-structured and open-ended format. Participants were probed for general program content followed by more specific probes into each of the four conceptions as distinctive topic areas. A third set of questions examined staff preparation and alternately visitors’ overall impressions and understanding of the phrase, “cultural resource management.” All data were transcribed verbatim and analyzed using NVivo 2.0 qualitative coding software. Constant comparison was employed to categorize evidence in terms of the four conceptions of interpretation.

Analysis of data representing the four conceptions yields evidence that the model is a valid framework. According to park staff and visitors, beliefs as well as material objects are historical artifacts that deserve preservation, conservation, and personal interpretation.
Forest attitudes of different interest groups in three boreal regions that vary in importance of forestry

Differences in the attitudes towards forests and forest management of local and regional interest groups in regions with different forest use histories were studied using Southeastern Finland, the Mauricie area in Quebec, Canada and Central Labrador in Canada as examples of regions with high, medium and low importance of commercial forestry. 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.

Our comparison is based on the idea that the current state or appearance of the forest, which reflects the forest use history of the area, affects people’s attitudes towards the forest and views of how forests should be managed and utilized. We present a conceptual model illustrating the interaction between the forest, cultural models about forests and forest management.

Hypotheses:
1. As the importance of commercial forestry increases, a greater importance of the utilitarian value of forests is expressed whereas the opposite trend is expected for the intrinsic value of the forests.
2. Inter-group differences increase as the importance of commercial forestry increases.
3. Managed forests are appreciated more for their visual quality in regions where commercial forestry is more important.

Our data from 252 persons was collected using self-administered questionnaires in seminars organized separately for each interest group. We mainly used questions adapted from McFarlane and Boxall (2000) measuring attitudes towards forests and forest management. Questions on multiple uses of the forests and the effects of forestry on the visual quality of the landscape were added. A five-level Likert scale was used in the questions.

In contrast with our hypotheses, no clear trends regarding the importance of utilitarian or intrinsic values of the forests were detected across regions. However, inter-group differences, as measured by differences in means of extreme groups, seem to be growing as the importance of commercial forestry increases for issues related to the utilitarian or intrinsic values of the forests. A trend is observed for appreciation of the visual quality of the managed forest by forestry professionals and multiple users, but not by environmentalists.
Berrens, Robert P, Economics, University of New Mexico, USA
Tyler Prante, Economics, University of New Mexico
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Building social capital in forest communities: revealed preference analysis of the Collaborative Forest Restoration Program

There is a unique experiment in public lands management happening in New Mexico. Established under P.L. 106-393 (2000), the federally-funded Collaborative Forest Restoration Program (CFRP) represents a significant departure from traditional forest management. The program has multiple goals: reducing wildfire risk, providing jobs, fostering community collaboration, and forest restoration. Forest stakeholders apply for grants to fund projects on public lands (federal, state, municipal and tribal), and a Technical Advisory Panel selects projects for funding. Through proposal development, participation on the Panel, implementation of selected projects and required multi-party monitoring, the CFRP cedes considerable control over public forest management to stakeholders. With its focus on collaborative efforts and stakeholder involvement, the CFRP can be viewed as an attempt to improve social capital in forest communities.

The program has generated considerable interest, with possible expansion to other states. However, the program has been the subject of little empirical research. We apply econometric revealed preference analysis to the over 200 funding decisions by the CFRP from 2001-2006. By analyzing how funded and non-funded projects differ with regard to stated goals, while controlling for a wide variety community and project characteristics, we are able to draw conclusions about program preferences.

Results provide evidence of program preferences for projects that meet all procedural criteria and emphasize community collaboration and forest restoration, especially in poor counties. Measures of wildfire risk priority and small-diameter timber utilization are not significant determinants. There is a preference for projects that include on-the-ground treatments, but no bias towards any particular group or jurisdiction. Despite being touted as an important positive feature of the law, funding decision actually show a negative preference for treatments taking place across multiple land jurisdictions. Thus, while the initial period of CFRP funding provides evidence of a well-run program addressing some key objectives, there may also be a significant missed opportunity. By not taking advantage of the ability to engage in treatments across multiple public land jurisdictions, the CFRP has not fully developed the kind of bridging social capital necessary to solve the mosaic problem that confronts forest communities with wildfire risks.
Visitor profile and management at nature-based attractions in Barbados

Barbados, a small island developing state in the Eastern Caribbean has been dependent on tourism largely due to the significant economic impacts in income, employment and tax revenues. Besides the warm climate and saltwater beaches, there are numerous other nature-based attractions and destinations for various types of outdoor recreation and cultural activities. While the country has had success in attracting visitors however, there is a paucity of research with respect to understanding visitors. Currently, only limited data is collected via traditional exit surveys conducted at the airport and seaport. Furthermore, given the influx to nature-based attractions, there is lack of available data about visitation numbers, visitor profiles and other associated behavioral variables. However, though site managers make anecdotal reference to the visitor profiles, not many of them have examined their visitors in any systematic way. This study was conceived as a first step towards developing a profile of visitors to major nature-based attractions in Barbados, which could ultimately be used to assist in (1) understanding visitors, and therefore be in a better position to provide opportunities to satisfy their needs; (2) developing a visitor management and monitoring system.

Data were collected at five nature-based attractions during July and August of 2006 (N=156). Highlights from the results illustrated that the majority were females, middle aged, noted high levels of education and incomes, and were largely from the UK and USA. Also, majority were vacationers and overnight visitors that spent an average of 13 nights; indicated to be their first trip, and had visited with their family. With respect to their experience, the majority noted that the sites were not at all crowded, and the presence or behavior of other visitors had no effect on their enjoyment. Visitors expressed satisfaction with site specific characteristics such as, interpretation, signage, visitor center, and knowledge of tour guides. However, they were less satisfied with safety and security at the respective sites, and also at the appearance and maintenance of the area. Visitors were satisfied with the value for fee paid and were even willing to pay higher entry fees. Finally, the overall quality of experience was relatively high among visitors, which demonstrates a good sign for site managers.
Interpreting significant vegetation communities in a regional context: a case study of the Victorian Box-Ironbark Forests, Australia

In Australia significant vegetation communities at a regional scale commonly occur in protected areas. Opportunities exist to provide interpretive, educational and promotional initiatives to promote and manage these vegetation communities. This research sought to investigate a range of options for developing interpretation, education and promotion initiatives for the Box-Ironbark Forests across Central Victoria. These Forest remnants are highly fragmented and some comprise a national park. Other Forest fragments span a range of different land tenures. This diversity of land tenures and fragmentation presents unique challenges for interpretation and promotion. In-depth interviews were completed with twenty community stakeholders to gain an understanding of existing interpretation and promotion initiatives in the Box Ironbark Forests, how the Forests are being currently used, as well as their ideas on future opportunities.

The study found the local community held some negative perceptions of the Forest, had little understanding of the Forest values and the declaration of the national park was seen as the end of a process, not the beginning. The findings of this study suggested a whole system approach that is consistent and strategic is needed to develop these initiatives. This approach ensures key themes and messages are developed for the system, based on the area’s major values and management requirements. The most effective ways to develop and maintain message consistency is to integrate the key messages of interpretation, education and promotion initiatives and coordinate their development from one administrative level within an agency. Some key principles on interpreting significant and fragmented vegetation communities are presented.
Regional, ecosystem-based analysis of Alaska bear viewing areas

Understanding the role and impact of wildland recreation in a regional context is important for providing diverse social benefits while simultaneously limiting physical impacts. This paper provides a comparative analysis of 10 destination bear viewing sites managed by the U.S. Forest Service, National Park Service, U.S. Fish and Wildlife Service, Alaska Fish and Game, and Alaska State Parks in two tourism destination regions of Southeast and South Central Alaska. Strategic planning and ecosystem management principles are used to guide the analysis. Based on archival data, site visits, and 18 key informant interviews, we provide a comparative analysis of site mandates and management practices, and the use of (1) integrated goals and objectives, (2) regional planning approaches, (3) both social and ecological data, (4) public involvement tools, and (5) management partnerships. While we found variability in the use of ecosystem management principles, and none of the sites were developed proactively or with regional planning considerations, most other ecosystem management principles are being used in the sites that have a formal mandate to provide bear viewing opportunities while protecting bears and bear habitat. These sites can provide relatively specific site planning, development, and management guidelines for new and less developed bear viewing areas and other wildland recreation sites, but more research and planning guidelines are needed to encourage regionally oriented planning of wildland recreation opportunities.
The Tennessee State Parks (TSP) system dates back to the late 1930s. During segregation, Booker T. Washington (Chattanooga) and T.O. Fuller (Memphis) State Parks were created specifically “to serve the Negro citizens of the state” (Coleman, 1963). Between the 1940s and 1960s, the parks received funding for recreational facility development and showed steady increases in visitation. In 1962, by verbal order of the Governor, the State Park policy of segregation within the parks was officially ended and Negroes were free to use all park facilities except restaurants and swimming pools (Coleman, 1963). Today, Booker T. Washington and T.O. Fuller State Parks have largely retained their African American visitor population. While the vast majority of TSP visitors and employees are white, the State Park system has maintained a de facto policy of minority management at these parks. This qualitative study seeks to examine the historical development and management of these two parks through the use of a descriptive, grounded theory approach. Through staff and visitor interviews and management document analysis, the study will attempt to answer the following questions: (1) Are there differences in how these two parks were developed and managed due to their designations as “State Parks for Negroes?” (2) How has the historical designation effected the modern management and use of the parks? (3) What should the management of these parks look like in the future?
Wilderness as spiritual content and process: The Wilderness Spirituality Scale

Spirituality is increasingly becoming an important issue for managers of public lands. The Wilderness Act of 1964 (P.L. 88-577) mandates that designated Wilderness be managed to preserve the “wilderness character” of the area, which some scholars suggest is spiritual character (Kaye, 2003). Wilderness spirituality is a matter of importance for other reasons as well. The dual mandate to manage for recreational opportunities while maintaining the integrity of the resource presents unique issues for managers of public lands. It has been suggested that there are both cognitive and moral components to these issues, and that one moral component is founded on a person’s view of the resource as symbolically sacred (Moore & McClaran, 1991). The third factor driving this new emphasis on spirituality and nature stems from citizens who are actively involved in issues of land management as 81% of respondents to the National Survey on Recreation and the Environment cited spiritual inspiration as being a moderately, very, or extremely important component of their personal experiences with nature (NSRE, 2002).

As managers of public lands seek to integrate wilderness spirituality into their management frameworks, they are searching for a tool that will yield greater understanding of the phenomenon. Many social science researchers are seeking ways to assist land managers with this task and to broaden their own understanding of wilderness spirituality and its link with stewardship of and attitudes toward natural resources. The tools provided thus far by researchers in many fields fall short of the needs of both managers and social scientists. The development of a Wilderness Spirituality Scale will aid both groups by addressing the spiritual components that are germane to the experience of wilderness as sacred and spiritual. As such, the purpose of this study is two-fold. The first is to conduct a thorough literature review as the basis for crafting a definition of wilderness spirituality. The second is to use the Classical Test Theory model of measurement construction to develop and validate the Wilderness Spirituality Scale.

Data will be collected from a developmental sample during February of 2007, and analysis will be conducted to examine the reliability of the instrument and the preliminary validity of inferences drawn.
ABSTRACT Data from ethnographic interviews and from questionnaire surveys were collected in 2003-2004 to address questions of factors that motivated individuals to enter or to leave commercial or recreational fisheries in two southeastern Atlantic counties, Brunswick County, North Carolina and McIntosh County, Georgia, during the period 1994-2003. In both counties, the major factors affecting participation in commercial fisheries were changes in coastal land use policy and in price deflation due to increase in imported fish, each contributing to difficulty of making a living. Waterfront property issues were paramount in Brunswick County, whereas price structure due to imports was the principal factor in McIntosh County, although changes in waterfront landscape were growing in importance. Recreational fishing differed in the two counties, with tourism and retirement as the major driving factors in Brunswick County and widespread resident-based recreation as the comparable factor in McIntosh County. Characteristics of changes in fisheries were different depending on the degree of coastal gentrification.
Although I have conducted ethnographic research on hunting in central Vermont since 1996, one important issue has remained conspicuously absent from my fieldnotes for most of those years: organized hunting protest. That all changed one cold February day in 2005 as protesters from a home-grown animal rights group stood in the parking lot of the Whiting General Store in Addison County, Vermont to voice their opposition to the first annual Howlin’ Hills Coyote Hunt. This coyote-hunting tournament, complete with cash prizes for both the largest and smallest coyotes killed, was characterized as a morally corrupt departure from traditional hunting ethics as understood in rural Vermont. Many sympathized with these protesters – including some avid hunters – and from that day forward Addison County has been caught up in a social drama that may ultimately change the face of hunting in Vermont forever. As editorial pages revealed deep philosophical differences between not only hunters and anti-hunters, but between hunters themselves, a small window opened for a more general moral condemnation of all hunting practices. Drawing on testimony from hunters, animal rights activists, Vermont Fish and Wildlife personnel, and my own experiences at a 2007 coyote tournament, I will explain the positions, agendas, and interactions of the various actors in this drama as they struggle to define the meaning and ethical place of hunting in the 21st century.
Community conservation in Namibia: Developing new models of community conservation

During the 1990’s community based natural resource management programmes were developed across several southern African countries (Botswana, Namibia, Mozambique, Zambia and Zimbabwe). The objectives of these programmes was broadly similar, namely to empower rural communities to manage and benefit from wildlife and other natural resources. The philosophical basis of these programmes was provided by the growing appreciation in the role of markets, disenchantment with centrally planned approaches to conservation and development as well as a renewed interest in the resilience of common property resources.

The evolution of Namibia’s CBNRM programme lagged slightly behind those in the rest of the region because it only achieved full Independence in 1990. In many ways this was a distinct advantage – allowing government and NGO collaborators to build on the successes of other regional examples and to avoid their short comings. The result was legislation that amongst other innovations allowed communities to define their own boundaries (in agreement with their neighbours) and to retain 100% of the revenue earned from commercial contracts with private sector tour and safari operators.

This paper will consider the progress made by the conservancy programme in Namibia since 1994 when the legislation was passed. Currently there are 44 conservancies in Namibia, covering approximately 105,000Km2 with a total population of 175,000 people. This means that almost one in eight Namibians is now a member of a conservancy. By comparing the Namibian Conservancy Programme with other similar programmes in the region, this paper will examine the importance of the legislative changes in developing a robust framework for long-term community conservation. The paper will also consider the policy for implementation. Namibia has placed considerable emphasis on the developing robust and replicable monitoring systems and on the organisational and institutional structure of the conservancies themselves. The working hypothesis is that these innovations will lead to sustained community management of land, wildlife and other natural resources while many other programmes in the region have stumbled once external support was withdrawn.
Estimating Costs and Benefits of the Four Large Carnivores in Sweden

The Swedish policy for the four big carnivores; wolverine (Gulo gulo), wolf (Canis lupus), brown bear (Ursus arctos) and lynx (Lynx lynx) is that the populations should be above the level of minimum viable population seen on a long term basis. This means that population regulation activities, like hunting, are prohibited for wolverine and wolf, and restricted for brown bear and lynx in Sweden. The existence of individuals of these four species causes externalities for owners of semi-domesticated animals, (i.e. reindeer), and domesticated animals, such as sheep, due to predation.

This paper presents econometric estimates of the costs and benefits of these four species. The data on social costs comes from compensations from the Swedish government to livestock owners. The paper also tries to predict the cost for each species when the population goals of the current Swedish carnivore policy are reached.

Benefits are estimated using the contingent valuation method, CVM, exploiting the possibility to interpret responses to discrete-choice CVM questions as an implicit contract between the researcher and the respondent, resulting in a minimum legal WTP (MLW) estimator. Never previously used in valuation literature, it is used in this paper to estimate the benefits for the preservation of large carnivores in Sweden, based on a large scale, national survey. Results show that benefit estimates, even when using this conservative estimator, are considerably larger than costs, suggesting that carnivore conservation in Sweden is a social project that can be motivated on efficiency grounds.
Preferences for Public Health Policies
with Jointly Estimated Rates of Time Preference

We examine the demand for preventative public health policies while jointly estimating the individual-specific discount rates applied to the benefits and costs of those policies. Survey respondents make choices between stylized policies that reduce the number of illnesses and deaths in their community by improving local environmental quality or reducing traffic hazards. Additionally, individuals respond to a hypothetical question about whether they would take some lottery winnings as a series of payments over several years or as a lump sum. These two distinct questions enable the simultaneous estimation of utility parameters and discount rates with minimal problems of confounding time preferences and program preferences.

When estimating preferences for these types of goods, researchers often face a trade-off between flexible estimation techniques and a satisfying theoretical framework. We work to overcome this difficulty by using richly detailed data to allow the parameters that define preferences over the attributes of public policies in our model to vary with the characteristics of the individual. While we do impose the theoretical structure of a present-discounted-value of utility framework on preferences, we also allow the discount rate to vary with individual attributes. Our jointly estimated model provides a comprehensive model of demand for preventative public health policies.
Utilizing NVUM Survey Results and U.S. Census Bureau Data to Estimate and Forecast Recreation Demand on National Forests

The national visitor use monitoring (NVUM) program is the “corporate” recreation data collection system of the USDA Forest Service. The NVUM data hold as yet untapped opportunities for forecasting recreation demand if those data could be used to create valid and reliable demand estimation functions based upon (among other factors) basic demographic characteristics of recreation users and their place of residence (or origin). Bowker and Harvard (2006) were able to develop and evaluate several local level demand estimation functions in a small-scale study of NVUM data. If this preliminary modeling effort could be more effectively tied to the next generation corporate social-economic database, it would be possible to better estimate national forest demand/use for any given county or community. The product then would be a set of demand functions that link NVUM and social-economic database information in order to estimate future recreation demand by activity and community.

The basic structure of community-level models can be specified as:

\[ Y_{ik} = G(D_{ik}, M_i, S_{Bi}, S_{Ei}, F_{Sk}) + u_{ik} \]  

where, \( Y_{ik} \) is annual visits by the \( i \)th community to the \( k \)th national forest (or site on a given forest), \( D_{ik} \) is one-way distance, \( M_i \) is income, \( S_{Bi} \) is distance to an alternative site, \( S_{Ei} \) is a vector of other socioeconomic characteristics of the community, \( F_{Sk} \) is a vector of forest or site characteristics, and \( u_{ik} \) is an independently distributed random error term. These models can be activity specific, but typically do not include activities as explanatory variables. Socioeconomic variables are available from the U.S. Census at the 5-digit Zip Code or county level.

The NVUM-social-economic database linked functions would permit easier, more routine, commensurate, and finer scale estimates of future recreation demand by geographically defined area, accessible through the corporate social-economic database. Alternative future demand scenarios could be simulated according to varied assumptions about the size and composition of the market area population. This would improve our ability to evaluate our forest niches and their local supply-demand situations. It would also permit refined prediction of local and non-local use which could be linked to existing expenditure profiles/multipliers facilitating impact assessments. The primary users of the demand functions would be forest and recreation planners throughout NFS who could utilize the forecasting capabilities during forest planning, plan implementation, and for developing longer-term budget projections for needed recreation expenditures. The estimates would undoubtedly be useful to national, regional and research branch human dimensions personnel and staffs as well.
Recreation Access to National Forests: What’s it Really Worth?

The USDA Forest Service (FS) manages 193 million acres of public land in the United States. These public resources include vast quantities of natural resources including timber, wildlife, watersheds, air sheds, and ecosystems. These resources generate substantial benefit streams to society, including benefits related to recreation visitation. In this study, we measure net willingness to pay for access (WTPA) to recreation opportunities on the National Forests. These values can provide resource managers and the public with a dollar-based metric that can be useful in policy considerations.

To estimate these dollar-based recreation values, we develop a pooled recreation demand model for visitors to the National Forests, estimating demand for fourteen different recreation activity aggregates across five different spatial scales on per-visit and per-activity day levels. We also explore and report the sensitivity of the WTPA estimates to a number of empirical judgments necessary to implement our modeling approach. We also estimate price elasticities which can be used to examine the sensitivity of annual visitation to price changes.

Based on average annual visitation estimates across all National Forests and Grasslands of 204.1 million and conservative assumptions, our models lead to an estimated annual economic value of recreation access to these 170 million public forest acres of between $11.2 and $20.2 billion. Employing a time horizon of 50 years, 4% discount, no salvage, these benefits from recreation access have a net present value of $245 billion or about $1440 /acre. Price elasticities across the various models range from -1.1 to -0.4, indicating that for the most part, visitation response to price changes (fees, travel costs) will be less than proportionate.
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Measuring the effectiveness of Parks Canada learning experiences: designing a universal measurement tool

Banff National Park (BNF) is undertaking a four-year initiative to develop new Ecological Integrity (EI) learning opportunities that meet the needs and interests of regional repeat visitors to the park. The project goals include:

- Reaching the public where they are and most likely to be receptive to messages about new learning and stewardship activities
- Educating and creating life-long learners who care about, understand, and act to support ecological integrity
- Developing informed, supportive, and involved park stewards through activity and program development

To achieve these goals, BNP is developing and delivering a range of information learning opportunities, and evaluating the effectiveness of these learning opportunities through the Parks EcoIntegrity Attitudes and Knowledge Scale (PEAKS) measurement tool.

Few research instruments designed to measure respondents’ environmental knowledge, attitudes, and behaviours have been peer reviewed and as a result may have questionable validity. Parks Canada (PC) social scientists examined the Children’s Environmental Attitude and Knowledge Scale (CHEAKS) as a model. CHEAKS appeared to be a good base for developing PEAKS, as its reliability and validity have been documented in peer-reviewed journals, and its format lends itself to national and local messages.

While BNP has prepared a number of EI program assessments and evaluations to date, each has used different approaches and adaptations. By basing PEAKS on an empirically tested and sound scale, and by validating its own version, PC can have a national tool to consistently:

- monitor changes in the population and target audiences
- assess the effectiveness and appropriateness of the EI education program and specific programs
- help develop more effective PC programs
- re-assess public attitudes and knowledge for national park environmental issues
- test specific ecological messaging, and its effectiveness in changing behaviour
- identify visitors who are supportive ambassadors of EI programs and will pass along their knowledge
- understand the effects of investment in specific EI programs.

This paper will focus on the development of the PEAKS scale, how it can be used to measure the effectiveness of programs, and how it can be adapted for other uses.
Understanding the Changes in Traditional Activities on the Land in Northern Indigenous Communities

Considerable environmental change has occurred in Canada’s north in recent years, primarily due to externally controlled activities such as mining, pipeline construction and decommissioned military radar sites. Northern Indigenous populations have a strong physical, emotional and spiritual connection to the land that has been profoundly impacted by these changes. A research study was conducted to examine how the traditional use of land has changed in two sets of Canadian Indigenous communities - the Yellowknives Dene First Nation communities of Ndilo and Dettah in the Northwest Territories and the Inuit communities of Nain and Hopedale in northern Labrador. Information was collected using a questionnaire administered by local community fieldworkers. An analysis of the two communities revealed how traditional activities such as hunting, fishing, eating wild foods and using traditional medicines have changed in the last ten years. The effects of variables such as gender and place on traditional activities were also explored. Overall, it was found that the respondents believed that there were benefits in traditional activities. However, many people had worries or concerns associated with environmental pollution that had altered their traditional use of the land.
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An evaluation of open space quality in a neo-traditional community: a case study of Kentlands

Using Kentlands as a case study, this paper analyzes the success of a neotraditional development for recreational, habitat, visual landscape quality and water quality goals and their outcomes, along with pre-and post-development forest stand and open space protection.

Over the past two decades, the goals for green infrastructure (open space) in many suburban developments have been to provide active and passive recreational areas, to serve as stormwater quality enhancements, wildlife habitat, and as a visual buffer to the hard surfaces of urban areas. This was certainly the case with the neotraditional development of Kentlands in the late 1980’s which was simultaneously seen as an antidote to the placeless sprawling suburbs and the environmental degradation that ensued.

However, almost 20 years after its development the question remains: How effective was Kentlands, and by implication, other neotraditional developments, in protecting functioning open space systems? In the literature, post occupancy assessments of suburban forest and open space systems have been few. These have largely focused on the total land area protected (and in some cases patch size) (Brabec 2001), rather than the functionality and condition of the protected area. Specific assessments of Kentlands and other neotraditional communities have focused on the increased real estate values achieved (Tu and Eppli 2001), walkability (Lee and Ahn 2003), and sense of community (Kim and Kaplan 2004) rather than on the open space system.

The paper identifies and analyzes:
1. open space and green infrastructure protection goals;
2. evaluation of pre-development forest stand protection;
3. forest stand and open space protection measures and outcomes; and
4. the level of compliance and achievement of green infrastructure protection goals.

The findings from this analysis are mixed. While the developer and designers of Kentlands had lofty goals and local planners attempted to protect key open space and forest stand areas, the execution contained serious flaws that compromised the ecological system. In addition, the mix of jurisdictional control of protected areas and the lack of removal of invasive exotics compromised the ability of the areas to serve as native habitat, and attractive, passive recreational areas.
Community Collective Action in Ecosystem Restoration of the Cache River Wetlands

Place-based ecosystem restoration efforts have emerged in communities throughout North America, largely driven by the collective action of local stakeholders. While the need for greater integration of collaborative processes into natural resource management has been demonstrated extensively by researchers, few studies have addressed how to develop long-term conservation partnerships that are able to sustain extensive restoration projects. The ecologically distinct Cache River Wetlands are located in southern Illinois, near the convergence of the Mississippi and Ohio Rivers. In the late 1970s, extensive logging and wetlands drainage for agricultural production motivated local community members to organize and preserve remnants of the wetlands and to work towards restoration of the Cache River Wetlands ecosystem. Community efforts captured the attention of natural resource management agencies and organizations, including the Illinois Department of Natural Resources, The Nature Conservancy, Ducks Unlimited, and the Fish and Wildlife Service. The synergy created by these agencies in the early 1990s prompted the formation of the Cache River Joint Venture Partnership and the goal of restoring a 60,000 acre forest and wetland corridor. While several local advocacy groups have been active in restoration, managers have struggled to sustain involvement and support throughout the greater community. This study used a qualitative research framework to identify barriers and potential incentives for enhancing meaningful community participation in ecosystem restoration. Data collected through in-depth personal interviews with 25 community stakeholder representatives revealed that participants perceive community members’ limited awareness of restoration programs, time constraints and regional economic depression as limiting involvement. The varied meanings that different stakeholder groups attribute to the wetlands appear to influence both attitudes toward restoration and reported levels of participation. A typology of stakeholder groups is presented based on their capacity to get involved that illustrates the potential for environmental education and outreach efforts to inspire participation. To facilitate collective community action in restoration, Cache River wetlands managers must connect restoration goals with significant community goals.
Although consolidation and specialization of large confinement operations is one major structural trend in Wisconsin dairy farming since the 1990s, a second has been the significant emergence of moderate-sized dairy farms using alternative management strategies: management intensive rotational grazing (MIRG), organic production, and Amish farm production practices. This poster presentation examines the emergence of these alternative farms using data from recent surveys and semi-structured interviews. The primary focus will be on the vitality of these sectors and adoption decisions associated with sector choice. Vitality is examined comparatively with a focus on structural trends, farmer satisfaction with earnings and overall quality of life, expectations of the farm’s future, and farmer reflections on the strengths and weaknesses of farm management strategies. For example, survey results indicate higher levels of current and future satisfaction with some of these alternative strategies. The decision to adopt alternative farm management is also examined to identify how economic, social, spiritual and ecological dimensions shape farmer choices. Innovation (or adoption) decision theory (as depicted through the stages of information gathering, evaluation/adaptation, and implementation) is emphasized with special attention to the distinct roles that social and religious networks may play. Two Amish settlements are included to facilitate exploration as to how sector choice and viability assessment may be connected to church network influences and spiritual beliefs. This research is aimed to inform farmers’ choices of farming systems and agricultural professionals and agencies as they support the decision making process and choices of farmers.
Measuring national forest landscape values using an internet-based participatory mapping approach

This presentation will report the results of two internet-based, public participatory mapping studies that measured landscape values and special places on national forest lands in the U.S. The Coconino National Forest (Arizona) and the Deschutes/Ochoco National Forest (Oregon) were selected as pilot forests for developing and assessing the internet-based mapping process for potential national adoption by the USDA Forest Service. The methodology, a form of public participation using GIS (PPGIS), satisfies the mandate for publicly inclusive forest planning as well as the need to generate place-specific, spatial information that can inform and guide forest planning processes at various spatial scales. The presentation will: 1) highlight selected empirical results from the two studies (the frequency, distribution, and importance of landscape values and special places), 2) describe the strengths and weaknesses of the internet-based participatory mapping method based on the pilot study results, and 3) review the potential uses of the mapping method and resulting data for national forest planning processes such as forest plan revision, recreation site and facilities master planning, and travel management.
Values Compatibility Analysis Mapping

The nature and process of national forest planning changed significantly with a new Forest Service planning rule in 2005. The new rule requires national forest planning be based on current and scientific information, involve the public, and provide for sustainable forest management. Under the new rule, the forest planning process should explicitly identify the suitability of forest areas for a variety of uses and identify “special areas” for management. The values compatibility analysis (VCA) protocol provides for public participation using GIS (PPGIS) in the planning process and generates inventories of public landscape values and special places that can be used to substantively satisfy the new forest planning rule as well as enhance the national forest planning process. With results from several national forest pilot studies in Arizona and Oregon using VCA, this presentation will describe the nature and experiences with various approaches to VCA, opportunities and practical limitations in their implementation, and preliminary recommendations. The VCA approach is being promoted as a standard, but flexible approach to mapping forest value and special places across national forest system.
Testing the Effectiveness of Cheap Talk, Dissonance Minimization, and Certainty Scales in Reducing Hypothetical Bias in Contingent Valuation

Comparisons of actual and contingent (hypothetical) willingness to pay (WTP) have consistently revealed that contingent valuation over-estimates actual WTP, especially when valuing public goods. Several approaches have been developed to deal with this so-called hypothetical bias, including (1) cheap talk, (2) dissonance minimization, and (3) follow-up certainty scales. With cheap talk respondents are presented with an entreaty to carefully and honestly consider their response. With dissonance minimization various response options are offered, including ones that allow the respondent to indicate support for the good without agreeing to pay for it. With the follow-up certainty scale respondents’ judgments of how certain they are about their stated WTP are used to calibrate their responses. We tested and compared these three approaches in experiments involving over 600 participants. Actual WTP as revealed in a binding referendum for a public good was compared with hypothetical WTP measured in contingent referenda employing one or the other of these three bias-reducing methods.

The commonly reported hypothetical bias was again found in our experiment. However, all three bias-reducing approaches were effective in removing the over-estimation of WTP. Indeed, one of the three, cheap talk, was overly effective, producing a WTP estimate significantly below actual WTP, whereas the other two approaches produced WTP estimates that were statistically indistinguishable from actual WTP. Importantly, each of the approaches has various forms. For example, numerous different cheap talk scripts are available for use, and it appears that they produce different results. We tested only one version of each of the bias-reducing approaches. So far, we have no way to know beforehand which particular form of the approach will work best in a given situation. Apparently we must develop a way to calibrate the calibration methods.
Social learning and the creation of Communities of Understanding in collaborative natural resource planning

Collaborative planning is increasingly embraced as a legitimate form of management in complex natural resource systems. This model strives to engage stakeholders in environmental decisions and facilitate the integration of multiple interests. But how do such groups come to shared understandings given the ecological complexity of the resource and the social complexity of the decision making landscape? One hypothesis maintains that social learning is essential for groups to wade through relevant science and incorporate multiple interests into their planning. Here, we examine social learning in the context of Community Wildfire Protection Planning (CWPP) groups mandated through the 2003 Healthy Forest Restoration Act (HFRA). CWPPs are a multi-objective planning process that bring together a diversity of agency- and community-level stakeholders and thus provide a particularly rich system in which to investigate social learning. We conducted over 50 in-depth, semi-structured interviews for case studies of four CWPP groups in Minnesota, Wisconsin, Virginia, and Florida. We coded each interview by hand and used NVivo content analysis of social learning themes. We found CWPP groups formed and/or enhanced the complexity of their collective understanding of social and ecological systems related to wildland fire through the planning process. Two functional types of shared understandings emerge: 1) substantive understandings of wildfire that inform on what the group will act, and 2) relational understandings of social and institutional systems that inform how the group will act. Furthermore, planning participants often bring this new knowledge to their home agencies and organizations, in some cases influencing how their organization conducts business and plans other environmental projects. Through influencing understanding in the planning group and often in organizations, social learning in the CWPP process contributes to the creation of larger “Communities of Understanding” in wildfire management across scales.
Greening the ISSRM: adventures in creating a sustainable meeting

Organizers of events that draw participants from a wide geographic area increasingly seek ways to make those events “greener” — a trend that has affected everything from the annual meeting of the Ecological Society of America to the Super Bowl championship game in American football. Since the International Symposium for Society and Resource Management aims to further scientific endeavor in support of sustainable biophysical and human environments, 2007 organizers felt it was only natural to seek ways to make the meeting itself more sustainable. Typical ways to accomplish this for large events include: decreasing the amount of solid waste produced; reducing energy and water consumption; minimizing or offsetting harmful emissions resulting from transportation to and from the event; using locally produced food and other products where possible; and maximizing waste recycling opportunities while minimizing paper, tote bags, and other meeting paraphernalia. In so doing we have learned a lot about, among other topics: what hotels are willing to do in support of environmental objectives, the challenges of finding a suitable way to offset carbon emissions, and how not to get information from airlines. This presentation will be designed to help guide the conduct of future ISSRM meetings as well as to inform symposium attendees about the process and pitfalls of sustainable event planning.
Can new ranchers save the old West?

Concern about land-use change and biodiversity loss on western rangelands has led to the development of a “Cows Not Condos” movement that promotes working cattle ranches as the best option for conserving private rangelands. Proponents assume that with the help of well-designed incentive programs and changes in land-use and tax policies, traditional family ranches can be maintained in their familiar form. Yet anecdotal accounts and some research suggest that the next generation may not be willing or able to take over all of the family ranches needed to achieve conservation goals. This paper addresses the question of who might be included in the next generation of western ranch owners and managers, and how ranch conservation programs might be adapted to fit the changing demographics of western rangelands. All indications are that a growing proportion of western livestock operators will finance their operations through external income sources, either as amenity owners with well-paying jobs located far from a ranch they visit only occasionally, or as part-time operators whose primary income comes from off-ranch sources. In order for these “non-traditional” operators to achieve personal as well as conservation goals, there should be thought given to how professional ranch managers are trained, Cooperative Extension and other outreach organizations provide information to clients, open space programs in ranching areas are structured, and exurban subdivisions are planned.
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Robert H Schmidt, Environment and Society, Utah State University

On the Origin and Consequences of Extreme Attitudes Toward Wolves

There is one aspect of the wolf issue on which nearly all researchers agree: peoples’ attitudes toward wolves and opinions about wolf management tend to be extreme. Yet, while numerous studies have described factors associated with attitudes toward wolves, no study has sought to examine factors that contribute to attitude extremity. This is unfortunate as the success of wolf conservation efforts will depend on the intensity of peoples’ responses to wolves. Will they support focused efforts to control wolf depredations, or will they sign petitions to stop wolves from being killed? This study examined the causes and consequences of extreme attitudes toward wolves. Data were taken from a 2003 mail survey of Utah residents’ attitudes toward wolves (n=709). We used multiple regression models to determine the relative contributions of three factors believed to cause attitude extremification: issue importance, involvement (active information seeking), and information quantity (number of sources). Results indicate involvement and issue importance both had significant positive relationships with attitudes toward wolves (β = 0.47 and 0.18, respectively), and attitude extremity partially mediated the relationship between these factors and the extremity of response to lethal controls. Quantity of information was not significantly related with attitude extremity when other variables were controlled, but was significantly negatively related (β = -0.17) with extremity of response to lethal controls. In total, model variables explained 27% of the variance in attitude extremity and 17% of the variance in extremity of response to lethal controls. Results suggest actively seeking information leads attitudes to become more extreme, and extreme attitudes promote extreme responses. However, these results also imply that highly informed people moderate their views regarding wolf management policies, suggesting information may be useful in reducing conflict over controversial management practices.
Protected areas as a 'sustainable development' project: Protected areas in densely populated Western Europe (case Belgium)

Protecting nature areas in a densely populated Western European context is rather different from the North American context. With about 450 people per sq km, Flanders, the Northern region of Belgium, has virtually no open space, let alone nature areas, exceeding a couple thousand acres.

And yet, there is a very active policy of protecting small nature areas, in the idea that they could form a network protective of the biodiversity that exists in this region. Compared to the North American context, the difference can be summarized by stating that all of this takes place without the concept of 'wilderness', which plays such a crucial role in the protection of nature and open space in the US and Canada.

Innovative for the Flemish context is that the environmental movement is actually the largest owner of these protected areas and manages them through a system of 'social economy' by actively employing mildly mentally handicapped individuals. The government supports these projects through its protected areas policy, its social economy policy and its support for the environmental movement. In that sense it is a very nice example of sustainable development in practice.

In light of exchanges between North American and European experiences in natural resource and nature management, this rather unique system can feed debates about public-private partnerships and nature protection as a key element of sustainable development policies.

The paper is based on the most recent data on this system, interviews with key players, and participatory observation as I (the author) am the president of the environmental movement in Flanders (besides my academic job) and hence familiar with the subject.
Findings are presented from an on-going interactive autophotography study with seven groups of minority and low income Middle School/High School children in rural southern Illinois. Students were provided with disposable cameras and encouraged to photograph nature in their communities. A service-learning component for Southern Illinois University undergraduate students was incorporated in the study through their facilitation of ethics/photography workshops held in participating schools. Follow-up interviews were conducted with each of over seventy student photographers. Interview transcripts were examined and coded using qualitative analysis techniques. Community events were organized to showcase the work of the student photographers to their peers, families, communities, and area natural resource managers and personnel. Photograph and interview content illustrate that kids construct rich and varied conceptions and values of their natural world. Their behaviors, enjoyment, and fears provide evidence that rural schoolchildren adapt behaviorally to their ecological surroundings. Our findings suggest the need to include a constructivist approach to environmental education in public schools to expand kids’ habitats and subsequent development through exploration in nature.
Community conversations around public lands: Exploring benefit diversity in the Wood River Valley

The Beneficial Outcomes Approach to Leisure (BOAL) continues to gain increasing importance in public land planning and management decision-making. It has evolved as a collaborative process whereby managers utilize information gained from stakeholders to guide management strategies. In this paradigm, recreation activities and settings are controlled to create the experiences and benefits desired by visitors and other relevant stakeholders. This study describes the experiences, beneficial outcomes and preferences for natural resource settings by motorized and non-motorized users in the Wood River Valley, Idaho. Data were obtained through focus groups conducted in the winter and summer of 2006. Results provide insights into the types of preferences, beneficial outcomes and management strategies that promote meaningful experiences for these users.
Lay people’s images of nature: Cognitive frames as networks of related values, beliefs and value orientations.

Much social and interdisciplinary research has been conducted to increase the understanding of local conflicts on nature management. In The Netherlands, a research tradition is emerging that combines philosophy, policy studies and environmental psychology. This tradition focuses on “images of nature” of both institutional as well as individual actors. Images of nature are cognitive frames that integrate values, beliefs and value orientations and structure the perception and appreciation of nature. They frame individuals’ predispositions toward environmental action.

In two separate studies carried out in six regions in The Netherlands, a total of 59 members of the general public were interviewed. Focus was on general cognitions of nature, as well as on specific nature management practices. Based on analyses of these interviews, five ideal types of images of nature are described: the wilderness images, the autonomy images, the inclusive image, the aesthetic image and the functional image. The wilderness image frames nature as “not-culture”, relating holistic and intrinsic values with beliefs about the fragility of nature. The autonomy image also incorporates the intrinsic value of nature, but this value is not ascribed to (eco)systems, but to individual animals and plants. In combination with a belief in a strict nature-culture divide, hands-off management of nature is proposed. The inclusive image focuses on reverence for life. Nature is seen as resilient and closely related to human culture. Management is supposed to focus on improving living conditions of animals and plants and on maintaining the balance between nature and culture. The aesthetic image is an anthropocentric image, focusing on landscape diversity and possibilities for nature recreation. The functional frame is the only frame with a hands-on view on management, focusing on utilitarian values.

The concept of images of nature acknowledges the pluralism in values and beliefs about nature, typical for modern societies. The framing of these cognitions into a limited number of combinations may help to understand people’s opinions on local nature conservation practices. Images of nature may also function as sensitizing concepts to facilitate discussions between different stakeholders.
Absentee Landowners and their Views on Conservation Efforts: A Descriptive Study of an Understudied Group

The context of American agriculture is changing. The importance of identifying efficient methods to reach out to absentee landowners on conservation initiatives is heightened each year. In the Great Lakes Basin region alone, approximately 49% of the landowners in the basin do not operate the agricultural land they own there. Yet, there exists little published research on absentee landowners and their interest and use of conservation measures. We begin to address this gap in the literature by examining absentee landowners in the Great Lake region of the United States. Surface runoff is a major factor impacting the water quality of the Great Lake basin with non-point source pollution the primary pollution threat facing the basin. Yet protection and preservation of water quality in the Great Lakes hinges on the ability of local conservation agencies to effectively contact and compel absentee landowners to participate in local, state, and federal conservation initiatives. How best to reach these landowners is an unanswered question. Using data from a survey of absentee landowners in the Great Lakes region, we begin to address this question as well as provide general information on the landowners. Specifically, we detail activities they do on their land, level of involvement in decision making on the land, influences upon them and sources of information used when making decisions regarding the land, level of knowledge absentee landowners have on conservation practices and how this relates to level of interest they have in implementing them, and general demographics. We conclude with both policy and practical implications of the survey results for those working with absentee landowners and on conservation issues.
Youth and the Outdoors: An Oregon Assessment

The apparent decline in youth engagement with the outdoors has become a national issue, with Richard Louv’s Last Child in the Woods becoming a top-seller and the US Forest Service launching a “More Kids in the Woods” program specifically designed to increase this engagement. As part of its SCORP process, Oregon State Parks has conducted a statewide survey of parents and youth to identify current youth participation patterns (including favorite activities), how youth are introduced to various activities, and parental perceptions of their children’s outdoor recreation engagement and skill level relative to their own during childhood.

Surveys are still being returned at the time of abstract submission. The final sample size is expected to be 600-700 surveys, and these will be complemented by focus groups. Detailed results will be presented, with partial initial results as follows.

Parents report that the highest participation rates for their children are for walking for pleasure, outdoor sports, and relaxing/hanging out. Relative to their childhood, parents report that their children spend less time in outdoor activities except for organized outdoor sports such as soccer, football and baseball. The difference was especially great for outdoor chores (mowing lawns, etc.), outdoor play at school (recess, before/after school), and outdoor play not at school (in yards, playground, woods, etc.). Relative to their ability as a children, parents reported that their children had the same or higher ability with respect to swimming, boat safety, and environmental ethics such as LNT principles. However, they reported that their children had lower ability with respect to each of the other 16 skills, from pitching a tent to using a map and compass. Interestingly, more than 90% of parents report that they have taught their child these types of skills.

With respect to outside-of-school programs, such as sports programs or adventure trips, the most important constraint was lack of information, followed by cost (of program or equipment). In terms of parental priorities for such programs, children having fun was the highest priority, followed by staying safe/out of trouble, engaging in exercise, and learning outdoor skills.
Public land managers are more likely to develop successful plans if they communicate and work with the public. Understanding how citizens perceive management decision is essential to land managers’ success in negotiating management policies acceptable to the public. Beyond what people think about a natural resource issue (e.g., attitude), it is also important to understand how people think about the issue. In order to study how people think about natural resource issues, we employed the construct of integrative complexity. Cognitive psychologists conceptualized and measured integrative complexity focused on two criteria: 1) The number of positive and negative dimensions that people identify related to an issue (differentiation), and 2) the extent to which they view the different dimensions of an issue is integrate (integration). Integrative complexity analyzes the structure of thought an individual has about an issue over and above its content. We measured the integrative complexity of perceptions regarding the management of wildfire in the wildland-urban interface. We examined how integrative complexity related to attitudinal dimensions (direction and extremity). We obtained a stratified random sample of 1000 homeowners from the county records offices of Cass, Itasca, Crow Wing, and Brainerd Counties in Minnesota. Two Hundred and Fifty surveys were mailed per stratum and administered following a modified tailored design method (Dillman 2000). Of the 1000 surveys mailed, 148 were nondeliverable. With a total of 852 delivered surveys, 439 usable surveys were returned resulting in a response rate of 52%. We found that respondents had a generally low level of integrative complexity and that integrative complexity positively correlated with attitude extremity, but not attitude direction. Implications of this research lie in the further understanding of nature of the public’s attitudes toward a natural resource management issue. The controversial and complex nature of many natural resource management issues makes it important that researchers and managers acknowledge the extent to which people are able to understand the intricacy of those issues. The application of this study brings to light one alternative avenue for the further exploration and understanding of public perceptions of natural resource management.
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Alternative Future Development Scenarios for Utah’s Wasatch Front: Assessing the Impacts of Urban Growth on Rural Lands

Utah’s Wasatch Front spans a narrow corridor from Ogden and Salt Lake City south to Provo. Bounded by the Great Salt Lake to the west and the Wasatch mountains to the east, the region faces physical barriers in its ability to accommodate new growth. Further constraints to growth are likely to include water availability, regulatory restrictions to protect air quality, and a host of ecological concerns. Current forecasts predict that the region’s population of 1.8 million will increase 70% by 2030—a rapid rate of development that threatens to undermine important ecological and quality of life indicators valued by residents. This project developed a series of alternative future growth scenarios to predict the spread of future development within the 927,000 ha study area in order to allow stakeholders to consider the effects of various land use policies on the loss of open space. Satellite imagery from 1990 and 2000 was used to develop logistic regression models to predict the probability of future development. Independent variables included distance from roads and development, slope, location within city boundaries, development density, and population density. Of the variables considered, slope, distance from development, and distance from roads were most important. Population forecasts were then allocated across the region using three settlement densities, resulting in three development scenarios for the year 2030. Each scenario was then compared to a land-use map to assess the types of lands likely to be converted from traditional agrarian uses to development. We found that if future development increased from the current density of 17 people/ha to 25 people/ha, 22,800 fewer ha of open space would be converted to development.
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Community-based natural resource management as bricolage: Practice and strategy in the development of new resource management institutions in the Canadian North

The Canadian North currently finds itself within a period of Canadian history with an unprecedented level of social and environmental change and uncertainty. Within the Mackenzie River Valley of the Northwest Territories, renewed interest and activity in a major gas pipeline has resulted in the proposal for the largest industrial development in the Canadian North while Aboriginal land claims, regional self-government and community self-government are at various stages of negotiation and completion. These events place the external forces of globalized energy development and federal and territorial government resource conservation and development squarely in the face of local experience of this rapid change and uncertainty. My three-year ethnographic research in Délı̨ne, Northwest Territories uses data from my participation in the Great Bear Lake Watershed Management Plan and Sahoyuéʔedacho (Grizzly Bear Mountain-Scented Grass Hills) cultural landscape protected area working groups. The objective of this research was to examine the ways outside resource managers and Délı̨ne community members perceive and negotiate one another’s understandings of NRM and thus extend current thinking on social relations beyond essentialized concepts of cooperative power-sharing, social learning, and trust. A key finding from this study suggests power relations are interwoven throughout yet applied differentially in the NRM institution-building process; moreover, incorporating bricolage as a NRM concept acknowledges that the institution building process is changeable and evolving, and less attributable to single factors than is suggested in much of the common property literature. I argue that NRM bricolage encompasses the dynamic nature of social relations in institutional arrangements and can be illustrated through structurational/practice based strategies; that is, what people do and their structured capacity to respond to local-global events in shaping their own history and formal-informal institutions. The significance of this perspective of NRM is that it offers a framework with which to explore new forms of NRM institutional hybridity by examining the ways in which we perceive, conceive and actively apply culture, geopolitical borders, power relations, and social change in an era predominated by the increasingly translocal nature of natural resource management.
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Expanding the environmental justice framework for natural resource conflicts through alternative ways of knowing nature

The environmental justice (EJ) movement, originally a political response aimed at confronting the unequal burden of environmental risk shared by disempowered peoples, particularly of minority race status, has become a theoretical framework for understanding how such inequalities take place. The EJ movement, praised for its multi-issue platform, recognizes that many dimensions of social inequality lead to environmental inequality; however, it has done little critical self-reflection on its efficacy in incorporating the many dimensions of discrimination. Specifically, the movement focuses heavily on environmental degradation from pollution of an industrial or urban nature but it has not been adequately used to address discriminatory practices in the use of natural resources, such as a sufficient and safe drinking water supply, by global power elites. In part, this is due to the tendency within the movement towards a short-term focus and locally-based solution approach, which some sociologists describe as a further limitation of the EJ movement. Since natural resource struggles involve actors much larger than the individual community or even the national level, resistance focuses can neither be simply short term nor geographically localized. This paper uses the EJ framework as a baseline for understanding the growing complexities of natural resource struggles but posits that the current methodologies are limited in their abilities to address natural resource struggles. The EJ movement and the literature on EJ struggles would benefit from inquiries about alternative ways of knowing nature by different groups of peoples. Another related issue whose incorporation would enrich the scholarship is the diversity of, and often conflict among, different histories of relating to nature and thus the meanings attached to the environment in different communities. Understanding how these different forms of knowledge can be and are utilized along with mainstream technologies by indigenous peoples and their networks around the globe in their struggles against natural resource encroachments could contribute significantly to the ability of the EJ movement to accomplish its goals on a supra-local level. In my paper I will use the example of various indigenous struggles around resources to give an example of the merits of such an extended EJ approach.
Afforestation in County Kerry Ireland: Transformations of landscapes and lifeways in a rapidly shifting rural economy

This study uses qualitative semi-structured interviews and grounded theory to examine local response to planting and managing forests in landscapes in which they have been absent in many cases for hundreds of years. Two study areas in the farming regions of the north of County Kerry Ireland were selected. One area had seen extensive afforestation over the last generation while the other had witnessed much more modest afforestation rates. The results suggest that this response is best understood in the context of a rapidly changing local society in which family farming, long a tradition, is being replaced by a more industrial model of agriculture and in which the non-agricultural economy (known popularly as the “Celtic tiger”) has grown at an unprecedented rate. Two disparate structures are governing the bulk of landscape change in the region. The national-level Forest Service approves each grant to support tree planting on individual privately owned parcels (subject to national-level Parks and Wildlife approval of potentially sensitive projects) while the County Council governs residential development, which in line with the Celtic Tiger, is expanding at a strikingly rapid rate.

The response to new forests, which is mixed, is partly linked to environmental questions such as the appropriateness of near monocultures of a non-indigenous tree species (Sitka spruce) and other environmental issues. The response is also linked to the dramatic change in landscape appearance that accompany such planting and what that changed appearance symbolizes in terms of the social and economic shifts that the region and the entire island is experiencing.
HIV/AIDS and Conservation in southern Africa: impacts and intervention Strategies

The advent of HIV/AIDS is causing a dramatic social transformation in southern Africa, including impacting the capacity of natural resource management agencies and NGO’s to meet their conservation missions. The disease epidemic curves demonstrate three stages: infection, development of the disease, and impact. The disease has been spreading for nearly twenty years, and current infection rates remain extremely high for adults 15-49 ranging from 17% - 33.3%. Therefore, the current reality is that civil society is now experiencing the impact stage and will continue experiencing impacts for many years. Conservation agencies and NGOs are likewise being impacted; but a dearth of research has limited understanding of how agencies are impacted and what strategies would be helpful in dealing with the impacts. This research was designed to elucidate the critical impacts from HIV/AIDS on the internal capacity of southern African conservation organizations to meet their missions and explore intervention strategies to address these impacts. This research also involved detecting barriers to addressing these impacts and strategies to address barriers. Data collection involved two stages: (1) semi-structured interviews of conservation organization managers and scientists (n=23) to better understand impacts and barriers; and (2) a panel of key experts (n=30) within southern African conservation agencies to rank impacts according to their perceived severity, using an iterative, Delphi approach. The most frequently rated impacts were loss of experience-based knowledge, absenteeism, and decreased employee productivity. Primary barriers to addressing these and other impacts were funding, lack of conviction by staff that risky behavior is risky, lack of health care services in remote areas, and lack of focus by centralized human resource divisions on HIV/AIDS. Mitigation strategies must address these impacts and barriers within the southern Africa context, and be specific for the size and resources of the agency. This research presents a view of how HIV/AIDS is influencing the future of conservation agencies, and the responsibility of conservation agencies to catalyze intervention strategies.
A national study of constraints to public recreation participation in New Zealand protected natural areas.

The Department of Conservation in New Zealand has a strong mandate to both protect the natural, historic and cultural resources of New Zealand, and to increases New Zealanders’ awareness, understanding and involvement with them. A key way of increasing the value New Zealanders hold for their natural, historic and cultural heritage is to facilitate their awareness and interaction with it. To do this it has invested extensively in maintaining a network of recreational facilities and services for visitors, and sustaining these into the future. This has tended to be a reactive approach and the focus has been primarily on providing for current visitors, with lesser consideration of current non-visitors.

However, in more recent times the Department’s strategic directions have shifted more toward proactively engaging the public in conservation lands and activities. This has led to a change in research focus away from investigating issues relating to park facilities, use and visitors, and toward an increasing interest in addressing non-use, non-participation and non-visitors. As part of this changing focus an initial research project was undertaken in 2006-07. First, an extensive literature review was conducted on time use, leisure time and outdoor recreation participation and non-participation. Then a national public survey of non-participation, constraints and barriers was conducted. The key findings of both these processes are summarised in this paper. In addition, other insights are drawn from related current research on camping participation, the impacts of vehicle break-ins at parks, and the values New Zealander's associate with conservation. The intention is to use these insights to begin identifying ways in which both opportunities for recreation use of natural areas, and conservation engagement in them, can be made more accessible to more New Zealanders.
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Aircraft Noise Impacts: research and management in New Zealand National Parks and Protected Natural Areas

There are localised areas in New Zealand National Parks and similar protected areas which have levels of tourism overflight activity as intense as anywhere in the World. This is a significant concern for managers charged with balancing environmental values, visit experience values, and opportunities for both local recreation needs and commercial recreation and tourism services.

This paper summarises New Zealand research on aircraft noise impacts in New Zealand, outlines the development of monitoring methods to assess potential impact development, and describes some of the management outcomes from applications of monitoring methods and research results. This includes lessons learned from involvement in statutory planning processes where such research and monitoring results have been challenged. These lessons include having strong and consistent methodological rigor; the need to engage with stakeholders as early as possible in any monitoring and management process; the need to document and communicate the purposes, structure and logic of methodologies and standards chosen; and to constructively engage with stakeholders in developing solutions. This paper represents a summary of the process of taking a management need through a research and monitoring development process, and the eventual management outcomes from applying the tools developed.
The Front Range Fuels Treatment Partnership: congruence and contradiction in the ‘production’ and ‘consumption’ of a message

A century of wildland fire suppression policies in the western U.S. (Busenberg, 2004), coupled with recent drought conditions, and steadily increasing numbers of people living and recreating in forested areas near urban developments, has created a highly dangerous situation. Every year, more potential fire fuels are added to already overburdened forests, leaving them ripe for large and highly destructive wildland fires. In 2002, following Colorado’s historic Hayman fire, a consortium of governmental agencies known as the Front Range Fuels Treatment Partnership (FRFTP) was formed to encourage private landowners and municipalities to manage land in ways that eased the threat of these fires. In this study, the authors view the communication efforts of FRFTP through a cultural studies lens. Utilizing a heuristic construct known as the ‘circuit of culture’, the authors engaged in a series of 10 qualitative open-ended focus group interviews with a diversity of social groups associated in some way with the FRFTP program. The authors analyzed the transcripts of these interviews to compare the communicational strategies of consortium members and their allies (the producers) with the way their messages are interpreted by their target audiences (the consumers). The authors’ analyses cast new light on the criticism that top-down communication practices will be ineffective in the long run. They point out how true ‘success’ (always a slippery term in the management of wildland fire) may be dependent upon recognizing the one-sided nature of power relations in the wildland fire debate and making efforts to bring alternative voices to the decision-making table.
The effect of wildfire risk on the home purchases in Colorado Springs

The recent series of severe wildfire seasons in the western United States have increased public awareness of the dangers of wildfire. In particular, concern has focused on the wildland-urban interface, where homes abut forested lands, and fuel loads are often elevated from decades of aggressive wildfire suppression. Although reducing wildfire risk has become a priority for federal, state, and local land management agencies, it is not clear that homeowners in the wildland-urban interface understand the risk that wildfire poses to their homes. This study involves analysis of two unique datasets. First, hedonic price models are estimated to address the following questions: 1) Do parcel-level wildfire risk ratings affect housing prices in a wildland-urban interface area? 2) If there is an effect, is it similar to the effect of a wildfire event on housing prices? 3) Are there tradeoffs between wildfire risk factors and natural amenity values? A second dataset based on household surveys considers how households factor in wildfire risk when making the decision to purchase their home. The sample frame for the household surveys was the list of homes used in the hedonic analyses.

The availability of house and neighborhood characteristics in combination with parcel-level wildfire risk data provide us with a unique insight into the relationship between amenity values and risk. Results suggest that looking at the effect of wildfire risk on house price without accounting for amenity values may be misleading. For example, the results from the pre-website overall wildfire risk rating hedonic model provide evidence of a positive relationship between wildfire risk and house price. The positive relationship between overall wildfire risk rating and housing price was not observed post-website, suggesting that the availability of parcel-level wildfire risk ratings contributed to an increased awareness of wildfire risk. However, we found some evidence that this effect diminished over time. It is only after examining the results from a model that considers the individual variables that comprise the overall risk ratings that a more complete picture of the relationship between wildfire risk, amenity values, and housing price emerges. The change in awareness of wildfire risk was manifested largely by a change in preferences for wood roofs and siding. A positive correlation between proximity to dangerous topography and house price was observed both pre- and post-website.

The household survey data allow for a more complete understanding of how homeowners consider wildfire risk. The household level data will also be linked with the wildfire risk data to allow for a comparison of objective and subjective perceptions of risk.
Network Analysis as a Method for Understanding Environmental Conflict

This paper provides a fundamental methodology for conducting quantitative network analysis of rural communities. Drawing upon interactional field theory, a community’s social network structure is seen as influencing a community’s ability to respond to change. In this paper social networks within a community experiencing environmental conflict are graphed and statistically analyzed. To understand how social network structure influences rural community action, prior research has relied generally upon qualitative methods as a primary tool to trace local networks; however, such a method usually costs researchers a great deal of time and energy to collect data. It also reduces the ability of scientists to conduct large-scale network analyses among multiple communities. This paper provides a clear methodological approach to identifying community network structures and to relating those structures to environmental issues. The findings illustrate that network analysis provides important insights into how community structures influence a community’s ability to respond to environmental threats.
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Hsing-Fen Tang, Leisure and Recreation Management, Asia University
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The health benefits of recreational activities on leisure farms in Taiwan

This study investigates the health benefits of recreational activities on leisure farms in Taiwan. Using an on-site survey to conduct the psychophysical experiment with visitors, this study attempts to depict the relationship between recreational activities and health benefits.

The survey, conducted from July 2006 to November 2006, focused on four types of leisure farms—natural education type, natural open type, artificial education type, and artificial open type—to determine how the different environmental types affected health benefits. Four activities representing general activities on leisure farms in Taiwan were chosen: sitting and enjoying the scenery; walking along scenic trails, planting potted plants, and feeding sheep. The survey collected 272 samples for analysis. Each sample completed questionnaires that evaluated the health effects and preference of recreational experiences; in addition, the researchers used biofeedback instruments to measure physiological indices of the samples, including heart rate (HR) and electromyogram (EMG).

Consistent with findings in previous studies on recreational preferences, the current study found that different environments significantly affect the preferences while different kinds of activities do not. Regarding the impact of recreational activities on health, this study found that different kinds of activities lead to different affective factors. Both physiological indices indicated that two activities—planting potted plants and feeding sheep—resulted in the most relaxing beneficial effect. Feeding sheep resulted in the most beneficial effects in three aspects of health: control, social support, and exercise and movement. Planting potted plants had the second best effects. Feeding sheep and planting potted plants brought about the greatest self-fulfillment and most unique experience for the participants of this study.
Integrating Traditional and Local Ecological Knowledge into Forest Biodiversity Conservation in the U.S. Pacific Northwest

The potential for traditional and local ecological knowledge to contribute to biodiversity conservation has been widely recognized, but the actual application of this knowledge to biodiversity conservation is not easy. This paper synthesizes literature about traditional and local ecological knowledge and forest management in the Pacific Northwest to evaluate what is needed to accomplish this goal. We address three topics: (1) views and values people have relating to biodiversity; (2) the resource use and management practices of local forest users, and their effects on biodiversity; and (3) models for integrating traditional and local ecological knowledge into biodiversity conservation on public and private lands. We focus on the ecological knowledge of forest users belonging to three groups who inhabit the region: American Indians, family forest owners, and commercial nontimber forest product harvesters.

We argue that integrating traditional and local ecological knowledge into forest biodiversity conservation is most likely to be successful if the knowledge holders are directly engaged as active participants in these efforts. Although several promising models exist for how to integrate traditional and local ecological knowledge into forest management, a number of social, economic, and policy constraints have prevented this knowledge from flourishing and being applied. These constraints should be addressed alongside any strategy for knowledge integration. Also needed is more information about how different groups of forest practitioners are currently implementing traditional and local ecological knowledge in forest use and management, and what the ecological outcomes are with regard to biodiversity.
A Study on the Ryukyu Islands Pattern Feng Shui Village Landscape: A Case Study of Tarama Island in Okinawa Prefecture, Japan

Feng Shui theory has been widely accepted as a landscape design model by many architects. According to Form School of Feng Shui, five major physical factors are basic for an ideal housing site. However, such a criterion is restricted to mountainous region. In fact, Feng Shui was first introduced to Ryukyu Kingdom in 14th Century and applied to village planning after 1730’s. A Ryukyu Feng Shui village features the use of tree planting to accumulate Qi. A forest belt was planted to curve in the front of the village and to extend to the east and the west to embrace the village along with the hill in the rear. The forest belt actually functions as Red Bird instead of low hills in a model Feng Shui landscape. One or more Fukugi tree (Garcinia subelliptica) lines were planted to embrace the houses. Compared to a symbolic existence of Feng Shui trees in China, tree planting was used in a much more practical means because of the natural situation in the islands. The Ryukyu Islands feature with the flat topography and frequent Typhoon occurrence. We chose to survey on Tarama Island where Feng Shui forests are best preserved. We focus to study on the features of a Ryukyu Feng Shui village layout and the forest composition in the front forest belt and in the back hill. We found the trees in the back hill and forest belt were generally of a two-storey structure. Garcinia subelliptica and Calophyllum inophyllum were the predominant species in the upper storey in the forest belt. In contrast, tree specimens in the back hill were much more diverse with a majority of Diospyros maritime, Calophyllum inophyllum, Ardisia sieboldii, and Podocarpus macrophyllus. About 48 species were found in the under storey vegetation in the front forest belt, in contrast, only 23 species in the back hill. Thus, a Ryukyu Island pattern Feng Shui landscape is an ideal landscape that embodies a pleasant habitat and agricultural production, as well as functions to conserve biodiversity and environment under a clement natural situation in island topography.
Chen, W. Jasmine, Environmental Planning and Design, Ming Dao University, Taiwan
Yun-Hsuan Eleanor Chiu, Environmental Education, National Kaohsiung Normal University

Struggle to be Sacred? Formative Evaluation of the Affect of Interpretive Signs at Yushan National Park Summit Trail

The natural and cultural change to the landscape of Yushan, the highest peak of the Southeast Asia (Elevation 3,952m/12,966 ft, also known as Mt. Jade), has long drawn people to dwell and hunt near it, to climb and “conquer” it, to place political icons, and to manage it in a sensible way over the past four centuries. The managers at Yushan National Park, Taiwan have struggled to present a holistic view or at least multiple points of view of this sacred place. To highlight the spiritual and cultural significance of Yushan in educational and research programs, an interpretive planning process took place in the summer of 2006. The plan aimed to (1) encourage respect to the values and traditions of cultures of the mountain and its people and (2) include spiritual and cultural significance of Yushan in designing interpretive trail signs. Thirteen interpretive signs were developed and installed along the Yushan Main Peak Trail. A formative evaluation was used to understand how to this approach affect the reasoning process of how hikers develop their own reasons for valuing mountain regions. Interview results provided better understanding of how wayside signs influence visitors’ on-site interpretive experiences and how the mountain landscape affect peoples’ well being. Comparisons of the implications of the sacred mountain notion over historic documentations will be discussed.
The purpose of this study is to develop and test a “children’s connection to nature” index to measure their affective feeling toward the natural environment. Mayer and Frantz (2004) introduced “a Connectedness to Nature Scale” (CNS) for adults, which consists of 14 questions that measures individuals’ emotional feeling about the natural world and their relationship to it. Their study indicated that there was a positive relationship between connection to nature and eco-friendly actions. Since CNS is a promising tool to measure adults’ affective feeling toward the environment, there is a need to develop a CNS for children. An early version of the Children’s Connection to Nature Index was pilot tested in Brevard Public Schools, Florida. Student interviews were used to identify appropriate items for the scale and relevant wording. Forty-four students were asked to complete the index during the pilot test. The final scale consisted of 16 items, with Cronbach alpha = 0.8.

The connection to nature index is now being validated through a survey that investigates students’ attitude after participating in an environmental education program. The connection to nature index will be correlated to home environment, play site preferences, and behavioral intention to explore its validity and predictability of behavioral intention. The data will be analyzed by the end of May, 2007. If successful, the development of children’s Connection to Nature Index will be a useful tool to investigate children’s affective feeling toward the natural environment. To the extent that it predicts environmentally responsible behaviors, the index may be a useful program evaluation tool.
Federal disinvestment from natural resource management and rural communities: what ways forward?

For the past 15 years, federal level investments in natural resource management and rural community development have been highly unreliable, flat, or declining. Whichever way one chooses to look at the data, the situation demands attention from researchers and practitioners alike to critically examine the trends and impacts on the future sustainability of natural resources and rural communities. This presentation is intended to spur an active dialogue about what the trends mean at the macro-scale, what social, economic, and ecological impacts may be resulting from these trends at the micro-scale, and what alternative directions may present themselves. We will briefly present data on macro-level funding trends for federal natural resource agencies and rural development block grants to states and stories from specific communities as illustrations of micro-level impacts. If one accepts the reality of the situation and Assumes federal disinvestment from natural resources and rural communities continues, what might be possible strategies for the future? If one does not accept the situation as given, what strategies are available to increase federal investments?
A Rapid Assessment Visitor Inventory (RAVI) to Reduce Recreation Management Decision Conflicts

Conflicts often arise about recreation management decisions on forest or park areas. They may be reported in news media, or sometimes show up in court cases. Usually the conflicts are related to changes in numbers or types of visitors or visitor behaviors at specific places. Managers need current information about these situations as a basis for discussing possible actions in meetings with constituent groups or others.

A place-specific, inexpensive Rapid Assessment Visitor Inventory (RAVI) has been developed to conduct visitor counts and surveys in a short (2 week) time frame. The RAVI system has been tested in various federal and state parks and forests. The RAVI system utilizes a 4-day sampling period (Thursday through Sunday) as a representative sample of the weekends in a season (spring, summer, fall, winter). Sampling is done at a travel pattern concentration—an attraction point, trailhead, trail junction or similar location—where visitors are counted and a one-page survey is administered to learn visitors’ perceptions of area and management conditions. A short report of findings is then written.

Examples will be presented of how the RAVI system was administered and how the data was utilized by a federal land manager of horseriding trails and a state manager of a duckhunting area.
Organic farm tour as a potential new form of “ecotourism” in South Korea

Sustainability principles can theoretically apply to all types of tourism activities, operations and projects, including conventional and alternative forms. Ecotourism is ideally suited as a guiding philosophy for sustainability in natural areas. Its principles also appear to have value to apply towards forms of small-scale, sustainable agriculture where ecological conservation is a strong concern of the farmers. Yet, such operations in which some tourism activity exist are labeled agritourism or farm tourism, with little to distinguish them from unsustainable forms of agriculture. This study therefore has two objectives: (1) to conceptually differentiate and argue for organic farm tours and experiences as a new form of “ecotourism”; and (2) to conduct a case study of organic farms engaged in tourism. The case study location is South Korea. Our purpose is to examine organic farm tour as a potential new form of ecotourism in South Korea, and to help ascertain the potential of this environmentally sustainable tourism form for South Korean agriculture. Case studies of three organic farms with tourism activities and content analysis of 138 websites of organic farm-based tours in South Korea are conducted.

Agricultural tourism has become a very important tool for economic diversification in rural South Korea. This study examines organic farms that helps preserve natural habitat and reduce environmental impacts by substituting organic and safe natural materials for the pesticide, artificial fertilizer and antibiotics that large-scale, conventional framing depends upon. Income through organic farm tours in our study locations directly and indirectly contributes to biodiversity conservation and economic sustainability for the local farmers. In addition, our preliminary investigation of these organic farm tours indicates that sustaining the traditional culture is as important as conserving natural environment in the traditional farming community. This outcome is also an important principle of ecotourism (social-cultural benefits). It is concluded, therefore, that the organic farm tour in South Korea can be a potential strategy to support conservation of natural ecosystems while enabling sustainable local development and social well-being. As such, it can be argued that this form of tourism constitutes an emerging, new form of ecotourism.
Human interaction with wildlife and tropical forest in Bangladesh, which will survive?

Chittagong and Sylhet divisions have tropical forests that occupy ±13500 km² area of Bangladesh. Most areas are occupied by hills and hillocks. The forests are multifaceted and are prime faunal habitat that represents last refuge for many threatened wildlife of Bangladesh (e.g. Asian elephant-Elephas maximus). Heavy exploitation of natural resources from these forests leads severe conflicts between man and wildlife. Inventory data on the rate of key natural landscapes changes are scanty, though it has been estimated that both divisions have changed more than 50% from its original state. Forest covers are highly fragmented and transformation of forest-land into agricultural-land is a widespread phenomena. Severe shifting cultivation practices in the Chittagong division have direct effects on the changes of its entire ecosystems. The changes have strongly distressed the faunal population of all endangered taxa (i.e. amphibian-reptile-bird-mammal). Large mammals and reptiles are strongly responses to the changes and their populations are declining seriously. Recent studies on some mammalian species (i.e. Asian elephant, hoolock gibbon – Hylobates hoolock, pigtailed macaque – Macaca nemestrina) revealed their susceptible condition for extinction. The rates of declination of these species are more than alarming. Habitat changes leads to loss of seasonal tribal cultural diversity of tribal community i.e. hunting, trapping animals etc. Indigenous plant knowledge for medicinal, religious or social purposes are threatened due to massive destruction of floral habitat. Recent infrastructure and other development activities have severe impact especially on the migration and livelihood of threatened fauna for their future survival. For producing hydropower, the man-made Kapatai Lake at Chittagong division has virtually made severe impact on the hill ecosystems and its associate faunal species of which some are isolated due to huge water logging, deforestation and urbanization. Field work, questionnaire survey, literature review, focus group discussion and interviews were the methods used in a survey of local community members’ responses to wildlife. Results demonstrated that significant numbers of the people who co-exist with wildlife and surrounding forest have negative attitude for in-situ conservation. New approaches to conservation are needed that recognize the cultural and biological diversity of humid tropics, respect their complex ecological processes, and involve local people at all stages of the development process.
Stakeholder acceptance capacity for rattlesnakes: applicability of a concept to unhuggables

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 were 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 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.
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The relationship between recreational values and resource characteristics of recreational forests in Korea

This paper aims to examine the relationship between forest recreational benefits and forest resource properties. The study goes through two steps. The first estimates annual consumer surplus on each forest recreation site using Travel Cost Methods (TCM). Annual consumer surplus on certain forest recreation sites is an indicator for a given site’s annual benefit from forest recreation. For this TCM step, the whole country is divided into 16 administrative divisions. The second step is to conduct a multi-regression analysis using SPSS statistics program. In this step, estimated recreational benefits are inserted as dependent variables and forest resource properties of recreational sites are inserted as independent variables. The research sites for this study are recreational forests of Korea which have met the national recreation demand with forest national parks. In almost all previous studies, national recreation forests have been targeted to estimate recreational benefits due to ease of data collection, but this study searches national recreation forests as well as public and private recreation forests for more meaningful results. Over 20 recreation forests were used for this study. Two kinds of surveys were conducted for this study. First, visitors of recreation forests completed a questionnaire consisting of questions about travel cost and the visitors’ socio-economic characteristics. Second, managers of recreation forests completed a questionnaire consisting of questions about forest resource properties such as the distribution ratio of coniferous trees and broadleaf trees, number of particular landscapes, average age of trees, existence of a water valley, etc.
Conway, Flaxen, Sociology/Oregon Sea Grant, Oregon State University, USA
Leesa Cobb, Fishing Community Member, Port Orford Ocean Resources Team
Christina Package, Anthropology, Oregon State University

Collaboration and Conversation: Keys to Improving Coastal Fishing Community Profiles

Oregon’s ocean and its coastal communities are changing. When the Magnuson-Stevens Fishery Conservation and Management Act was amended in 1996 by the Sustainable Fisheries Act, National Standard 8 stated that management measures shall take into account “the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.” The SFA defines fishing communities as “a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet the social and economic needs of vessel owners, operators, crew, and US fish processors that are based in such a community.” In short, it’s important to know how human communities function is a part of the ecosystem and to measure impacts of ecosystem management on human communities.

NMFS is charged with creating community profiles for West Coast fishing communities. Although long awaited and appreciated, the “short” community profiles recently completed by NMFS are limited as they were based on already existing data sources. Local and regional decision-makers struggle to make decisions without understanding potential socioeconomic impacts of fisheries management policies because to truly understand impacts, “long” profiles must be done. Financial, time, and cultural constraints realistically limit NMFS from creating these long profiles and will likely require effective bridges across knowledge, cultures, power structures, and other barriers. This paper presents the progress of an innovative approach using peer/community researchers and collaborative learning for getting critically-needed, scientifically defensible data. The project harnesses the interest and sheer will of agency, fishing community, and university partners to design and implement a 12-month collaborative research project that creates long profiles of three fishing communities in Oregon by including critical yet previously-missing information under a broad heading of “fishing community perceptions.”
Implementing a Virtuous Cycle of Livestock Off-take, Wealth Conservation, and Livelihood Diversification to Improve Risk Management and Reduce Poverty among Pastoralists in Southern Ethiopia

In the Greater Horn of Africa, recurrent drought—combined with slow, steady growth of human populations, scant development investment, and ineffective governance—has created a vicious cycle of increasing poverty, social conflict, and famine risk among pastoralists and agropastoralists living in rangeland areas. This situation also contributes to declines in the abundance and productivity of natural resources. Indigenous range management regimes have been compromised, and some plant and water resources have been over-exploited, as people try to cope with massive social, ecological, and economic changes. These changes are fundamentally induced by a decline in the per capita availability of livestock and natural resources. The economic losses from periodic crashes in livestock numbers, due to joint occurrences of drought and high stocking rates, have been estimated to exceed several hundred million dollars over the past 25 years, in southern Ethiopia and northern Kenya alone. Pulling a pastoral system out of such a tailspin requires interdisciplinary research and a broad, integrated approach that includes significant attention to outreach, market development, institution building, and policy formulation. It has been theorized that one means to deal with such crises is to create a virtuous cycle by implementing a risk-management strategy that encourages livestock off-take by pastoral households in pre-crisis (pre-drought) years and helps people invest the proceeds in diversifying their livelihoods to include non-pastoral, drought-resistant enterprises. Proceeds could also be invested in community development and rehabilitation of key natural resources. Here we will summarize our progress in implementing a virtuous cycle over the past seven years on the semi-arid Borana Plateau of southern Ethiopia. Our work, and that of our partners, has been founded on five key components: (1) Long-term monitoring of boom-and-bust patterns of livestock populations to better predict die-offs, and hence provide a rational basis for pre-emptive livestock sales strategies; (2) investment in entrepreneurial capacity building and collective action for recently formed pastoral community groups; (3) regional facilitation of livestock market development; (4) identifying opportunities to rehabilitate key natural resources; and (5) opening avenues for policy dialogue and change with federal and state decision makers in Ethiopia.
Benefits of Protected Area Network Status: Resident perceptions at Central Balkan National Park, Bulgaria

World Wildlife Fund’s Protected Area Network (PAN Parks) aims to balance tourism and nature conservation via partnerships with conservation organizations, travel agencies, business communities and other groups on a local, national and international level. For PAN Park’s verification, a protected area must meet five principles each with specific criteria (i.e., nature values, habitat management, visitor management, sustainable tourism development strategy, and business partnerships). Monitoring the role of PAN Parks in community development via sustainable tourism is a goal of the PAN Parks foundation. This study examined the relative contribution of four sustainability dimensions in predicting residents’ beliefs about the benefits of PAN Park status. Data came from five regions bordering Central Balkan National Park (CBNP) in Bulgaria (n = 92), which is one of eight certified PAN Parks. We hypothesized that economic, socio-cultural, ecological, and institutional dimensions of sustainable tourism would have a positive influence on perceived benefits of CBNP’s PAN Park status. The ecological dimension emphasizes the need to reduce pressure on the physical environment. The economic dimension considers human needs for material welfare (e.g., employment) in a framework that is competitive and stable. The social dimension refers to individuals’ skills, dedication, experiences and resulting behavior. The institutional dimension calls for strengthening people’s participation in political governance. Dimension indices were based on 5-10 survey items with reliability coefficients ranging from .66 to .91. A benefits index (dependent variable) comprised of four belief statements measured the perceived benefits of PAN Park Status with a reliability of .81. All four dimensions were significant correlates of perceived benefits of CBNP’s PAN Park status. Multiple regression results show the ecological, economic and socio-cultural dimensions accounted for 37% (R2 = .37) of the variance in perceived benefits, while the institutional dimension had no affect. The ecological dimension was the strongest predictor followed closely by the socio-cultural and economic. Findings suggest that as residents’ satisfaction with the economic, socio-cultural, and ecological aspects of sustainable tourism increase, so will their beliefs about the overall benefits of PAN Park status, eluding to the importance of achieving resident satisfaction with each dimension.
A Multiple-Methods Examination of Ethnically/Racially Diverse Outdoor Recreation Users Needs and Constraints in the Pacific Northwest

Demographics are changing rapidly throughout the United States, with notable changes in the ethnic/racial minority population. As the ethnic/racial population continues to increase, resource managers need to be aware of the changing needs and barriers that potential users face. In the summer of 2005 and 2006, three separate studies were conducted to understand ethnic/racial users and what constraints they face in participating in outdoor recreation.

Two of the three studies were conducted simultaneously in the State of Washington, in the summer of 2005. The first study was an on-site user survey on the Mt. Baker-Snoqualmie National Forest. The survey targeted non-traditional users, in order to understand constraints to recreation and negotiation strategies that were used to overcome constraints. The second study was conducted in the city of Seattle and focused on ethnic/racial minorities. Open-ended questions were used to identify constraints to recreation and possible suggestions for forest managers. The third study was conducted during the summer of 2006, in the state of Oregon. Five focus group interviews were used to learn more about ethnic/racial groups’ outdoor recreation experience, motivations and constraints to recreation.

The findings of these three, independent studies showed some striking similarities across all three studies and some differences among the groups within each study. Ethnic/racial minorities tended to agree that natural resource managers should focus on modifying the facilities at recreation areas to appeal to an ethnically/racially diverse user population (more developed sites, larger, family-oriented recreation sites), removing transportation barriers and examining alternative methods to disperse information about recreation opportunities. The results of these studies also showed that each user group had specific needs that can be met only by communicating directly with a specific user group. For example, developing distinct targeted communication techniques for the different user groups would be necessary to inform them of opportunities at various recreation areas. The implications of these findings are valuable to recreation resource managers, and should be replicated outside of the Pacific Northwest to understand regional differences.
Green Roofs in Hawaii: Examining Honolulu’s Exiting Rooftops and the Attitudes of Residents and Visitors

Increased urbanization and density in Hawai‘i is creating more ecologically and aesthetically barren rooftops that seriously affect the people, the economy, and the environment. The Hawai‘i State Legislature is now interested in green roofs since Senate Resolution LRB 06-2901 (SR-86), which calls for the University of Hawai‘i at Manoa, College of Tropical Agriculture and Human Resources to “to gauge the feasibility of rooftop landscaping and agriculture in urban districts,” was passed in 2006. The potential for green roofs in downtown Honolulu, Waikiki and Kaka‘ako are examined, followed by the results of an opinion poll for residents and visitors about green roofs. Finally, some overall conclusions and recommendations are offered in order to assist property owners and decision-makers in looking toward the future of green roofs in Hawai‘i.
Identifying and addressing social constraints involved with the use of prescribed fire in forest ecosystems of the Ouachita and Ozark regions in Arkansas

Historically, fires from natural sources as well as Native Americans and Euro-American settlers have favored the establishment of fire adapted forest ecosystems in Arkansas. Although prescribed fire is critical for restoring and maintaining healthy forests, particulates in smoke can pose a risk to public health and welfare. Some of the heavily populated counties located near the boundaries of the Ouachita and Ozark National Forest experience elevated levels of air particulates. Air quality in these population centers could be negatively impacted by large scale increases in prescribed burning. Recent fires and plans for increased use of fires have brought these conflicts to the surface. A better understanding of stakeholder concerns, attitudes, and beliefs relating to prescribed fire is needed to minimize potential disputes among stakeholder groups. In addition, dissemination of this information is needed to create a foundation upon which open discussions between divergent stakeholder groups can take place and provide the infrastructure for solving disputes related to the application of fire as a land management tool. This project initiates an in-depth exploration addressing the social issues inherent to the use of prescribed fire in the Ouachita and Ozark regions of Arkansas, and the disputes that may potentially develop with increased use of fire to manage forest ecosystems.

The complexity surrounding the issue of prescribed fire was first assessed through focused discussions held in five different locations throughout the Ouachita and Ozark regions of Arkansas. Using the information acquired from these focused discussions, we developed a series of mail surveys asking respondents to evaluate the variety of choices and consequences surrounding prescribed fire. Finally, we organized a discussion forum to build dialogue among the stakeholders and addressed the identified points of dispute and shared values.
Investigating land tenure relationships and community organization in the northern Bolivian Amazon

Brazil-nut-gathering communities in Pando, Bolivia, have gained legally recognized tenure security due to implementation of the 1992 agrarian reform and administrative decentralization in the government. With recent dramatic increases in Brazil nut prices, however, on-the-ground resource tenure is less secure, as evidenced by increased Brazil nut theft both within and among communities. Using a common property framework, this research investigated the rules-in-use of two small extractivist communities in Pando, Bolivia to reveal community and household-level strategies to defend tenure security.

Elinor Ostrom’s common property framework predicts that communities with tenure security, higher collaborative capacity, and a shared history of cooperation will be more successful at crafting and maintaining institutions for the governance and management of common property resources. The research addressed hypotheses regarding community characteristics that reflected adaptations to increase tenure security or increased collaborative capacity. The two communities were selected in collaboration with the Center for International Forestry Research (CIFOR), which has been working in the northern Bolivian Amazon for five years. Semi-structured interviews (n = 55), focus groups (n = 6), and participant observation were the main methods employed. Here I will present data regarding the social organization of these two communities. The two communities had developed very different levels of organization, with respondents from one community (Turi) reporting 26 official positions, while those from the other (San Roque) only 10. Turi was also more diverse in its make-up. About half of the Turi’s households had settled permanently in the community only within the last seven years, whereas all but two families in San Roque were long-time residents. Kinship relations were also less uniform in Turi: there were three principal families in the community, but ten adults were unrelated to these families. In contrast, there was only one household in San Roque without a member related to the community’s founder. While causality cannot be determined, along with these characteristics of greater diversity and increased level of organization, Turi was more adept at capturing benefits from the government and nongovernmental organizations. Turi had received their title more than six months before San Roque and also had a government-installed artisan well and electricity.
Providing the missing link: integrating spatially-referenced social and economic data for watershed management

It is widely accepted that watersheds provide an appropriate scale for natural resource management (NRM). It is also accepted that NRM needs to be underpinned by an understanding of the interactions between people and their environment. However, there are few examples where social and economic research has substantially contributed to watershed-scale management. In this paper I reflect on my experience in three Australian states where I have attempted to address this gap over the past decade.

My watershed partners (federal and state agencies and regional groups) chose to focus on gathering spatially-referenced socio-economic data using a mail survey to a random selection of rural landholders. The intention was to collect data that would enable them to identify and refine priority issues; develop and improve communication with landholders; select policy options to accomplish targets; and evaluate the outcomes of projects and plans. Data collection has focussed on exploring landholder concern about issues; the values they attach to their properties and locality; knowledge of and confidence in recommended practices; adoption of those practices; and long-term plans for themselves, their families and properties.

Data are typically collected from 1,000 households and geo-referenced at the property scale or aggregated to concord with Resource Management Units. These data can therefore be integrated with other spatially-referenced layers and interrogated using a Geographic Information System (GIS). Data collected complements that provided by national collections such as the Population and Household Census.

The experience of working with eight watershed groups in three states has provided considerable insight about the needs of watershed managers, how to effectively engage them, and how socio-economic data can contribute to watershed management. Recent applications include the comparison of landholder perceptions of dryland salinity and expert maps of saline discharge sites to test assumptions about landholders awareness and factors shaping their response to dryland salinity; comparing the characteristics of the representative sample of landholders with participants in a large-budget riparian management program employing a market-based instrument; and predicting the extent and nature of future change in rural property ownership as part of efforts to more effectively engage rural landholders.
Public Awareness of Invasive Plant Species and Forest Disturbance in Northern Colorado

Forest and range disturbance by bark beetles and invasive plant species threatens the ecological balance and community and economic well-being in Northern Colorado. A large-scale mountain pine beetle outbreak has drawn attention to the broader context of forest disturbance in Colorado. While bark beetles and invasive species are recognized by scientists and resource managers as critical resource management issues, there have been few assessments of local citizen reactions to these changing landscapes. This paper describes preliminary findings from a survey conducted in nine north-central Colorado communities to determine the level of saliency of forest and range disturbance issues, particularly bark beetles and invasive plant species. Determining the levels of awareness of and concern about these threats will likely help natural resource managers identify needs related to information dissemination, risk mitigation efforts, and collaborative resource management.
Nepali Community Forestry and a Case Study of a Women's Forest User Group

Nepali Community Forestry Programs started about thirty years ago and many are considered models for other countries. However, these model programs have been criticized for excluding women from decision making processes. As a result, some have recommended creating all-female community forest user groups that have complete control over their own forest. Nepal now has a number of these all-female groups.

We present our findings from research performed with one of these group. This group was chosen because the Nepali Forestry Ministry categorizes it as highly successful. We wanted to understand what made it successful, how female members made decisions, and what role caste might play in membership and decision making. We found that the members’ castes were roughly proportionate to caste numbers within the community.

However, caste did appear to be important in the choice of group leadership. Additionally, although all group members were female, decision making authority was concentrated in the hands of just a few of them. Most interviewed members had little understanding of how the group management decisions were made. Our findings raise important questions about how success is defined for an all-female forest user group.
**Dale, Lisa, University of Denver, USA**

**The sequencing of science and policy in collaborative approaches to forest management: a case study from Colorado**

The intersection of science and policy has long been a mainstay of scholarly work in environmental politics. Traditional wisdom once held that objective science occurred first, and environmental policy was formed in response to this new knowledge. The linear nature of this learning path soon came into question, however, and more recent work has shown a more iterative process associated with environmental policy-making. The recent proliferation of collaborative groups that influence policy-making adds another dimension to the issue. Rich collaboration literature describes the merits and drawbacks of this stakeholder-driven process for solving contentious environmental problems; the primary benefit of the approach has been its perceived success at reducing litigation and producing faster results on the ground. Does the collaborative process provide a new model for linking science and policy? The Front Range Roundtable is a multi-year collaborative group in Colorado that has produced a set of recommendations for improved forest health. This paper traces the integration of ecological information in the group’s efforts to promote science-based solutions to complex questions of forest policy. Science and policy are found to be iterative and inter-woven; furthermore, scientific uncertainty had profound impacts on the diverse group’s ability to find consensus on certain aspects of the problem.
Dalton, Shawn E, University of New Brunswick, Canada

Social network analysis of water management regime in the Annapolis and Cornwallis River Watersheds: a tool for comparative analysis

Water is an increasingly valuable resource throughout the world. This is true even in water rich countries such as Canada, both because our own per capita consumption is on the rise and because water-poor countries demonstrate stronger interest over time in accessing water from abundant sources.

At smaller scales, as the diversity and volume of uses continues to grow, we can anticipate increasing levels of competition both for the water itself and for the right to allocate and distribute it. The goal of this research was to quantify and illustrate the relationships among actors engaged in water management in the Annapolis and Cornwallis River basins in Nova Scotia. This exercise was undertaken to understand, broadly, water use in the region, and whether and how different consumers and providers align themselves politically in order to influence allocation patterns.

Social network analysis is the measurement tool used to meet these objectives. Representatives of public agencies (federal, provincial, municipal), non-profit organizations, and business and industry were interviewed in order to both complete a census of the actors in watershed, and to measure the existing and strength of ties among them. The results of this research will be discussed, with comparisons to similar undertakings in the Gwynns Falls Watershed in Baltimore, MD and the Hudson River Basin.
Social Entrepreneurship in Community-based Forestry

Despite significant challenges including limited human and financial resources, underdeveloped products and markets and weak political power, a number of community-based forestry initiatives in the US have made noteworthy progress in addressing community needs and promoting forest health. We set out to identify the features and practices of community-based forestry organizations which have contributed to this success using four case studies involving public and private lands in the east and west. We found that their practices and approaches fit well with models of social entrepreneurship. Understanding community-based forestry organizations as social entrepreneurs can help explain factors contributing to their success, e.g. taking informed risks, recognizing and engaging opportunities, knowing well and reframing the issues of their fields, redirecting the resources of others, developing effective networks, and promoting for-profit enterprises. This framework also highlights the challenges that both community-based forestry organizations and forest communities face, including limited human and financial resources, instilling entrepreneurial behavior, supporting new enterprises, working collaboratively while moving quickly to take advantage of opportunities, and developing consensus while seeking to innovate. Understanding community-based forestry as entrepreneurs also has implications for the institutional sustainability of these efforts. While the entrepreneurial model has worked fairly well in the start up phase of community-based forestry, to achieve broader and sustained impact, individual community forestry-based organizations need to maintain their entrepreneurial qualities to continue to be problem solving organizations. In addition, the community-based forestry movement needs to continue to promote the political and business conditions under which more modest entrepreneurial efforts can take hold and thrive.
Community-based ecosystem restoration: Guiding principles, future outlook and the role of community capacity

A community-centered approach to conservation has become a primary strategy of many land, water and wildlife management projects in developing countries like Namibia (Jones 1999), South Africa (Reid 2001), Ethiopia (Gebremedhin, Pender and Tesfay 2003) and Ecuador (Kiehn and Calvin 2004) where common property resources abound and residents depend directly on nature’s raw goods and services for subsistence and revenue. Government agencies, non-government organizations (NGOs) and community leaders have adopted this approach to integrate and support social justice, quality of life, and sustainability goals (Brosius, Tsing and Zerner 1998). In developed countries, shifts toward a systems approach to management of public lands that includes human-environment interactions and recognizes the benefits of participatory planning (Kellert et al. 2000, Berkes 2004) have spurred community engagement in collaborative decision making and collective action around conservation. Large-scale restoration especially demands the insight and involvement of communities, as ecosystems and watersheds span public and private ownership boundaries and influences.

At the outset, ecosystem restoration initiatives may be community, government, or NGO driven, but to be sustained multi-sector partnerships are needed. Many scholars believe that the earlier the local community is involved in place-based conservation programs, the sooner the community will support and assume responsibility for their outcomes (Schuett & Selin 2002). Community capacity plays an undeniable role in the success of restoration programs. Though community capacity has received little attention in natural resources management, community health and psychology experts have identified several key characteristics that contribute to a community’s ability to solve problems or achieve goals including leadership, civic participation, social networks, and a shared community vision (Goodman et al. 1998; Foster-Fishman et al. 2001, Lasker & Weiss 2003). Understanding how an agency may embolden community capacity through technical, financial and human resource assistance and by empowering community members in decision making processes is vital to success (Koontz et al. 2004). In this paper we discuss guiding principles for community-based conservation emerging from case studies and empirical analyses conducted over the last two decades. Second, we examine these principles in light of the unique challenges of ecosystem restoration. Finally, we provide recommendations for future research.
The influence and role of sense of place in natural resource management agencies

This research explores sense of place and associated management implications for natural resource management. The two key questions were: ‘is emotion in the form of place attachment a part of the management experience of place?’ And ‘what are the implications for management of this place attachment?’ Whilst we recognise that sense of place is a significant component of people’s relationship with the landscape we have very little understanding of sense of place for those people whose job it is to care and manage place, and where this fits in the rational context of a workplace. The results of this study found that sense of place and associated emotions were recognised and acknowledged by staff and management. The manifestation of place attachment was strongly controlled by the staff in their role of resource manager. Sense of place attachment was also ambiguously responded to by the organisation; at one level it was accredited with contributing to high levels of commitment to the job, but at another level it was associated with not seeing the ‘big picture’ and making decision more difficult than it needs to be. The particular organisation under discussion was interested to see the results from this study, and a willing participant in making explicit experiences of sense of place, and in understanding its contribution to their own function.
Country Roads and Scenery: A GIS Viewshed Analysis for Monroe County, WV

Tourism plays an increasingly important role in promoting the image and economic development of West Virginia. Previous studies conducted by the WV Division of Tourism indicate that driving and sightseeing is the main activity for most tourists to the state. Therefore, an understanding of what they desire to experience and what can be experienced during their trips is important. Viewshed analyses as noted by O’Sullivan and Turner (2000) “may be of particular relevance to the growing interest in quantifying the perceptual characteristics of landscapes” (p. 221). This study examines the visual resources comprising the panoramic stretches along 14 scenic byways and country roads throughout Monroe County, WV as identified by Monroe County, WV Official Visitor's Guide. The percent of land cover types (i.e., developed areas, agricultural lands, shrub lands/woodlands, forest lands, water bodies, wetlands, and barren lands) that are visually accessible along each road was calculated using GIS viewshed analysis. Results indicate that forests are the main visual resource for all roads, ranging from 60.1% for the Salt Sulphur Springs Turnpike to 86.5% for the Allegheny Trail, with the average being 71.6%. In contrast, traveling along Allegheny Trail has the least chance to experience agricultural scenery with 13.0% of visual resources along the trail being agriculture related while the Salt Sulphur Springs Turnpike has the highest percent (38.0%) of agriculture land cover. The average agriculture land cover that can be visualized along all 14 roads is 26.4%. One or several loop-trails could be developed by connecting each of the routes that have been identified and studied in this study to provide tourists with the maximum possibility to view varied scenery. In addition, a survey about tourists’ perceptions of the relative importance of each scenic element can be conducted so that a scenic classification system can be developed based on the magnitude of each element and associated relative importance. Thus, all 14 roads/trails can be classified into different levels of visual quality and experience. This study has significant practical implications for tourism planning and itinerary design for the County and for the entire state as well.
Exploring the meaning of “forest management”: private forest landowner (PFL) perspectives

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 in fact be considered forest management depending on how it is defined. Furthermore, interviews revealed that despite these landowners’ activities, they 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 assessing how PFLs define the term “forest management”. Landowners were also asked whether they believe they manage their forestland and what types of activities they engage in on their land.

Three primary definitions for forest “management” were revealed; forest management as “property maintenance”, “making money”, and “creating and enhancing forest habitat.” Survey results also revealed that while the majority of PFLs sampled are not significantly involved in traditionally defined forest management activities, 77% believe they manage their forestland. The relationship between landowners’ self perception of their forestland management, how they define forest management, and their engagement in forest management activities will be discussed. 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 some potential barriers and opportunities for improved dialogue between these two groups.
Should Residents be Displaced from National Parks and other Protected Areas?

Inhabited and uninhabited protected area management models have ethical and practical strengths and weaknesses and decisions regarding their appropriateness are context specific. These decisions are increasingly significant as new protected areas are established on lands inhabited and/or used by directly natural resource-dependent people and as increased management capacity in previously-established protected areas allows for stronger enforcement of restrictive laws. Implementation of management models that involve displacement—the removal or restriction of access of people from protected areas and protected area resources—is also critical. Lessons learned from empirical studies show that displacement of people from protected areas, without adequate compensation and reconstruction of people’s lives and livelihoods, exposes people to increased risks of impoverishment and can create new threats to conservation goals. Using Banhine National Park, Mozambique, as an exemplar, this paper explores the complexities and contentiousness of why and to whom inhabited and uninhabited protected area management models are appropriate. Political-economic, actor-centered, and post-structural perspectives on power are used to illustrate how conservation and poverty alleviation policies, actors, and dominant ideas interact at global, national, and local scales to influence protected area displacement decision-making and its implementation. Focus is given to the role of the World Bank’s safeguard policy on involuntary resettlement. Using Cernea’s (2002) Impoverishment Risk and Reconstruction Model for population resettlement, this paper illustrates how displacement from Banhine National Park has increased resident populations’ risks of landlessness, joblessness, homelessness, marginalization, food insecurity, increased morbidity and mortality, loss of access to common property, and social disarticulation. The paper concludes that displacement, in this case, further impoverished resident people and increased threats to protected area conservation goals. Recommendations are made to develop, strengthen, and clarify national, international, and NGO policies on population displacement.
Blessed by the geographical location in the Gangetic system, Bangladesh is a floodplain deltaic country characterised by thousands of depressed basins, enriched with huge and diverse wetland resources. Given the peculiarities of hydrological and topographical dynamics, floodplain ecosystems represent a complex web of relationships among a number of conflicting stakeholders, who compete for their livelihoods based on the natural resource base. This paper examines the use of traditional knowledge (TK) and practices of fishers and farmers for sustainable uses of Hakaluki haor resources (largest and a very dynamic wetland ecosystem of the country with an area of around 46,000 acres). The hydrographical pattern, usually characterised by early monsoon flood and prolonged monsoon flood, itself pose a challenge to both fishers and farmers, but interestingly corresponds to the cropping pattern of local aman paddy variety, and spawning and growth of fishes. Specially during the dry seasons, the existence of a critical water level for successful breeding, nursing and growth of fishes is a must. With the drawdown of floodwater in the upper basins, the farmers simply allow huge aquatic debris and animal excreta to degrade and grow local boro rice and a couple of pulse, oilseeds and rabi vegetables, as suited to the land, without doing much for land preparation. Again, the accumulation of huge amount of nutrients generated from the decomposition of aquatic vegetations and paddy plants add to the upsurge of primary and secondary productivity of the wetland. Historically, local fishers and farming communities have judiciously practiced crop calendar and adapted numerous uses of resources in the land-water interfaces of the wetlands. Recently, with the enactment of national waterbody policy, the Jalmohals (waterbody), as government owned property, are leased to the rich powerful external bidders, that threatened livelihoods of local communities, exacerbated social inequality and acted against the principles of sustainable uses of common property resources. In the month of November-December, when the farmers need rapid drainage of water from their fields to start cultivation, leaseholders raise dykes to protect fish. Again, when farmers need water for irrigation in February-March, some leaseholders refuse to provide water. Thus, the traditional cyclic use of land-water base is at risk. It has been observed through years of field investigation that given the generous response from the external leaseholders, both the farmers and fishers can be mutually benefited. The policy challenge is to consider the significance of both paddy cultivation and fish harvesting into account with a view to maximise benefits and save the professional diversity; and the incorporation of traditional knowledge of the local communities will contribute to better formulation and implementation of management measures, and also mitigation of conflicts over present-day resource uses.
A Market Segmentation Strategy for Assessing Public Preferences Solicited Using Choice Modeling

A 3-phase analytical strategy was used to assess and analyze public preferences for multi-attribute resource management strategies on the Green Mountain National Forest in Vermont: (1) a choice model (conjoint) was used to solicit and assess stakeholder preferences for multi-attribute management alternatives that included various levels of timber harvesting, wildlife management, development of hiking trails, snowmobile access, and ORV use, (2) cluster analysis separated respondents into segments based on their assessed preferences, and (3) discriminant analysis was used to develop demographic profiles for each segment.

An orthogonal survey design was used that allows estimation of linear and quadratic main-effect components over the entire range of possible alternatives with the least number of trials. This also permits estimation of a preference map for each stakeholder which is used to cluster stakeholders into segments. A management strategy based on the stakeholder survey results is suggested and several considerations that should be addressed prior to acceptance are presented.
The Ecologization of European Union Agricultural Policy and Research Agenda. Which Theoretical Choices?

"Ecologization" is the world chosen by the Ecodevelopment, a French multi-disciplinary research unit, to qualify the current trend of European Union agricultural and rural policies and its effects on agricultural production systems. Two main research programs have been identified. The first analyzes the process itself, the gradual extension of the sphere of agricultural and rural activities affected by environmentally oriented policies: from the periphery to the core of the agricultural sector, from limited agri-environmental rules to cross compliance. The second examines the process of designing new agricultural production models aimed at fulfilling these new obligations. In the first part of the presentation, examples of social science research are developed, focusing on biodiversity conservation, the alternative between considering environmental demands as constraints or at the contrary opportunities for inventing an ecologically based agricultural production, and the consequences of these policies on social equity for farmers and consumers.

The second part of the presentation examines the empirical results at the light of three theoretical streams of environmental social sciences: Ecological Modernization, Treadmill of Production and Political Ecology. The heuristic value and the limits of each of these theoretical approaches are identified. Ecological Modernization is valued for its assessment of innovations in the production and production/consumption systems, but can be questioned on the assertion of the capacity of the capitalist production system to internalize by itself ecologization demands. Treadmill of Production is valued for its interest for the leading part of social movements in building local and global alternative production and consumption systems, but is weaker when taking into account the development of ecologization in public policies. Political Ecology is valued for its focus on the institutions that convey the policies of ecologization and on the nature of institutional changes that they generate, but is weaker in its analyses of the roots of ecological crises and on the assessment of the technical innovations promoted by these institutions.

In conclusion, the relevance of choosing the world "ecologization" is discussed as compared with other terms which are propound to designate the trend of European Union agricultural policy: "greening", "multi-functionality", "sustainable agricultural development"...
Collaborative Ecosystem Management: Competing Theoretical Frameworks

Researchers from numerous fields have responded to the rise of collaborative ecosystem management (CEM) with a multitude of case studies but little theoretical development. Based on a review of selected literature, I identify two competing narratives – Emergent Intelligence and Politics of Scale – and the implicit and explicit theoretical assumptions which differentiate them. These assumptions reflect different conceptualizations of complexity, uncertainty, accountability, networks, institutionalization, boundaries, boundary spanners, actors, and structures. As a result of these assumptions and authors’ underlying normative perspectives, the two narratives provide starkly different assessments about the strength and potential of collaborative processes. In the Emergent Intelligence narrative, collaborative groups: integrate knowledge and action to adapt to complexity and uncertainty; cohere through institutionalization of shared norms and discovery of a common vision; rely upon networked intelligence and the fusion politics of policy-making as the basis of accountability; and draw upon the unique capacities of individual actors and boundary spanners. In contrast, the Politics of Scale narrative: attends to the dynamics that enable powerful, self-interested actors and coalitions to undermine or take control of collaborative efforts; highlights pathological outcomes such as goal displacement that may result from institutionalization; assumes rigid institutions and organizational boundaries prevent functional networks; and casts doubt on the capacity of CEM to provide accountability. Though scholars will recognize these narratives as caricatures of more nuanced positions (and, indeed, strong middle-ground approaches do exist), scholars as well as practitioners are prone to influence from these compelling narratives, which manifest in policy recommendations. I suggest that greater attention to our theoretical and normative assumptions would facilitate more systematic study, a clearer understanding of CEM dynamics, and ultimately a stronger basis for implementing thoughtful and accountable CEM policies and processes.
Do no harm? Conservation and the livelihoods of the poor

Conservation agencies working in developing countries have long faced the challenge of determining the relationship between their conservation goals and the broader goals of development. In the past ten years this relationship has been increasingly framed in terms of the relation between conservation and poverty. There has been considerable controversy and confusion about the responsibilities of conservation agencies and whether they are fulfilling those responsibilities. One approach that has emerged holds that conservation agencies should, at a minimum, ensure that their activities do not harm the livelihoods of the poor and, where possible, provide positive benefits. This paper offers a critical examination of this approach. What is the understanding of the relative significance of the goals of conservation and poverty that underpins this approach? How does this approach compare to other approaches that emphasise a respect for the rights of poor people or stress the contribution that conservation can make to poverty reduction goals? What are the problems in assessing if this approach is successful? How does this approach play out in the current politics of conservation? The analysis is informed by a consideration of the policies and practices of different agencies, including international non-governmental organisations and government bodies implementing international conservation treaties.
Managing Water-Based Recreation Within a Changing Landscape

The task of managing water-based recreation has become increasingly complex in the face of a growing population, more diverse recreation activities, and a shoreline in transition. The potential for conflict is obvious as traditional users, such as fishermen and motorboaters, now share the water with personal watercraft and large fishing tournaments. Resort-type communities and “members only” marinas are joining or replacing traditional property owners along the shoreline, potentially affecting water access opportunities for the general public. A recreation survey was conducted in 2005 and 2006 on Tennessee Valley Authority Reservoirs, using a combination of on-site observation, brief interviews, and a mail survey to obtain information about the nature and extent of recreational use of the reservoirs and related attitudes and preferences. A total of 2,732 surveys were distributed on the reservoirs and 1,724 were returned for a response rate of 63%. Respondents identified personal watercraft as one of the most serious problems across all reservoirs and reported the number of personal watercraft as being too high, although observation data show personal watercraft were used by only a small percentage of visitors (5.1% - 8.5%). Fewer respondents felt the number of homes/cottages along the bank was too high. When asked about reasons for making fewer or no trips to the reservoirs during certain times of the year, the “water gets too crowded” was selected as the main reason by a smaller percentage of respondents than was expected. Qualitative data provide additional insight to the concerns and frustrations of reservoir users. Recreation user day estimates suggest reservoir recreation is not decreasing, but results indicate user group displacement may be likely and the quality of the recreation experience may be compromised.
The Opportunities for Land Trusts in Water Quality Trading Programs

Since private landowners are unable to capture the economic rents from many of the environmental services (ES) provided by their property, the land use decisions they make are largely driven by what can be produced on their land to sell in established markets. This leads to an undersupply of ES and in many cases an increase in pollution. The traditional remedy has been government economic incentive in the form of cost share payments or tax breaks. These approaches tend to allocate money inefficiently, as they are typically not designed to provide higher compensation to landowners whose land produces more ES. Institutions using market mechanisms to pay for ES in a more cost-effective manner are needed.

Recently, the private land conservation movement and markets for tradable pollution credits (TPC) have emerged as additional options for landowners to seek compensation for ES. Although these two approaches are quite different from one another in how they function, they both are driven by the economic decisions of private entities with an incentive to get the most for their money. The differences between these two approaches actually create opportunities for mutually advantageous cooperative behavior between land trusts and buyers in TPC markets.

Land trusts are relatively free to decide what ES to pay for, how much to pay, and to whom, giving them leverage with landowners, to negotiate a more competitive price. Conversely, TPC buyers are looking to fund pollutant reduction activities to meet regulatory requirements. These requirements typically address a single pollutant and place conditions on the timing, location, and methods used to generate credits. A TPC buyer will purchase credits from landowners who change land use practices to reduce a traded pollutant only if the price is competitive, and they are not likely to be concerned about additional ES. Land trusts concerned with increasing ES have a unique opportunity to facilitate trades that meet the TPC buyer’s credit requirements at a competitive price while maximizing the ES produced. This paper focuses on the circumstances under which these opportunities arise, and changes to trading program design which can make these opportunities more likely.
Using Social Science to Guide the Implementation of Utah’s Wildlife Action Plan

Utahns were asked how important preventing sensitive species from being listed under the Endangered Species Act was in light of a Congressionally mandated Utah Wildlife Action Plan (WAP). A majority (64%) of Utahns surveyed in 2005 felt that this was of greater rather than lesser importance. Yet, when queried as to how active these same Utahns had been in participating in the decision-making process within the past year, 76% had not provided any input into fish and wildlife management. Remarkably, two of every five respondents were not interested in giving any input in the future (i.e., considered to be “distanced” from wildlife issues). Other communications findings are presented in light of ongoing efforts to engage a highly urbanized Utah populace in the conservation of sensitive species.

Utah’s WAP implementation direction and outreach efforts center on issues identified in this Colorado State University conducted, statewide survey sponsored by the Human Dimensions Committee of the Western Association of Fish and Wildlife Agencies. Utahns polled were more willing to fund species of concern programs over those for federally listed ESA species, nongame species, and game/sportfish species. Regarding funding sources proposed for sensitive species conservation efforts, those surveyed preferred to access matching funds required from the reallocation of license fees more than charging special transaction fees, imposing outdoor equipment taxes, or spending the State’s General Tax Fund.

Furthermore, when it came to public lands tradeoffs for Utah’s species of concern, those Utahns polled preferred less economic development the most. Of all the potential, new internal programs for Species of Concern proposed, the most favored was educating outdoor recreationists about their impacts and ethical responsibilities. Regarding their preferred cooperative partner options for such new programs, pursuing private land easements proved to be most popular.

Progressive action by the Utah Division of Wildlife Resources is moving the conservation of sensitive species forward. A marketing initiative is underway, as is broadening the appeal to welcome all wildlife enthusiasts to contribute to wildlife conservation through a Wildlife Foundation. A statewide outreach effort slated for early 2007 will involve stakeholders in helping conserve species of concern and their habitats.
Institutional arrangements for collaborative resource management and the role of traditional ecological knowledge

The increase in recent decades of natural resource management projects involving American Indian Tribes and federal agencies in the United States reflects two trends. The first is the increased recognition of American Indian treaty rights, the institutionalization of Tribal-federal consultation processes, and the growing movement toward Indian self-determination that began in the late 1960s. The second trend is the increased use of collaborative processes in the management of natural resources, whereby public land managers are working with partners and stakeholders to implement projects, deal with sometimes contentious issues, and build ownership in the management of public lands. As such, collaborative resource management projects between American Indian tribes and federal and state natural resource management agencies are emerging as a way to achieve ecological, social, and cultural objectives through natural resource management.

A variety of institutional arrangements, ranging from contracts to memoranda of understanding, formalize collaborative processes between Tribes and agencies. This paper examines a selection of institutional arrangements for collaboration in natural resource management between Tribes and resource management agencies, using a sample of cases of collaboration between Tribes and agencies throughout the US. One objective is to characterize the attributes of different types of institutional arrangements to better understand how the arrangements differ. The second objective is to explore how the integration of traditional ecological knowledge in collaborative resource management is influenced by the different types of institutional arrangements for collaboration.

Attributes differentiating the institutional arrangements for collaboration include: decisionmaking processes; whether or not funds were transferred from the agency to the Tribe(s); the expressed level of mutual dependency; and the sharing or transfer of various forms of knowledge, including scientific and traditional ecological knowledge. Comanagement arrangements had high levels of joint decisionmaking, recognition of mutual benefit, shared project implementation, and transfer of knowledge as compared to the other types of institutional arrangements. In contrast, for the contractual arrangements, the decisionmaking authority resided with the federal resource management agency, and the tribes were paid by the agency to conduct the on-the-ground resource management work. Cultural values and traditional ecological knowledge were recognized, but were not well integrated into the contractual arrangements.
Knowing Your Boundaries: A Bioregional Approach to Defining the Palouse

The Palouse prairie ecosystem of eastern Washington and the adjoining panhandle of northern Idaho is among the most endangered biological communities in the United States. Fertile topsoil and a moderate climate promoted rapid conversion of the native grasslands to agricultural fields, leaving less than 1% of the ecosystem intact. By most definitions, the core area of the Palouse crosses at least two state lines (Idaho and Washington) and three county lines (Latah County, ID, Nez Perce County, ID, and Whitman County, WA). Within these administrative boundaries exists a myriad of land use regulations and mechanisms for protecting biodiversity, making the implementation of conservation efforts extremely challenging. Furthermore, most of the Palouse is privately owned, and landowner and stakeholder support is critical to successful conservation measures.

The region has been defined based on many different biophysical or social characteristics including: the presence of loess soils, the extent wind-blown hills dominate the topography, Native American history, the settlement and expansion of agriculture and the original extent of the bunchgrass prairies. Although all of these descriptions are functional and accurate, they each present different boundaries for the Palouse. The aim of our research was to develop a working definition of the Palouse that accounts for the overlap of biophysical and social features, and to provide a vehicle for policymakers and planners to develop regionally appropriate conservation plans. To do this we asked the following questions: 1) How have definitions of the Palouse changed over time?, 2) What are the primary commonalities and differences that exist between boundaries delineated using social, biological or physical criteria?, 3) Can a consensus boundary be defined and if so, what would it look like?, and 4) What potential conservation opportunities and challenges would accompany the adoption of a consensus-based boundary for the Palouse?

Preliminary findings of our study indicate that the social, biophysical and ecological definitions of the Palouse have changed over time. Well-defined areas of overlap between these three disciplines suggest that a bioregional approach to the Palouse may be appropriate and feasible, and allow planners and stakeholder groups to reflect social values while protecting biological diversity.
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Keeping an Eye on the Why: Facts, Values, and Public Involvement in Land Management Decision Processes

Land management planning and NEPA processes within the USDA Forest Service statutorily require public input. Public involvement has usually centered on mandatory comment periods followed by agency response. The effort is often mutually frustrating, however, as agency specialists seek fact-based, cause/effect comments about ecological conditions and management actions, but are instead confronted with numerous, often emotionally charged, comments about values and preferences. Recent changes in Forest Service regulations, however, notably the 2005 Planning Rule, emphasize ongoing dialogue in a collaborative, adaptive management approach. Forest-level staff are now expected to talk the talk—and walk the walk—of interactively engaging the public regarding land management values.

The challenge is that land managers and resource specialists are often unfamiliar with how value concepts apply to planning and NEPA decisions. At the same time, apart from preference surveys, the connection between value concepts and on-the-ground application is often missing from discussions within the social science community. Without that crucial connection, though, value concepts and conversations will remain less effective than they could be in decision processes.

We attempt to elucidate the connection in two ways. First, we describe a three-way interdisciplinary crosswalk among (1) the social science concepts of Rokeach’s cognitive hierarchy, (2) philosophical concepts of moral discourse, and (3) natural science and managerial concepts central to decision making. An ability to navigate among these overlapping vocabularies, we suggest, can contribute to better assessments, public input analyses, collaboration efforts, and public trust. For example, public expressions of values often pertain to agency considerations of desired conditions, while expressions of attitudes and beliefs often pertain to data, best science, and specific management practices.

Second, we suggest that the initial emphasis in decision processes should usually be on values (what to achieve, broadly), gradually shifting to an emphasis on data and science applied to education and the reconciliation of conflicting beliefs, and ultimately to the decision (what to do). This sequence of emphases might help focus collaborative discussions and thought processes. Data, science and values are the combined “why”—the rationale and explanation—for decisions about what to do.
Dumaresq, David, Fenner School of Society and Environment, Australian National University, Australia

Why Bother About Methodology? - How what we do constructs what we might know. A case study from a sustainable grazing project in south eastern Australia

Why should we bother about methodology? For most researchers in their everyday operations methodological questions and problems are reduced to querying methods and questioning the adequacy of techniques. Our ‘discipline’ home provides the appropriate and often un-stated boundary of what we do and how we do it. Our discipline provides the methodological assumption on which we base our choice of methods and investigatory techniques. But are these boundary settings the most useful way of going about our research and implementation practice? Can anything be gained from moving outside our disciplinary comfort zones?

How does a rethinking of those boundaries actually change the research that gets done? The paper explores the changes that both could have, and did, take place in the operations of a research and extension program in sustainable grazing in the State of New South Wales in south eastern Australia. The project was government funded and sponsored. It aimed to get private landholders to conserve biodiversity in an area of high but threatened grassland biodiversity; and to promote sustainable grazing management. The project encompassed some 50 landholders in a contiguous area of south eastern New South Wales.

The paper outlines how the researchers moved from an ‘expert’ stance through to a partnership approach. The methodological, methods and techniques changes required are detailed. Changes in the research ‘output’ are also presented and their usefulness assessed. Further changes that could have been made based further methodological shifts to a more inclusive ‘learning community’ approach are explored.
Implementing the Healthy Forests Restoration Act: Examples from the White Mountains, AZ

The Healthy Forests Restoration Act was passed in 2003 in response to perceived failures of existing policy to address wildfire threats facing National Forests and the communities near them. In part, procedural delays and NEPA appeals were perceived to keep hazardous fuel reduction projects from being implemented on the ground. Two years after the passage of HFRA we explored how HFRA was being implemented and whether the legislation can be characterized as serving the common interests of the many interest groups affected by the legislation.
Globalization has given rise to spatial shifts of power and new forms of identity. The rise of a culturally and politically heterogeneous but nonetheless powerful, cosmopolitan elite has been matched by an upsurge of identities based on notions of indigenousness and locality. Cultural struggles take the form of lifestyle debates between segments of the global elite, on the one hand, and critiques of cosmopolitanism itself on the part of locally-based groups, on the other. These identities do not exist prior to the conflicts but are partly constructed in and through them. The discursive strategies and semiotic codes used in the apocryphal stories that permeate the popular literature and oral culture of hunters are an important part of the construction of local identities. As the image of the hunter itself comes to represent an icon of an authentic culture under threat by global forces, hunters construct ideal-type images of the bearers of cosmopolitan culture. This paper discusses these processes with specific reference to Canadian debates over hunting.
Duty of care and stewardship in biodiversity conservation: towards a shared understanding

Over 60% of the Australian land mass is managed privately, with much of it assigned to agricultural or pastoral production. In these areas effective biodiversity conservation is largely dependent on the willing participation of land managers in actively managing native flora, fauna and their habitats. Governmental oversight of biodiversity conservation involves some regulation, but also a strong focus on voluntary approaches to conservation encouraged by incentives, moral persuasion, and more recently programs fostering an ethic of stewardship among landholders. While these approaches have achieved important outcomes for biodiversity conservation, each has limitations. A duty of care has been suggested as another complementary approach to environmental management, and biodiversity in particular. A major obstacle to the implementation of an environmental duty of care is the apparent uncertainty about its meaning among natural resource managers.

This paper clarifies the related concepts of duty of care and stewardship as they are applied in the context of natural resource management and biodiversity conservation in Australia. In doing so it seeks to progress discussion about the possible roles that each might have in promoting the conservation of our remarkable biodiversity.

Since 2000, primary responsibility for natural resource management on privately managed land has been vested in 56 regional catchment management organisations across Australia. Our research is exploring how a duty of care could be implemented to improve biodiversity outcomes at a regional scale. We have adopted a qualitative approach that includes extensive review of literature, past and present policies and practices in biodiversity management, and interviews with experts and key stakeholders.

Drawing on the semantic foundations of ‘duty of care’ and ‘stewardship’, we have identified a number of distinguishing characteristics. From literature and primary data sources, references to ‘duty of care’ and ‘stewardship’ are examined, highlighting inconsistencies in their application. Clarification of these concepts will enable researchers, policy makers and natural resource managers to speak with common understanding, overcoming much of the current confusion surrounding their use.
Egan, Andrew, Des science du bois et de la forêt, l'université Laval, Canada
Louis Morin, Forest Management, University of Maine

Effects of land use change on the sustainability of forest products businesses in the Northeast US

Much of the rural landscape of the region comprised of the six New England states - CT, MA, ME, NH, RI, and VT - and the state of NY is dominated by forests as well as signs of land use change, such as decreasing forest ownership sizes, terminal harvesting, sprawl and exurbanization. Indeed, while the state of ME is the most heavily forested state in the US, its largest city, Portland, has added urbanized land at a rate faster than any metropolitan area in the northeast.

Given this backdrop, wood procurement managers in the region were surveyed in 2001 and again in 2006. The intent of this study was to identify and evaluate factors and detect trends associated with the ability of sawmills in the region to maintain or expand their businesses in the face of land use change. Spatial analyses of the data were conducted using a geographic information system (GIS) that provided an opportunity to interpret and exhibit survey results on a spatial scale. US Census data were employed in the spatial analysis to compare the distribution of respondents against population distributions.

Overall, symptoms of population pressures and land use change appear to be associated with the sustainability of forest products businesses in the region, and there are some significant differences in these effects among the states and types of forest products businesses studied.
Regional Impact Analysis of Ranchland Open Space in Routt County, Colorado

Many factors enter into the decision to visit a tourist destination including cost, recreational amenities, convenience, food and lodging quality, reputation, and past experience. The value of these attributes is equal to at least as much as people pay for them. However, there are many important features of a tourist visit that are valuable, but that tourists do not have to pay for directly. Clean air and water, scenic vistas, attractive flora and fauna, and interesting architecture are common features of popular tourist destinations that are bundled with the rest of the tourist experience, but are not directly purchased. Despite the lack of a direct market to reveal the value of these features, such attributes clearly contribute to the tourism experience and the choice to visit. As a result, their absence, presence, and quality have important economic implications.

We hypothesize that ranch open space may contribute to the quality of the tourist experience in Routt County, Colorado. These benefits can be translated into additional income for the local economy. If infrastructural development were to convert ranch open space to more intensive uses, economic activity in the region may increase or decrease. While the influence of most urban developments on economic returns to the region is quite easily understood through market signals, the potential benefit of not developing the open space may be substantially less easily detected and analyzed. The purpose of this research is to capture nonresidents’ values and the resulting impacts to the local economy of (not) converting ranch lands to urban uses.

A regional impact (export base) analysis will be conducted in order to estimate the amount of money brought into the local economy from tourism and how it might change due to rural land use change. IMPLAN, an input-output analysis program, will be used to quantify the economic impacts to Routt County and to illustrate the distribution of economic effects throughout the local economy. Our research will provide insights into the potential local income loss or gain from various potential marketing, policy, or development strategies currently or potentially under consideration.
Gauging Coastal Management Needs and Capacities Through Formal and Informal Needs Assessments

As coastal populations grow and demands on resources change, resource management professionals recognize that effective management involves consideration of both ecological and social processes. Managing natural resources becomes more about understanding and managing people and their access to resources, and working collaboratively to achieve management goals. The needs of the resource manager and their constituents must be identified and made accessible to enable informed decision-making. The NOAA Coastal Services Center employs a number of methods to identify resource management issues and associated data, information, technical assistance, and capacity building needs within the coastal and marine resource management community. This information is contained in agency documents, compiled through various data collection efforts, documented and discussed in open forums, such as the news media, and brought to light through routine interactions among resource managers and allied environmental professionals. This presentation highlights several examples of needs assessments conducted to inform strategic, programmatic, project, and technical assistance planning and development for alignment with the needs expressed by coastal management professionals.
Elmendorf, William F, School of Forest Resources, Penn State University, USA

ATVs and Snowmobiles: Comparisons From a Survey of 6000 Pennsylvania Owners

Working with a grant from the Pennsylvania DCNR, researchers from the Penn State School of Forest Resources recently completed surveys of 3000 registered ATV owners and 3000 registered snowmobile owners to provide information for a Pennsylvania Off-Road Vehicle Plan. These user groups are increasing in both numbers and voice. Information was gathered from the two groups on demographics, riding characteristics, desired riding features, obstacles and problems facing riding, economic impacts, and attitudes towards safety, law enforcement, substance use, and other features. Although many differences were found, there were also similarities including the importance of these groups to the State's tourism income. This presentation will provide an overview and comparison of interesting results from these two recreational groups.
Understanding trust in inclusive public participation processes - development of an analytical framework

The public’s trust in governmental agencies has generally declined (across sectors and countries). A push for public involvement is emerging as a reaction. Such public participation processes we regard as living experiment on how to balance overall and local concerns and how to blend expert knowledge with the unique knowledge of those affected by e.g. policy decisions (Daniels and Walker 2001).

Trust can affect the actual outcome of public involvement processes – without trust, no collaboration. Trust can also be an effect of the very same processes – a good process can generate trust. It is therefore interesting to study the role and development of trust in public participation processes – trust as cause and effect (Rousseau et al 1998).

There is a strong base of literature on trust at the person-to-person level (psychology, negotiation, conflict management). At the person-to-institution level literature is sparse - not surprising since it in fact is difficult to define and measure trust in complex social settings (Thomas 1998).

This study develops a comprehensive (still handy) framework to support studies of trust development and the effects of trust - in the context of NR public participation. The framework includes rational choice (realism), value-based choice (idealism) as well as personal and social factors. The study and framework presented is based on literature, case-studies and experience.

The analytical framework of Lewicki and Wiethoff (2000) combines cognitive/calculative and emotional/social aspects of trust. This framework echoes what happens at a person-to-person level in many of the NR planning situations but does not address the social and institutional level characteristics of NR planning. The work presented in this paper establishes a cross-cutting framework for analysis of trust in an agency-public context.

The value, strength and weaknesses of the framework are tested by a first test-application to a specific case – the Forestry Planning Process at Bridger-Teton National Forest in Wyoming, USA, 2005-2008. Based on this first test the powers/benefits and problems/weaknesses of the tool are discussed with regards to potential use and suggestions for improvement are provided.

Literature:
Urban Nontimber Forest Products: Nature, culture, and practice in the 21st century city

Nontimber forest products (NTFPs) -- wild edibles, medicinals, craft materials, etc. -- are valued resources for many urban residents. NTFPs are harvested from urban parks, road medians, abandoned lots, garden margins, and interstitial spaces of all types in cities and suburbs. Strong ethnic and cultural practices often are evident in patterns of species harvested and the uses made of them. However, use of these resources raises questions of access and toxicity. Drawing on evidence from cities in the U.S. Upper Midwest and Northeast as well as Scotland, this paper will discuss the state of knowledge about urban NTFPs and opportunities for future research.
Strengthening Sustainable Agriculture on Indian Lands

Historically, participation of Native American producers in USDA sponsored programs has not been high and yet, Indian leadership verbalizes the need for strengthening agriculture on Indian lands. Conversely, USDA professionals describe their difficulty in reaching this audience. This Western Region Sustainable Agriculture Research and Education (WSARE) professional development program sought to address this gap between needs professionals identify as important for Native American producers and Native American producer views of priority needs.

Specifically, this study seeks to understand the educational needs of agricultural professionals who describe their difficulty in reaching Indian Tribes or Native American producers in the West. Additionally, University of Nevada Cooperative Extension identified a knowledge gap whereby agriculture professionals must better understand and appreciate the unique elements of individual tribal histories and culture to work more effectively with Native American producers.

Research methods in 2005-2007 included face-to-face interviews conducted on participating reservations, and featured identical question items on quality of life surveys designed for Native American participants and agriculture professionals working on reservations. These combined methodologies were selected in order to compare indicators of perceived quality of life on Indian reservations. Specifically, survey questions enabled comparison and contrast of attitudes towards adoption of sustainable agriculture practices on reservations. Analysis of secondary data was also conducted concerning the historical policies that led to the creation and existence of Indian reservations as well as current social attitudes towards reservations.

The results of this research provides the foundation for developing and piloting an educational program in Nevada, Idaho, Washington and Oregon that target agriculture professionals working on Indian reservations. Anticipated outcomes of this program are to increase USDA and agriculture professionals’ knowledge base regarding the social, political, and economic environments on Indian reservations, and increase sustainable agriculture programming and practices with Native American producers in the West.
Indicator and measurement needs for describing the social environment of public lands

While major strides have been made in the use of community social assessments and analysis methods by land management agencies in recent years, in general, the use of social sciences still lags far behind the use of biophysical sciences in planning, ecosystem management, and other environmental documents. Many reasons account for this, including questionable applicability of secondary sources of social data generally relied upon in these assessments and analyses, agency policy requirements, and the value and prioritization of the multitude of potential indicators and measures of social value. The Linkages to Public Lands (LPL) Framework was developed to provide a typology of the linkages needed to describe the social environment of public lands and the social science and public policy basis for those linkages. The LPL framework identifies five types of linkages: tribal, use, interest, neighboring land, and decision-making linkages. This paper: presents an overview of the LPL Framework; discusses potential indicators, measures and approaches for describing and analyzing linkage categories; and, provides an overview of the rest of the papers presented in the session.
Modeling changes in the number of recreation participants

In addition to estimating consumer surplus and the demand for trips, models of recreation behavior should be able to provide reasonable predictions of the number of participants in a recreational activity. Estimating changes in the size of the participant group is relevant to assessing public support for resource improvements, determining future revenue from license fees, and understanding long-term changes in the participation rate. Recreation demand models have typically distinguished participants and nonparticipants using a discrete distribution of demand outcomes, an approach that places significant constraints on the size of the participant group and ignores annual fees or other factors specifically associated with the choice to participate. An alternative approach is proposed that incorporates participation into the behavioral model by combining a continuous distribution of preferences with a choke price on individual demands to distinguish participants and nonparticipants. An application compares several methods and finds that the proposed model provides more accurate predictions of participation behavior.
The consumptive network around hunting; can that explain why we see attitude stability in Sweden?

Conventional wisdom suggests that attitudes toward hunting are becoming more negative. This “guess” seems to be consistent with media reports, political actions, hunting participation, and general social change.

Those of us who conduct research on human dimensions of wildlife have little incentive to dispute this conventional wisdom since the threats to hunting and the idea that there is growing opposition to hunting increases the interest in wildlife managers and hunters associations in studying the “problem.”

Questions about change are easy to ask but hard to answer because they require data over time. At minimum two cross-sectional surveys with exactly the same question wording done on the same population at different times is required. The basis of this paper is a replication of a survey conducted in 1980 which we asked Swedes about their attitudes toward hunting and about wildlife. In 2000 we were able to replicate this survey to see if there is any evidence increases in negative attitudes toward hunting or if support for hunting is stable or increasing. Support for hunting had increased from 1980 from 72 percent support to 81 percent support. Using national data we showed that seven out of ten Swedes say that they use meat from game in the household at least once a year. This finding made us explore the consumptive pattern and distributional effects around hunting in 69 local Swedish municipalities as a part of larger survey in 2004. One hypothesis explored is that the distributional effects are relatively more important in municipalities with a low proportion of hunters.
A survey of innovations adopted by watershed projects in Northern Luzon, Philippines

The survey of innovations adopted by watershed projects in Northern Luzon, Philippines was conducted on August 2003 to April 2004. It is one of the components of the Don Mariano Marcos Memorial State University – European Union-Funded Project entitled “Strengthening the Institute of Agroforestry and Watershed Management”. The survey was carried out in order to have a basis in the development of a Master of Science in Watershed Management curriculum.

The survey was done in various Non-Government Organizations (NGOs) and personnel of the Department of Environment & Natural Resources (DENR) in Northern Luzon that are involved in the management of watershed projects in the area.

The data were gathered through structured questionnaires, field visit & documentation of the techniques implemented at the project areas.
Everett, Yvonne, ENRS, Humboldt State University, USA
Michelle Fuller, Environment and Community, Humboldt State University

Variations in community response from the WUI: California Fire Safe Councils

There are nearly 200 Fire Safe Councils in California ranging from neighborhood homeowner groups to county level associations of fire service professionals, from rural councils focused on fuels treatments to urban groups working on public education. The groups have in common their voluntary membership and their focus on protecting life and property and reducing wildfire in the Wildland Urban Interface. In this paper we report on survey research undertaken to assess what Fire Safe Councils are doing statewide and how key variables such as age, size, organizational structure, and location, influence Fire Safe Council capacity and the types and scale of activities they are involved in. The results have implications for efforts on the part of state and federal agency fire managers to interface with these groups.
Numerous studies have examined the environmental attitudes and beliefs held by the public. While the vast majority of these studies report a relatively strong bias toward pro-environmental beliefs, actual behaviors in, and toward, the environment, often do not match the beliefs and attitudes expressed by an individual. This seeming contradiction is explored within this study. A number of explanations have emerged explaining this discontinuity including incongruent values, differing normative behaviors, lack of personal involvement, and positional variables such as gender, age, or education. This paper proposes the concept of “Environmental Desirability Responding (EDR)” as another potential explanation and discusses this construct within the context of response bias as a manifestation of issues such as self-deceptive positivity and impression management. Finally, the paper describes the development and testing of an instrument designed to measure the existence and level of EDR.
Ewert, Alan W, Indiana University, USA

Adventure, Legal Liability, and Using the Public Lands: An Overview and Personal Perspective

What specific attributes and conditions such as specific terrain, are required by adventure-seekers? How do these demands often conflict with the natural resource manager and how can these conflicts be reduced? Have these requirements changed over the last 10-20 years and in what ways? This presentation provides an overview of adventuring on the public lands from the perspectives of program structure, staff training, student expectations, and client demands. In addition, this opening discussion will set the stage for the subsequent speakers by introducing the areas covered by their presentations.
Fang, Chih-Peng, School of Forestry and Resource Conservation, National Taiwan University, Taiwan
Yi-Chung Hsu, Institute of Tourism and Recreation Management, National Dong Hwa University
Chih-Kuei Yeh, Department of Sports and Leisure Studies, National Dong Hwa University

Proximity for Hot Spring Visitors in Taroko National Park, Taiwan

Visitor carrying capacity research for hot spring settings was limited. Recreational activities of hot spring are popular in East Asia (ex. Taiwan, Japan). Soaking is the major process of hot spring activity, therefore, visitors’ acceptable proximity with others are important indicator and standard of hot spring quality and visitor experience. According to research of social psychology, gender had effects on people’s proximities. In order to facilitate and improve hot spring setting management, distinguish proximities from male and female visitors will help us to establish visitor carrying capacity. The purposes of this study were two fold: (a) to examine the hot spring visitors’ acceptable proximity and (b) to test the gender difference on proximity.

In July and August, 2003, visitors to Wunshan hot spring of Taroko National Park were surveyed. Using an on-site survey, 539 valid questionnaires (male = 298, female = 241) were obtained through nine randomly selected weekdays and weekends. The respondents were asked to report the closest distance they perceived acceptable while encountering other male and female visitors.

The results showed that (1) all respondents’ acceptable distance with males was greater than that of females, (2) the acceptable distance between the opposite sex respondents tend to be greater than between the same sex, (3) the distance difference between males and females was statistically significant. Implications for natural resources and outdoor recreation management were discussed. Suggestions and recommendations were made for practice and future research.
The use of importance performance analysis in tourism: Helpful tool or flawed technique?

In tourism- and recreation-based fields, importance-performance analysis (IPA) has been a widely employed method of eliciting customer feedback. In IPA, customer feedback is used to make determinations about how well companies or industries are functioning and to properly allocate resources based on these determinations. While some advocate IPA because of its simplicity and straightforwardness, others have criticized the technique for its lack of statistical rigor. To determine whether IPA is able to make meaningful determinations about industry functioning, IPA was used to differentiate two groups (i.e., market segments) of customers – low and high loyalty customers. Traditional IPAs were compared with two alternative analyses—confidence interval-based IPAs (CI IPA) and significance testing of customers’ importance and performance ratings. Via on-site pre-trip and post-trip email surveys, 453 rafting customers from the Salmon River in Idaho and the Arkansas River in Colorado made importance-performance assessments of 27 specific trip attributes (e.g., guide knowledge of the area and to experience challenging rapids). Traditional IPAs for the two loyalty segments revealed few differences in the attributes’ quadrant locations. CI IPAs showed that many attributes had 95% CIs that overlapped the axes (nine in the low loyalty group and ten in the high loyalty segment). To further explore differences between high and low loyalty groups and determine whether the groups represent actual market segments, t tests were conducted on groups’ importance and performance scores. Highly loyal customers rated nearly all attributes as significantly more important and better performing than customers low in loyalty, thus identifying important differences between market segments that were not apparent in either form of IPA. It appears, then, that IPA may not capture important distinctions between customer segments. Although IPA techniques do not seem to discriminate between segments, they do reveal that outfitters appear to be serving their customers well. Relative to IPA assessments that have been performed in other industries, a high percentage of attributes consistently fell into the most desirable IPA quadrant: keep up the good work.
Mancur Olson revolutionized the study of collective action in 1965 with his book The Logic of Collective Action. A few years later Garrett Hardin’s Tragedy of the Commons showed that, at its core, resource management is in many respects a problem of collective action. The tools developed in Olson’s generalized model have proven especially adept explaining specific resource management issues. This work, however, is mostly game theory and model-building, while empirical testing of even the most tractable of these models has been anemic at best.

We seek to reverse the literature’s theoretical trend with an empirical exploration of the determinants of collective action. Specifically, the scoping process for a USDA CSREES research grant recently included key informant interviews with county level administrators and politicians from across the rural American west. These interviews showed great variation in the set of services offered to citizens. They also suggested that land ownership patterns were far less important to community provision of social services than diversity of interests and resources.

Because the extant literature concerning collective action did not adequately explain why services vary so widely across seemingly similar counties, we gathered extensive secondary data. This secondary data is used both deductively (to test current theories of collective action) and inductively (to identify other determinants of successful collective action) within the context of the American west. Preliminary results indicate that both the mean and standard deviation of income within a county both have a positive, and significant, effect on the success of collectively provided services.
Community Capitals Framework as a Tool to Enhance Collaborative Methods through the Strengthening of Political and Cultural Capital: Examples from Mexico, Peru, Kenya and the United States

In this paper we provide an overview of the Community Capitals Framework (CCF) focusing our analysis on cases from four different countries where the approach has been used. Through these cases we show that CCF can be used to facilitate the analysis of the community development processes in all the different stages of reflection-action: diagnosis, establishment of the baseline, stakeholder analysis, action plans, impact monitoring and evaluation.

Because of its connection with social constructivism and critical theory, CCF enables local communities to envision a better future through a holistic approach which includes two new dimensions: Cultural and Political Capitals (giving relevance to local knowledge, cultural identity, inclusion and empowerment).
Private Forest Owners: Revisiting Our “Myth-Perceptions”

Foresters and other natural resource professionals working with private forest owners have repeatedly met with frustrations to encourage “proper resource management.” Misperceptions held by resource professionals are common stumbling blocks to creating dialogue and participating in private forest management. In 1992, a study conducted in Pennsylvania identified four primary “myth-perceptions” undermining resource professional’s efforts to build working relationships with private forest landowners. The myths relate to rural and land connections, timber focused objectives, anti-environmentalist values, and a strong belief in private rights. Fifteen years later we have an opportunity to revisit these perceptions with a statewide study. Data from this study allows us to segment respondents by objectives, current and past decisions about their forest use, geographic differences, and other socio-economic and socio-cultural differences among forest owners. This knowledge will provide the basis for developing effective tools for working with an increasingly important population who affect ecological, social and economic values derived from private forests in Pennsylvania.
Private Forests, Public Policy: Oak Conservation on Family Forests in Oregon’s Willamette Valley.

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 is 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 two stakeholder groups—family forest owners and natural resource professionals—frame the problem of oak’s decline and opportunities and constraints for its conservation. By illuminating owners’ needs, capacities and constraints, and identifying areas of common ground and conflict in informants’ 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.
Basic conservation values as factors underlying public attitudes towards management of an “invasive” plant

Biodiversity management – like many other types of individual and institutional behaviour – is influenced by value judgments. However, the effectiveness of biodiversity policies is often limited by insufficient support from key stakeholders and the wider public. In this paper, we investigate how the values implicit to conservation activities and the degree to which they are shared by the general public influence public support for biodiversity management options.

We present findings from an empirical study on the role that value-based criteria, such as rarity, nativeness and uniqueness of species, and naturalness of an ecosystem, play in the construction of attitudes towards concrete biodiversity management measures. The study focuses on management options for an island ecosystem in Scotland where the expansion of a tall plant, tree mallow, restricts breeding of a charismatic seabird species, the Atlantic puffin. Several solutions have been proposed to restore the breeding habitat of puffins on the island, and also a “do-nothing” option is being considered. However, how are these management options, developed by ecologists and conservationists, perceived by the local public? Which values inform their attitudes and how does this influence their support for the management options proposed?

We conducted 236 structured face-to-face interviews with local residents and visitors to assess (i) public perceptions of both tree mallow and puffins, (ii) public attitudes towards the proposed management options, (iii) basic values with regard to biodiversity management in general and (iv) the relationship between perceptions, basic values and attitudes towards concrete management options.

Our findings show that attitudes as expressed by members of the public were indeed informed by basic values, and moderated by the respondents’ perceptions of the species and the situation. Out of a set of seven conservation-related values, ‘balance’ and ‘naturalness’ were the most important factors that related to the respondents’ attitudes.

We discuss the implications of these results and the way they were used for the development of a management plan for the island, and illustrate how a better understanding of the value judgments that underlie public attitudes can lead to an improved design of biodiversity management strategies.
Informing Coastal Protected Area Planning And Management: Social Assessment within the U.S. National Estuarine Research Reserve System

Many challenges related to effective natural resource management are a result of complex and changing social processes, public demands, and values. 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. However many natural resource managers are unsure about the appropriate aspects of the social landscape to evaluate or lack knowledge and skills necessary to perform social analyses of their areas. Social assessment is one approach that involves systematic data collection and analysis using a variety of social science methods to characterize the social environment for a specific geographic area—for example, current and past population characteristics, social or community structure, social processes and institutions, and relevant social changes and issues. Social assessment projects were conducted for several National Estuarine Research Reserves using the Human Ecosystem Framework as a basis for selecting social indicators applicable to coastal protected area planning and management. The pilot applications involved working with site staff to scope out appropriate scales of analysis and dominant issues of concern; identifying indicators, data needs, data sources, and suitable data collection methods; profiling and mapping the “basic facts” about the area’s population, economy, and physical and cultural landscapes; and discussing options for next steps and sharing information with constituents. Project outputs included community characterizations with maps of select social indicators, training materials, and a suggested process for replicability at other coastal sites. This presentation provides an overview of social assessment applied to coastal protected areas and surrounding landscapes in several U.S. states (MD, ME, NC, NY, OH, TX, WA) and describes efforts underway to build capacity among state natural resource managers toward enhanced integration of social, cultural, and economic information with biophysical information to inform coastal management.
Towards a framework for mapping urban environmental stewardship

How do we understand the social and spatial interactions among social actors working on urban stewardship? In recent years, locally grounded civic groups have responded to public problems by working along with and outside of government agencies and the private business sector as environmental stewards. As stewards, civic groups conserve, manage, monitor, restore, advocate and educate their friends, neighbors, and representatives about a wide range of quality of life issues on public and private urban land. This paper fills the gap in understanding the ways that these social actors work together as environmental stewards, providing a framework for understanding how non-profit organizations, businesses and governments connect, compete, and compliment each other in the management of urban ecosystems. The paper is separated into three sections. First, we incorporate the relevant literatures from sociology and urban planning to review how scholars have assessed urban stewardship in recent years. Second, we present an alternative framework for analyzing the connections among urban stewards. This section outlines the steps involved in mapping the connections among social actors engaged in such environmental stewardship. Finally, we discuss the implications of our work on urban stewardship and environmental protection more broadly and outline our pending test of this framework through an in-depth study of New York City. By exploring the networks among these stewards and the social, organizational, informational and funding nodes that link them, this framework provides an opportunity to understand and measure stewardship in a more effective way.
Forging New Relationships: Stakeholder Response to Forest Disturbance in Northern Colorado

A recent outbreak of mountain pine beetles across north-central Colorado is dramatically changing the landscape in which many mountain communities are situated. This forest disturbance has also challenged previous decision-making relationships related to resource management and led to new relationships among stakeholders – citizens, homeowners associations, municipal and county governments, multiple natural resource management agencies, environmental groups, and the timber industry. The people who share common ties to this landscape undergoing major environmental and socioeconomic change have forged new modes of interaction in their efforts to tackle the risks and uncertainties facing the region. This paper reports findings from qualitative research across nine communities in five counties in northern Colorado. Interactions among stakeholders varied substantially across the study communities, but in all, new relationships were breaking ground and stretching previous patterns of interaction. Implications for existing and emerging structures and processes of governance are discussed.
A moose hunting story: conflicts and informal institutions in relation to hunting business

The Norwegian farmers, as most of the farmers around the world, have been under pressure for a long time. Less and less income from farming leading to a large decline in number of farms has forced the farmers to look for other source of income. It seams to be a growing interest among farmers and forestry owners to commercialize the moose hunt. But to do so they have to proceed carefully. The moose hunt is more like an institution in many regions and commercializing it may easily lead to conflict among people in the small society.

This paper present a descriptive analyzes of a small so-called moose-community (Elgbygd) in the upper eastern valley of southern Norway. It is a place where men, woman and children are all involved in the moose hunt in some way or another. There is hardly a difference if you are a landowner or not when it comes to engagement in the hunt. There has been easy access to hunting for all in the municipality and the moose hunt have played, and still plays, an important role building and strengthening the social relations among the inhabitants in the community.

Theoretically, we can easily imagine a growing conflict between non-landowners and landowners in this case. However, there is surprisingly little resistance against the commercialization among local non-landowner hunters. This paper looks into the formal and informal structures regarding the moose hunt and presents an explanation for why we do not see the resistance we theoretically may expect.
Flood, Joseph P, Recreation and Leisure Studies, East Carolina University, USA

User Perceptions and Local Knowledge of OHV Use Assists National Forest Managers in Planning Process

This study focused on off-highway-vehicle (OHV) use in eastern North Carolina. Its purpose was to understand the OHV riders and activities they participate in. Growing popularity of off-highway-vehicle (OHV) use in the United States has led to increasing impacts to natural resource conditions and conflicts with other user groups (Cordell, 2001; Cordell, et al., 2004). Recent Forest Service policy changes have restricted the use of OHVs to designated roads and trails within national forest areas in an effort to curb these impacts. Four focus groups sessions were conducted to understand the perceptions of OHV users in Eastern North Carolina, while providing direction to managers.

Results from the focus group session indicate that OHV riders strongly support education, rider safety measures, and a healthy environment. While support for a state-wide registration fee program was supported by club members, it was opposed by the general public. As managers work to identify and designate areas for current and future OHV use, understanding visitor perceptions while incorporating local knowledge of OHV users is invaluable. Management recommendations are given to assist Forest Service managers to better understand the perceptions of OHV users and incorporate OHV users’ knowledge and concerns into future management plans and developments.
Making sense of forest management in the landscape

Most research into the acceptability of forest management practices has focussed on quantitative ratings made by participants viewing images of forest conditions at close range. While research has pointed to significant differences in acceptability judgements made by different types of people, there is still little clarity about how such judgements are made. Ford (2006) suggests that values, beliefs, information and context will all influence the process for judging acceptability. The research described in this paper is a preliminary study which aimed to understand how different types of people make sense of forest management in a defined case study area in Southern Tasmania. A theoretical framework was provided by sense-making theory (Weick 1995). This theory describes how people construct meaning from objects or events, what they construct and why. Normally applied to organisations, the breadth of this theory linking cues, frames such as beliefs, and sense-making processes such as expecting and arguing means it provides a comprehensive framework for understanding how forested landscapes are understood. Twenty-three participants took part in a field study and group interviews in small groups. The groups were: tourist visitors to Tasmania; people affiliated with the large scale forest industry; people affiliated with conservation organisations and non-affiliated Tasmanians including some local residents. Sense-making theory can be used both in observing the process of people making sense of their world and in observing the products of previous efforts to make sense of things. Application of this theory highlighted some differences between different groups in this regard. For example for tourists the researchers’ request to judge the acceptability of forest management led them to notice man-made cues such as signs in an attempt to make sense of the unfamiliar landscape. In some other groups, including non-affiliated Tasmanian residents, the researchers observed the results of past sense-making which enabled participants to ‘read’ the forest itself and link what they saw to their own frames such as their beliefs or past experiences in the case study area.
Exploring Issues of Water Sustainability in Island Communities

Marine island communities of Canada, USA and elsewhere around the world are required to grapple with issues of growth, land use planning and water supply because their principal source of water is precipitation falling directly on the island. If unable to afford expensive technologies for desalinizing sea water, the community must assess the sustainable water yield of their island hydrologic system and devise a plan to supply water to all residents. This can become a contentious issue as residents confront the issue of limits to island population growth. To resolve contention and foster collaborative planning, we developed a group-based modeling approach and engaged several communities in the Gulf Islands of Canada in exploring water supply options. Community members began the process by working with career geoscientists to develop posters representing their interaction with island water systems. The community learned more about the principles of hydrology, identified decision tradeoffs and priorities, and developed a common understanding of their water resource. Once a community recognizes that local precipitation is the only natural source of water, they are prepared for assessing how precipitation recharging their aquifer in wet winters is depleted by pumping in dry summers; as expressed in the annual summertime decline of water levels in wells. Because more winter precipitation arrives at the island than can be accepted by the aquifer, a significant volume of water flows overland and is ‘wasted’ to the sea. Some runoff can be diverted to household cisterns for subsequent summer use by harvesting winter rainfall. Yet, all runoff cannot be eliminated because island ecosystems must be supported. Engaging the community in collaborative development of a system dynamics model of island hydrology and water resources management (group-based modeling) provides a quantitative framework for exploring alternative future rates of growth and assessing different methods for maximizing use of the limited water supply (e.g., through water conservation or recycling). The process of creating a model that is conceptually accessible to the lay public provides a common understanding of water-related issues and a critical focus for dialog that would not otherwise be possible.
Residents of a gateway mountain county were separated into different groups and surveyed to assess their perceptions of the natural environment and community. The three groups included: permanent residents living in the county seat, permanent residents located outside the county seat and nonpermanent second homeowners. A 3-page survey was mailed to 1,200 randomly selected addresses in the county. Using a 5-point Likert scale the survey listed 34 environmental and socio-economic attributes of the county (e.g., amount of open space, safety from crime, number of jobs,) that respondents were asked to evaluate on importance in making the county a desirable place to live (1=“very unimportant”, 5=“very important”), and how they thought continued development would likely change the attributes in the future (1=“large change for the worse”, 5=“large change for the better”).

A graphical Importance-Change analysis was performed (similar to Importance-Performance analysis). Across groups, the mean scores for importance of all the environmental attributes ranged from 3.91 to 4.76 with second homeowners expressing the greatest importance for 90% of the items, while the means regarding future development ranged from 1.61 to 2.60 with permanent residents outside the county seat expressing the greatest concern about “change for the worse” in the future. There were no statistically significant mean differences between groups. With regards to socio-economic attributes few were rated important or even slightly important with most rated somewhat unimportant. Additionally, few meaningful statistically significant group differences were found. With regards to concerns about the future there was a general level of pessimism associated with social attributes across groups, with only a few economic attributes observed getting even slightly better (e.g., number of jobs).

In sum, regardless of resident type, the natural environment is important and while most socio-economic attributes were neither important nor unimportant both could be negatively impacted by continued tourism development. Given the findings of this study that the natural environment is scene as more important and potentially more imperiled than socio-economic attributes, and recognizing that gateway mountain communities commonly rely on scenic natural resources and associated quality of life indicators as a major economic engine, the balance between nature, place, and tourism must be more thoroughly examined or else risk becoming a place in search of a new identity or that once was. Note: The area under study has few planned growth initiatives in place with much resistance from permanent longtime residents.
The Axe in the Attic: Learning the Lingering Lessons of Katrina

The 2006 Hurricane Season was a remarkably fortunate one for the United States, without a single major hurricane doing harm to our shores. What many do not realize, however, is that the record-breaking 2005 hurricane season was actually a fortunate one, as well. Even Hurricane Katrina -- the most expensive and one of the most deadly disasters in American history -- was not "the big one." It was a warning. In the hours before landfall, Katrina weakened from a category 5 to a category 3 storm, and it shifted just far enough to the east that many commentators thought initially that New Orleans had been "spared." In other ways, as well, the "lessons" pronounced by many commentators over the past year and a half have been the wrong ones – being "about" the unique risks of living in that physical location. In this paper, we take the opposite approach – arguing that the main lessons to be learned have to do not with what that location did to people, but with what people did to that location. From our perspective, there are at least two key problems with depicting citizens of New Orleans as helpless victims of a natural disaster. First, the disaster was not strictly natural, having instead been brought about in significant part by the actions of a small but influential group of regional political elites. Second, the ordinary citizens were far more resourceful than is commonly recognized. Many of them got out because they had long ago learned the importance of keeping an axe in the attic, allowing them to chop their way out when they became trapped by the rapidly rising floodwaters. Given the many ways we are currently modifying the habitats of planet earth, the time may well have come to realize that, in important ways, we all live in New Orleans – and that we may need to spend more time thinking about ways to keep our axes handy and our shared escape routes open.
Fu, Regina Hoi Yee, University of Tokyo, Japan

Corralling contract of Fulani pastoralists in Central Nigeria

Corralling contract is the indigenous fertilization system commonly practiced in the Sahel and its southern periphery. It refers to the contractual agreement between farmers and herders to maintaining livestock on cropland for a specified time period so that the field will be covered with manure. Farmers need to pay for the service in cash or in kind, and to provide lodging and other benefits to herders in return. It is the most important asset for herders to gain access to various resources like water, and fodders.

In the Nupe land of Central Nigeria, corralling contacts are widely adopted in both dry seasons and rainy season. Fulani herders migrate twice a year between uplands and lowlands and engage in corralling contracts with different villages on both areas. The researcher have conducted detail studies on the transhumance movement and corralling arrangement of 18 Fulani settlements. 16 Nupe villages have also been studied to analyze the distribution and utilization of croplands after the end of the contracts.

The main questions here are: how do the two groups arrange the corralling contract and what does it mean for them? Findings suggest that each Fulani settlement has its own strategy to maintain social relations with specific villages in order to secure resources entitlement. Their popularity stakes vary greatly from each other. Fulani settlements with longer history in the region and higher social status receive more invitations and higher amount of cash and gifts from farmers. The competition to host a Fulani settlement is keen and costly. Farmers have to combine collective efforts to host a settlement. Richer and influential farmers benefit more from corralling contracts because Fulani pastoralists claim more payment in cash or in kind than in former years. Increasing competition also allow Fulani pastoralists to get extra benefits and gain access to farmlands. It allows the Fulani in the region to gradually change from pure pastoralists to agro-pastoralists.
Herding cats: centralization vs. idiosyncratic voluntary organizing in Fire Safe Councils in California

In recent years the western U.S. has experienced increasing losses from catastrophic wildfire in the wildland-urban interface (WUI). In California, one way that communities are responding to this threat is by forming Fire Safe Councils. There are over 100 active Fire Safe Councils in California ranging from neighborhood associations to county-wide organizations. The groups vary in their organization and activities; some councils may focus on fuels reduction treatments while others may focus on public education projects. The Fire Safe Councils share voluntary membership and a focus on the protection of life and property from wildfire threats in the WUI.

In 1993 the California State Fire Safe Council (CAFSC) umbrella organization emerged at the state level as a partnership of 50 private and public organizations including major insurance companies, federal land management agencies, and environmental organizations. CAFSC provides information and support to Fire Safe Councils. An important CAFSC function has been the creation and operation of the Grants Clearing House for Fire Safe Councils to apply for funding through the National Fire Plan.

Recent efforts at “streamlining” by the CAFSC have been met with criticism from some Fire Safe Councils. In this paper we use results of interviews with stakeholders to analyze the tensions between central organization and grass roots volunteerism for the case of Fire Safe Councils as voluntary organizations that mesh with hierarchically structured local, state and federal level government organizations.
Alternative tourism as an agent of sustainable livelihood development: Conceptualizing sustainable tourism-based livelihoods.

Development; livelihood; sustainability; tourism: all words which produce tremendous discourse amongst scientists, policy makers, industries, and politicians, not to mention, communities and individuals. Given the pluralistic nature of these concepts, it is not surprising that policies and theories developed with one perspective of scale do not easily transfer between contexts. Disconnection clearly exists; actions are often formed and enacted from the perspective of one or another, narrowly defined disciplines, with profound and often unanticipated micro-level results.

Much research and policy development related to alternative forms of tourism has focused on identification and control of tourism impacts, rather than on its role as an agent, within the larger constructs of development theory. A better understanding is needed of how alternative forms of tourism coexist with other development initiatives and how they might contribute to sustainability within the overall development context. This research examined how alternative forms of tourism development fit within the livelihoods of rural citizens and how the context of the place in which they lived and operated changed with differing perspectives of scale.

The problem required digging deep within experiences and exploring “the ways in which development interventions and market transactions become part of a longer, sedimented history of a place and its linkages with the wider world,” (Bebbington, 2000, p. 496). The questions sought to understand the meanings people attached to “livelihood” and “tourism” within the context of their social and interpersonal environments. This study employed a case-study specific way of collecting, organizing, and analyzing data and presented a socio-cultural interpretation, resulting in a specific product of analysis: an ethnographic case study.

Findings included themes related to participant influences and motivations for choosing tourism based livelihood strategies; livelihood tactics; derived meanings; determinants of success and failure; asset building, use and leverage; power and control; and identification of contextual and scale-related vulnerabilities. Themes were integrated with sensitizing concepts from the larger body of development literature to elaborate a new conceptual framework, the Sustainable Tourism-based Livelihood Framework, (STBLF), offered as a nonfigurative tool for future researchers to employ and evolve.

Given the subject and methods for this research, concepts of “transferability” and “fittingness” are more appropriate than the concept of “generalizability”. Considerable contextual information is provided through rigorous methods, a thorough final report, representation of the data, and attention to limitations, in order to assist scientists and policy makers with determining the fit between this research and other contexts in question.

Reference:
Gathright, John R, Nagoya University, Japan

Babes in the Wood – The effects of recreational tree-climbing on children in a social context

Empirical research by previous authors indicate that direct exposure to nature is physically and psychologically important to healthy childhood development. This is a study of 2407 children of varying experience of outdoor activity, who participated in technical recreational tree climbing to the heights of between nine to eleven meters in a Japanese community forest. The authors hypothesized that children climbing trees of a substantial height would be an enjoyable activity in a restorative natural environment that would encourage them to participate in a larger range of outdoor activities, providing a positive environmental and social experience and the enhancement of environmentally conscious behavior in later life. The results of this study indicate that the tree climbing program was an enjoyable activity and enhanced children’s desire to further explore other activities in Japanese community forests.
Systematic environmental monitoring is incidental to the sustainability of subsistence resources and the health of valued ecosystems. Using a combination of traditional ecological knowledge and traditional science to monitor ecological composition, structure and functioning may increase the possibility of sustainable subsistence harvests and ecological health. Local Aboriginal practices and knowledge are embedded in a learning feedback loop which provides for an expansive array of ecological indicators and accounts of how industrial and resource development may affect ecological health. The Cree land based experts of the Lesser Slave Lake region have been experiencing, monitoring and managing ecosystem change for generations. They obtain and build upon their knowledge base of local ecosystem composition, structure and functioning through a systematic monitoring system from which indicators of ecological change are identified. Although this system of monitoring was developed for and has been embedded in traditional ecological knowledge systems, it may be adequately applied today in a complementary role within the context of land and resource management. Accordingly, the wealth of data gathered from these monitoring methods may assist in producing a better understanding of how perturbation points effectuated by, amongst other things, industrial and resource development, may be affecting socio-ecological systems. This case study builds on other case study research from James Bay, Northwest Territories, Yukon, Canada and New Zealand which argues that Aboriginal peoples have systems of monitoring and knowledge which serve to elicit comprehensive understandings of ecological systems and change which may be used conjointly and in a complementary manner with other knowledge systems.
Using landscape indicators to ecologize land use policy

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.
Lessons learned in developing social indicators for water quality management

Rivers, streams and lakes in the Great Lakes Region (USEPA Region 5) face significant impairment from nonpoint sources (NPS). Many involved with NPS projects in Region 5 have the expertise and knowledge necessary to plan, implement, and evaluate their projects’ physical and environmental components, yet addressing and evaluating the social and human-dimension components presents new challenges. In response to this situation, EPA Region 5, state environmental agencies, and the CSREES Great Lakes Regional Water Quality Program (GLRWQP) have initiated a project to incorporate a social component into NPS project planning and evaluation for the region. The effort involves an inter-organizational team drawing from EPA, state environmental agencies, land grant universities in the CSREES Great Lakes Region, and others.

The team has developed a set of indicators to measure social change due to NPS projects. These indicators were developed with intensive input from stakeholders in six states through participatory workshops and a web survey. This presentation will discuss the participatory process that was undertaken to develop this core set of indicators and it will present the core indicators which fall into four categories: awareness/knowledge, attitudes, capacity and behavior change. The presentation will emphasize lessons learned that can inform other regional indicator development projects. Lessons include using a variety of methods for stakeholder input and finding tangible examples early in the process.
Conundrums of Accountability: Evaluating Success at Multiple Levels of the U.S. Fire Learning Network

Over the past five years, in close collaboration with federal land management agencies, the Nature Conservancy (TNC) has pioneered the Fire Learning Network (FLN), a novel organizational model for addressing challenges associated with restoring disrupted fire regimes across multi-jurisdictional landscapes in the U.S. The FLN operates through project sites, where on-the-ground fire professionals collaborate on the design and implementation of strategies for ecological fire restoration. In turn project site leaders gather at regional network meetings to share approaches, and each region is funded and overseen by a national coordinator. While the FLN is widely lauded as a successful approach to restoring fire-adapted ecosystems, this success is evaluated in different ways at different levels of network activity. For example, interviews and field observations suggest that on-the-ground fire managers and network participants at local project sites attribute their successes to new forms of learning and knowledge transfer, alliance building, and innovative leadership. At higher levels of The Conservancy’s organizational structure and within the agencies funding FLN, the effort is evaluated using more instrumental and tangible criteria, such as acres treated by prescribed burns, or by adoption of new approaches, such as the national LANDFIRE classification of fire regime condition classes. We consider the impact of divergent evaluation frameworks at upper and lower levels of FLN, which creates heterogeneity in the direction and incentives among site level personnel, partners and the public. Our analysis of accountability structures will conclude by suggesting changes to evaluation frameworks and criteria that can better reflect the variety of network outcomes, a necessary element to the successful adoption of networked approaches to natural resource management.

Within the environmental movement's romantic culture of enchantment, animals and land are sacralized by poetic writings, magnificent photographs, efforts to save what is threatened and mourning over places destroyed and animals killed. But re-enchantment also can occur through other, more dramatic and confrontational methods: pulling up surveyors' stakes on would-be roads and construction sites, blockading logging roads, tree-sitting, releasing caged minks and other animals scheduled for slaughter.

The eco-warrior as type and culture hero was born out of the crisis of legitimacy and political fragmentation of the 1970s. Defeat in Vietnam, the Watergate scandal, concerns about the powers of large corporations, and increasing awareness of pollution and species extinction all discredit4ed mainstream institutions. But at the same times, most of the dissident movements collapsed in the early 1970s. In this historical context, the new environmental movement developed a radical direct-action wing that drew inspiration from America's central mythology, the warrior who defended society and defeated its enemies. Just as the frontiersman and later, the gunfighter, were portrayed as marginal members of society, the eco-warrior similarly existed in a kind of liminal or frontier zone between society and nature. In this frontier zone outside the law, the eco-warrior's civil disobedience or eco-sabotage communicates what's wrong with society's normal relationship with nature—the forests are being clear-cut, the whales harpooned, the desert made into red-tile developments, and how it might be changed for the better.

My paper analyzes the cultural appeal of the eco-warrior in Edward Abbey's 1975 novel, The Monkey Wrench Gang, and shows its influence upon direct action and guerrilla theater practiced by Earth First!, Sea Shepherd, Rainforest Action Network, and other organizations. This is followed by a discussion of the differences between direct action and eco-sabotage as forms of communication in contrast to outright battle. My paper concludes with an analysis of blood sacrifice, of how activists wounded and killed in defense of threatened lands have contributed to their sacralization.
The role of land-use change and communication networks in mangrove restoration efforts

The range of mangrove areas worldwide has decreased by more than half in the past fifty years and the remaining forests are under increasing threat from anthropogenic pressures such as land-use change. The loss and degradation of mangrove forests has limited their ability to provide ecosystem services such as sustainable resource use, tourism, and natural protection from storm surges. In the aftermath of the 2004 Indian Ocean tsunami, mangrove restoration was identified as an ecological priority along with socio-economic recovery. Several mangrove restoration efforts have been initiated and more are in the planning stages. This research examines how land-use change and evolving communication networks are implicated in mangrove restoration efforts in Malaysia, Sri Lanka, and Thailand following the 2004 Indian Ocean tsunami. We first conducted a comparative analysis of two decades of spatio-temporal change of mangrove areas in the three S.E. Asian countries using satellite data. We then compiled a spatial dataset of tsunami damage to lives and property in the region and a spatial dataset of regional socio-economic recovery and mangrove restoration efforts following the tsunami. Using these datasets, we conducted a network analysis to identify interconnections among international, national, and community organizations in socio-economic recovery and mangrove restoration efforts. Following this analysis, we conducted a series of informal interviews with organizational leaders to elucidate the role of evolving communication networks in forming these interconnections. In the final analysis, we discuss how evolving communication networks played a role in determining the location mangrove restoration efforts along with the past history of land-use change in the region.
In recent decades, amenity migration has become a well-documented phenomenon, impacting rural landscapes as retirees and seasonal residents flock to appealing natural environments. The consequences of these migration patterns for local communities and natural resource bases can be severe. Rural sprawl has transformed landscapes, depleting wildlife habitat and usurping water resources, while making regions less affordable for local workers and less viable as resource-based economies. Policy responses to amenity migration have thus far, been substantively modest. Specific communities have attempted to mitigate housing costs, reconfigure education financing, and institute restrictive zoning and conservation programs. Such programs are typically expected to function through local markets, but to achieve their local objectives they must compete with development pressures that have become increasingly less local. This paper argues that as our understanding of amenity-led migration focuses on the unique qualities of place that drive development, so too must local policy regimes intended to ameliorate the impacts of development. We will advance a place-based policy concept for amenity communities, drawing from recent examples that have begun to integrate the idea of place with policy.
Community Wildfire Risk Perception: From Timber to Tourism and Collective Response to Risk

Many wildland urban interface communities with economic bases in extractive resource industries are experiencing social and economic restructuring as new stakeholders are drawn to scenic amenities. One implication of these changes is the increased probability of interactions between residents and natural processes such as wildland fire.

To the extent to which it focuses on biophysical variables, wildfire management often overlooks the intersection of culture and landscape, which impacts fire risk: the probability and consequences of fire events. As a result, wildfire policies tend to take a top-down approach: implementing decisions without fully considering resident interpretation of and potential response to risk. The perceptions of community leaders may be particularly important, as they are forced to respond to the changing community economic and social realities.

Our research uses key informant interviews and secondary data from four states to reveal differences in wildfire risk perceptions among community leaders. Natural resource managers were most likely to focus on wildfire risks. Other leaders sought to reduce risks they perceived more salient to their daily lives, based on the threats and opportunities associated with rapid landscape change. The findings suggest that opportunities to mitigate wildfire risk existed in shared values—yet unknown to community leadership—among diverse groups of residents.
Turf grass or grass roots? How are leadership development programs in natural resources cultivating tomorrow’s leaders?

An increasing number of leadership development programs are offered in diverse venues to cultivate skills and prepare individuals to effectively assume leadership positions in natural resources. Significant capital is devoted to designing and implementing these programs, yet little has been done to characterize their content, nature, or impact. We used cross-case matrix displays to evaluate 9 natural resources leadership development programs in North America and describe how these programs nurture leadership. Key to this exploratory analysis was the question, do leadership development programs in natural resources focus primarily on essential skills building (e.g., turf grass), organic experience and capacity (e.g., grass roots), or a combination of both? This research was conceptually informed by the reciprocal approach to leadership and therefore focused on leaders’ interactions and social relationships as well as leadership traits. We discuss commonalities and identify gaps among programs, which may guide program adjustments and improvements. Better reflection on leadership development programs may enhance strategies to prepare individuals to be more effective leaders and assume leadership positions.
Due to a number of push and pull factors, agricultural landowners in many parts of the U.S. West are increasingly oriented towards managing for environmental amenities and ecological services. Many of these landowners are engaging in restoration activities due to a combination of environmental laws, changing preferences and priorities, the growing popularity of rights-based market mechanisms designed to encourage reallocation of resources, and government-sponsored conservation incentive/payment programs. The result is an increasingly "multifunctional" landscape: where irrigated agriculture once reigned supreme, landowners are experimenting with dryland grazing, engaging in riparian restoration activities, restoring wetlands, and reducing their hay yields and cattle numbers. In many ways ecological conditions seem to be improving. But are these "strong" multifunctional landscapes? What kinds of communities are emerging on these landscapes? This paper examines emerging institutions for water reallocation in the Upper Klamath Basin, where water scarcity and the Endangered Species Act, among other things, are constraining irrigated agriculture.

When the Bureau of Reclamation cancelled water deliveries to the Klamath Irrigation Project in 2001 due to drought and the requirements of two different Biological Opinions, a political backlash ensued. ESA requirements were eased in 2002, resulting in a massive fish die-off in the Lower Basin. In an attempt to increase flexibility, the Bureau subsequently developed a water banking program, where Project irrigators are paid to volunteer to forego their contractual entitlement and off-Project irrigators are paid to idle their land for one irrigation season in order to make more water available for use downstream. The paper identifies challenges, opportunities, and areas of concern surrounding this approach, and outlines plans for fieldwork this summer. The goal of this research is to identify environmental governance structures that work to promote and sustain resilience in social as well as ecological systems dominated by agricultural land use.
Enhancing adaptive capacity in natural resource management organizations

Uncertainty and instability characterize the environment in which resource management organizations function. This paper focuses on how quasi-government agencies responsible for water management in Canada’s most populous province, Ontario build adaptive capacity to anticipate, learn from and respond to change (Folke et al 2002). Conservation authorities and other organizations managing natural resources need to respond to change if they are to learn from the past and make decisions that account for human and environment interactions.

A multidisciplinary literature review revealed twelve facilitating conditions that enable natural resource management organizations to build adaptive capacity: accountability, social capital, trust and respect, leadership, surveillance of the environment, social memory, autonomy, motivation, social interaction, dialogue, shared vision and mental models. A case study research approach used empirical evidence from 64 interviews with staff internal and external to conservation authorities to determine the practical implications of the twelve facilitating conditions.

This paper highlights findings from three of the twelve conditions that apply to natural resource management organizations. First, social capital facilitates the ability to adapt to changes in natural resource management by connecting organizations through a network, thereby addressing multi-scalar problems, accessing experience and knowledge of others and ensuring that decisions apply across temporal and spatial scales. Second, trust and respect are critical factors in accelerating the flow of information between individuals and organizations. This can be essential in anticipating and responding to change within a reasonable timeframe. Third, accountability enhances adaptive capacity by increasing public scrutiny of decisions made by natural resource managers and therefore issues are debated and discussed. More conversation and perspectives can lead to improved ability to anticipate change and lead to creative ways of responding.

These three facilitating conditions, developed from the social science literature and tested in conservation authorities, demonstrate the importance of governance in enhancing the ability of natural resource management organizations to build adaptive capacity.
Monitoring the visitor experience at the Oregon Dunes: A longitudinal study of perceptions and behavior

In response to growing visitation and peak use congestion at certain sites within the Oregon Dunes National Recreation Area (ODNRA), officials from the Siuslaw National Forest identified a need to better understand the customers who use this area. Accordingly, a survey of visitors was conducted in the summer 2002 recreation season to identify visitor characteristics, use patterns, perceptions and preferences. The survey was replicated and extended in 2006 to monitor changes in use patterns and perceptions, and to evaluate management changes that had been implemented after the first survey.

On-site interviews were conducted with 442 visitors in 2002 and 487 visitors in 2006. Data were collected on approximately 30 sampling days each year at two distinct sections of the coast (ODNRA near Reedsport, Oregon, and the Sand Lake area on the northern Oregon coast). A comparison of survey results showed some similarities and some distinct differences in user characteristics and perceptions. Visitation at both areas in 2006 included more first-time users and longer duration visits by more distant visitors. For example, a greater proportion of visitors came from states other than Oregon during the 2006 season. In both seasons, Sand Lake visitors reported higher encounter and crowding levels than those using sites within the Oregon Dunes area. The more recent visitors reported higher levels of crowding and were more likely to engage in displacement behaviors such as avoiding favorite places because there were too many people. Overall satisfaction ratings, however, remained high at both locations and most visitors in both years felt the area was in good condition and approved of the management, facilities, and services offered. Visitor use levels and perceptions should continue to be monitored in the future, especially at Sand Lake, where current conditions may be closer to reaching a threshold level.
Uninterrupted natural soundscapes are increasingly scarce in the world. There are few places a person can go to enjoy sounds of nature without intrusions of sounds from human sources. National parks have been managed in such a way that the natural environment in many has escaped most effects of development that can alter natural soundscapes. An important aspect of many people’s visits to national parks is experiencing the natural quiet typically associated with parks. These visitors all have some impact on the soundscapes of parks, however, and may be significantly altering the very thing they came to experience. Therefore, research that can further an understanding of factors affecting natural soundscapes can be useful to park managers, who have the challenging obligation to preserve natural resources, including soundscapes, while also providing opportunities for public enjoyment of the resources.

Information regarding the effect of human sounds on other people, particularly in a wildland context, is limited. The goal of this study was to provide empirical research on this subject and to develop a method for doing so. Of particular interest was how human sounds affected the acceptability of a national park setting.

In this study, the effect of the sounds of visitors on other people in a slot canyon with an otherwise natural soundscape was investigated. A multi-sensory approach was developed for this study by incorporating sound into a previously-used visual crowding research method. Survey respondents assessed, in a laboratory setting, the acceptability of the social conditions (sounds and number of people) of 16 settings which included various combinations of images depicting three different numbers of people in a slot canyon setting and three different levels of sound recorded in the area.

Analysis of the data showed that sound level had a significant effect on sound acceptability as well as overall setting acceptability. This suggests that wildland recreation managers should consider the sounds of visitors as an important part of visitor experiences. Study findings suggest that a multi-sensory research approach may be extremely useful in the development of standards of quality, an important management tool, for crowding and levels of human sound.
Interpreting federal policy at the local level: How local government becomes a partner at the table by defining the wildland-urban interface

Due to escalating fire suppression costs and acres burned in recent years, there has been a policy shift towards greater collaboration around wildfire preparedness and prevention planning. But has this policy shift affected the extent and practice of planning? In 2003, the Healthy Forests Restoration Act called for at-risk communities across the country to develop Community Wildfire Protection Plans (CWPPs), which require local, state and federal actors to work together to address hazardous fuels reduction and wildfire prevention. CWPPs can provide the opportunity for local government to influence actions on adjacent public land, by establishing local boundaries of the Wildland-Urban Interface (WUI), the area where urban lands meet or intermix with wildlands. We evaluated this policy incentive by examining whether collaboration is evident in community interpretation of the Wildland-Urban Interface for wildfire preparedness, and how the resulting plans meet goals established by the National Fire Plan. Using CWPPs in the Eastern half of the United States, we address the following questions: 1) how are existing definitions of the Wildland-Urban Interface used in CWPPs and do communities redefine the terms and boundaries of the WUI to meet local needs; 2) what factors such as scale, participants, and land ownership influence the WUI definition; and 3) do CWPPs in the East cover ‘communities at risk’ identified in the Federal Register as well as National Fire Plan goals. We conducted qualitative analysis of over 50 in-depth interviews with CWPP participants in four cases from Florida, Minnesota, Virginia, and Wisconsin. In addition, available CWPP documents were gathered within the U.S. Forest Service Regions 8 and 9 and coded for study variables. These plans were cross-referenced with a list of Communities-at-risk published in the Federal Register. Three CWPP planning levels emerged in the East: county-wide, municipal, and subdivision. Furthermore, three typologies emerged regarding the wildland-urban interface, plans that followed established WUI definitions, those that modified boundaries to fit local needs, and plans that did not specifically address or assign the WUI. We present an analysis of how collaboration around WUI definitions has influenced wildfire preparedness in the East.
Michigan State Watershed Management Policies and Local Watershed Groups

Over the past twenty years, watershed management groups have become key to combating non-point source water pollution. While most funding for watershed management planning comes from the federal government, discretion is given to individual states in deciding how these monies will be distributed. This has led to wide variability in state watershed programs and policies. Some states, like Oregon, have highly centralized, well-coordinated state watershed programs. Others, such as Michigan, take a more piecemeal approach. State watershed management policies have the potential to greatly affect local watershed efforts. However, a careful examination of these effects is lacking. This is an important gap in the literature on watershed groups.

We report on a study of Michigan watershed efforts designed to fill some of this gap. Our data are based on interviews with individuals in 92% of the state's 87 watershed groups as well as in-depth case studies of four of them. Preliminary findings suggest that Michigan policies play a significant role in the performance of individual watershed groups across the state. They affect why groups form, the types of projects they are able to perform, and long-term group sustainability. For instance, state policies create funding gaps that make it challenging for groups to support staff for more than one year. These policies also separate funding for watershed planning versus project implementation. As a result, groups often experience difficulty transitioning from the planning stage to on-the-ground implementation. Our work highlights the critical role of one state's policies in local watershed group formation, project implementation, and longevity. We suggest policy changes that might lead to greater Michigan watershed group success and discuss implications for other state programs.
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The use of exterior space planning to enable community strength and cultural well being for Indigenous Australians.

It has been well documented that Australian Indigenous peoples have long had a holistic notion of health and well being, and see physical, social, emotional, cultural, and spiritual well being as a whole, not only of the individual but the whole community. Well being ‘connects people, place and Law, and is a whole-of-life view including the traditional concept of life-death-life as well as the relationship to the land’ (Anderson 1996:68).

Palm Island, one of the largest government Aboriginal communities, is situated approximately 65 kilometres north east of Townsville in north east Queensland, Australia. Palm Island will be used as the case study to evaluate the use of space in and around housing and throughout the community. This research aims to contribute to a ‘sense of place’ - a sense of identity and ownership through planning within remote and rural Indigenous communities, enabling social and economic well being.

To date very little research has addressed the use of space between the house and the surrounding environment within Australian Indigenous communities. No consideration of Indigenous culture and practice in the design of Indigenous communities and housing exterior space has previously been explored or implemented. It is an important research area as it impacts on how houses are placed within the community, how the houses are used, the interaction of community members not only around their houses, but within their neighbourhood, and within the community, and their all important “sense of place”.

This paper will provide a conceptual framework to examine the use of space, and how the lack of planning affects the Palm Island Aboriginal community, along with their social and economic well being. The application of this research will impact on the construction and location of housing on the Island, and enable a better understanding, an ability to predict, and mediate the effect of those changes on Australian Indigenous remote communities.
Guiding public concern for water resource issues toward engagement

The Highlands region in Pennsylvania stretches across nine counties and 179 municipalities in the southeastern part of the state. Its landscape is rapidly changing due to sprawl and urban expansion, especially from the metropolitan Philadelphia area. These changes led to the enactment of The Highlands Conservation Act of 2004 (H.R. 1964). A primary goal of this act was to identify significant areas to conserve and protect based on a comprehensive review of five broad resource categories (forests, water resources, open-space/cultural/historical resources, biodiversity, and farmland). Key informants in Pennsylvania’s Highlands region (N = 78) were asked to identify which conservation value were most important to them and why. These informants identified water resources as the single most important conservation value. However, they believed that citizens often remain uninvolved, lack understanding, and are not empowered to effectively address water related issues. Further, citizens often are unaware of state and federal funding set-asides designed to assist organized community groups enhance their local water quality. This paper presents strategies to help direct citizen engagement in local water resource issues in the Highlands area, elsewhere across the state, and nationally.
Knowledge as a niche: independent retail garden centers and the market for waterwise plants and landscaping

Water conservation is important in arid regions of the United States, particularly the Intermountain West, due to increasing population and limited water supplies. Traditionally, urban landscapes have been composed of turf grass, shrubs, and flowers that follow national or international design trends and require large amounts of water to remain healthy in arid environments. An important approach for promoting water conservation is to encourage the use of waterwise, drought-tolerant, and some native plants. Retail nurseries or garden centers play an important role in supplying all types of plant material, nursery supplies, and gardening information to the general public. Some of them are moving into or specializing in carrying waterwise plant stock. In order to investigate the status of waterwise landscaping in Utah, we conducted research that focused on the role of retail nurseries in promoting this newer, more sustainable landscaping trend. The research was conducted utilizing in-depth interviews with a random sample of retail nursery owners and managers throughout the state of Utah. The research results yield important insights about the image of xeriscape (waterwise landscaping), as well as the complexity of plant categorization schemes. Retail nurseries have an important role to play in helping customers to understand the aesthetic qualities of waterwise plants and to navigate the often confusing plant market. Providing knowledge in addition to products and other services has been important for the survival of some independent garden centers, particularly with the growing influence of “box stores” throughout most sectors of the economy.
In the fall of 2005, the Bioregional Planning studio at Utah State University initiated a study for the Cache Valley, an intermountain basin spanning Cache County, Utah and Franklin County, Idaho. Within the valley, there are 25 incorporated areas, with Logan, Utah supporting 46,000 of the estimated 110,000 people. Cache Valley is predominantly an agrarian region defined by an array of historical, cultural, ecological, recreational, and scenic features. However, recent urbanization trends and second-home development has generated several environmental issues and quality of life concerns. These include suburban sprawl, loss and fragmentation of agricultural lands, encroachment and loss of critical wildlife habitat, water and air quality degradation, transportation congestion, detriment to the historic and rural quality of the region, and development on hazardous lands which in turn threatens the public health, safety, and welfare. Conservative population projections indicate that by the year 2030, Cache Valley will be the home to over 212,000 people. The identification of these issues and challenges led to the spatial assessment of the unique environmental features and human activities in the area, modeled using Geographic Information Systems (GIS). These models in turn informed a series of hypothetical plans, or alternative futures developed by the students. Finally, the impacts of these futures were evaluated through a series of overlays with the original assessment models. The report concludes that it is possible for growth to be accommodated in the valley, while maintaining important ecological and quality of life features, if careful planning and analysis is implemented. The data presented provides an opportunity for citizens, officials, and planners to explore whether current policies and trends will appropriately respond to growth, or whether new scenarios will need to be explored.
Relationship between Human Well-being and Land-Cover changes in the Alabama’s Black Belt: Linking Socioeconomic, Demographic, and Remotely-sensed Data

Forests and agricultural lands dominate Alabama’s Black Belt yet they do not generate the most important income earning activities of the region. Since the early 1900s, the region has experienced changes in the management and uses of agricultural and forestry resources which seem to have little effect on persistent poverty in the counties of this region. In this paper, analyses of satellite imagery and U. S. census data for 1980 and 2000 were used to understand the relationship between changes in major land cover types and human well-being indicators in Census Block Groups. Four questions were explored: (1) How has human well-being changed over time? (2) What were the changes in the major resource types over the corresponding period? (3) Was there correlation between changes in human well-being and changes in major land cover types in the same places? (4) How did the changes in human well-being and land cover types related to other factors, such as the demographics, of these places? The results indicate that the human well-being has improved considerably over the 20 years period but it is only weakly, though significantly, correlated with changes in ecosystems. This relationship varied over space in response to geographic and racial differences. Core forestland areas have higher well-being indices as compared to marginal agricultural lands where African-Americans are in the majority.
Ethnic minority groups and urban outdoor recreation in Norway – management challenges for increased participation

Participation in outdoor recreation is often considered to be a significant element in the construction of a Norwegian identity. Research has mainly focused on outdoor recreation practices and related attitudes among ethnic Norwegians. Hence there is a broad knowledge base concerning motivation to participate in outdoor recreation, potential barriers for participation, as well as the meanings and values ascribed to outdoor recreation among this group. Currently the majority of the Norwegian population live in urban areas and attention should therefore be directed to the availability, use and management of urban areas for recreational purposes. The number of ethnic minority groups within the urban population is growing, in some parts of Oslo as much as 30% of the population are non-western immigrants. Norwegian outdoor recreation policy aims to enhance the participation of immigrants, reflecting an emphasis on the positive relationship between outdoor recreational activities and mental and physical health. Moreover, the involvement of ethnic minorities in outdoor recreation is considered to be an element in a successful integration. However, there is a knowledge gap with reference to immigrants’ outdoor activities in Norway. If policy goals of increased participation of minority groups are to be achieved, policy makers and managers need to know more about motivating factors, environmental preferences and barriers for participation among these heterogeneous groups. An ongoing study among non-western immigrants in Groruddalen addresses this knowledge gap. The study is part of a larger project focusing on urban public nature-related attitudes and activities as a knowledge base for the restoration and management of the Alna River, and also involves ethnic Norwegians. Among the findings from qualitative interviews with non-western immigrants in Groruddalen is that their use of everyday surroundings for outdoor recreation differ from that of ethnic Norwegians, as does their motivation for outdoor activities. This paper discusses some of these differences and suggests relevant management action if one is to ensure increased participation of ethnic minority groups in urban outdoor recreation.
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Estimating the cultural value of reef fish in Guam.

Estimating the economic contribution of the coral reefs surrounding tropical islands is a challenging task. Given the multitude of values that reefs provide it is appropriate to apply the total economic value framework. However, the challenge remains to estimate non-market values such as the cultural value provided by the reefs and reef fish to a local population. For that purpose we used a stated choice method in which locals of Guam were asked to choose the preferred coral reef situation. Variables included reef recreation, the presence of culturally important fish, the amount of fish available (for own meal only, for meal and sharing, and selling), reef pollution, and reef management options. Increase in income tax served as payment vehicle. The results of the choice experiment documented that the importance of catching fish for subsistence and sharing with the extended family was much more important than selling fish in the market place, and the total cultural value of fish was $3.5 million annually, compared to the annual value of reef fish landed of $.5 million. Methodologically this study proofed that a stated choice method can be applied to estimate subsistence values and can be designed for use with a partly literate sample.
Local governments in metropolitan areas acquire open space to create green spaces, parks, and habitat reserves. Open space reserves, broadly defined as lands protected from urban development, are important not only for the protection they afford rare species and ecosystems but also for the education and recreation opportunities they provide urban residents. In the Chicago region, county planners have a variety of objectives for open space acquisition including habitat protection for rare species, public accessibility, and economic efficiency. Planners say protecting grassland habitat for birds and prairie-obligate butterflies is one of their highest priorities. We worked with ecologists to define habitat requirements for grassland birds and prairie-obligate butterflies, and we built optimization decision models to develop recommendations for land acquisition and analyze cost-effective tradeoffs between land acquisition goals for these two communities of species. Viable habitat for grassland birds consists of a relatively large core area of grassland with additional grassland parcels nearby. So, the first goal is to minimize total pairwise distance between newly protected grassland parcels and large existing grassland reserves. Viable habitat for prairie-obligate butterflies consists of a mosaic of grassland and wetlands. So, a second goal is to minimize total pairwise distance between newly protected parcels that include grassland and wetland habitat and already-protected grassland/wetland reserves. We analyze how parcels selected for protection change as weights given to these two objectives change, and we search for configurations of parcels that balance the habitat requirements for the two communities. We also analyze how the budget for land protection and restoration affects the tradeoffs between the land protection goals.
Obstacles to BMP Implementation and Maintenance in Federally Funded Conservation Programs

In the early 1990s, the Little Bear River in Cache County, Utah, was officially listed as an impaired waterbody. As a result, local conservation agencies applied for (and received) USDA hydrologic unit area funding to establish a watershed conservation program to improve the water quality of the Little Bear River. Now, nearly 15 years later, the USDA has funded a research project to determine if the conservation practices promoted by their program can be directly linked to water quality improvements in the Little Bear River. It is important to recognize, however, that the success of a conservation program is dependent on the extent to which humans change their land management behaviors. Therefore, a critical component of this research project is to determine a) if the conservation practices were implemented correctly, and b) whether or not they were maintained over time. Official USDA documents were used to determine what, where, and when conservation practices were supposed to be implemented. Also, we conducted extensive interviews with producers who participated in the Little Bear Project to crosscheck the accuracy of the USDA documents, and to track the fate of each of the practices. From the USDA files, 470 individual practices were identified as having supposed to be completed. However, 91 of these practices were never fully implemented, and another 77 practices were no longer being maintained. In other words, nearly one-third of the practices identified from the USDA files are not in existence. However, the reasons for non-implementation and discontinuing practices were generally beyond the control of the farmers. This paper will highlight the key factors that inhibited producers from implementing and maintaining their conservation practices, provide a discussion on what the implications of these might be for future conservation programs.
On the edge, peering in: Indicators for managing the near-wilderness experience of visitors on the Denali National Park Road

Denali National Park and Preserve (Alaska, U.S.A.) contains approximately 2.1 million acres of congressionally designated wilderness. The 90-mile long Denali Park Road bisects this wilderness. The road is not part of the wilderness, but it allows approximately 400,000 park visitors annually to peer into the wilderness and experience the wonders of the park. Vehicle-based road users are required to ride on one of the park’s buses, a tour bus, or on a bus from one of the few lodges remaining as park in-holdings. Vehicle traffic on the road is managed through an annual limit on the number of vehicle trips. Increased visitation has created the need to reevaluate this limit and its scientific basis. To advance this evaluation and research, one-hundred twenty-nine qualitative interviews were conducted with Denali Park Road vehicle users during the 2006 use season. These interviews collected data to help park managers formulate indicators to measure and manage the quality of the visitor experience on the road. Respondents were asked questions about their experience on the road, impacts to their experience, the number of vehicles on the road, and the management of vehicle use. Results from these interviews suggest a wide variety of potential indicators for the visitor experience, including the number of vehicles seen, vehicle encounters, wildlife sightings, dust generated by vehicle traffic, number of visitors, and vehicle congestion. Results also provide insights into how these variables affect the visitor experience. A second phase of research will be conducted in 2007 to measure standards of quality for these indicator variables. Resulting indicators and standards will be used to evaluate and manage vehicle traffic by monitoring indicator variables and using a computer simulation to estimate maximum acceptable use levels.
Evidence of growing climate change risk is reported in major media nearly daily. Climate change is likely to be the most important and challenging problem ever faced by humanity. It is therefore important to know how people understand the problem as well as its causes and potential solutions. A significant amount of research has been conducted aimed at understanding public perspectives on climate change. A series of early US 1990's studies, whose findings were confirmed for Europeans, showed that Western publics had inaccurate understandings of the causal mechanisms behind climate change that also led them to advocate for ineffective solutions to the problem. This early work took a cultural modeling approach that built an integrated understanding of environmental, policy, and climate change perceptions. More recent work shows that Western publics increasingly believe that climate change is a serious problem that needs to be solved. However, because the early cultural modeling approach has not been reapplied, we don't know if the same misunderstandings of causes, and thus, solutions, persist although informal surveys of media coverage and college student knowledge suggest that they do. This presentation reports on our findings regarding this question. We interviewed a range of individuals within the upper Midwest and in national level organizations. Our questions aimed at generating cultural models of perceptions regarding climate change, its mitigation, and biofuels policies. Our results have important implications for both climate change communications and mitigation policy development.
Determinants of Place Bonding in Recreation Resource Management

Place bonding is a common phenomenon in many recreation resource areas, where people develop an affective and cognitive based attachment to natural resource settings. Various scales and factors have been developed to measure the key variables or determinants of the bonding phenomenon. The purpose of this presentation is to examine the ability of a 5-factor (CFA determined) model of place bonding at predicting overall place bonding with a river recreation resource. The 5-factor model is regressed on the overall measure of place bonding, and compared to the partial model of place identity and dependence at explaining strength of place bonding. In the second stage of analysis, the original 26-item, 5-factor bonding model was reduced to a 15-item, 5-factor more parsimonious model and the regression analysis repeated. Results of the original model analysis indicated that 75% (R2=0.758, d.f.=5, 180, F=116.95, p=0.001) of the overall bonding variance was explained by the 5-factors. The partial model explained less variance and place identity was the most powerful determinant. The second stage of analysis is pending. In conclusion, while scales exist for developing dimensions of place bonding, this study is one of a few that have attempted to model the determinants of resource bonding.
Assessing the spatial and temporal implications of forest management assumptions on outdoor recreation outcomes using the Recreation Opportunity Spectrum

Outdoor recreation serves as an important interface through which people interact with forested landscapes; understanding this interface is important in addressing growing public concerns with, and expectations of, forest management. The concept of 'sustainability' in sustainable forest management (SFM) requires that management assumptions be sensitive to landscape conditions over time. The adoption of forest certification frameworks that are predicated on a criteria and indicator approach to achieve sustainable forest management outcomes require tools that can forecast the implications of management assumptions on forest values over time. Typically, values like outdoor recreation quality or opportunity have been difficult to measure. However, the application of a temporally dynamic, spatially explicit tool like the Recreation Opportunity Spectrum allows recreation opportunity to be quantified and included in monitoring and evaluation efforts. This paper proposes that having a diversity of recreation opportunities across the landscape and is a suitable indicator of outdoor recreation opportunity and presents a method for assessing the spatial and temporal implications of forest management assumptions on outdoor recreation outcomes using the Recreation Opportunity Spectrum. Specifically, this paper addresses the question: "What are the spatial and temporal relationships between timber harvesting and opportunities for recreation?" Six forest management scenarios are modeled and assessed in terms of the diversity of recreation opportunities for a 295 year planning horizon. The application of a spatially explicit management tool like the Recreation Opportunity Spectrum makes the comparison of the implications of forest management scenario a feasible management objective. Such comparisons allow for possible management outcomes to be assessed within the context of outdoor recreation. The proposed method (1) permits the systematic prediction of impacts to outdoor recreation activities and opportunities; (2) is helpful in interpreting management assumptions; and (3) can aid in the incorporation of outdoor recreation into forest management scenarios. Outdoor recreation can be incorporated into hierarchical modeling efforts, which can be used to identify significant outdoor recreation areas for inclusion as inputs to modeling processes. The maintenance of a diversity of outdoor recreation opportunities across jurisdictions over time could serve to alleviate some of the visitor pressure that parks and protected areas face.
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The Deschutes Estuary: a case study in using social science techniques to guide decision making on coastal restoration

Conventional studies of the social and economic values of natural resources do not always capture the full range of values that are important to local communities. Additionally, the high cost of conducting purely quantitative valuations of nonmarket goods has meant that these studies are not always feasible, given the limited resources available for restoration and other coastal management efforts.

The State of Washington recognized these issues when it began considering restoration options for Capitol Lake in Olympia. Established in 1951 as a reflecting surface for the adjacent Washington State Capitol Building, Capitol Lake was created by damming the Deschutes River before its entry into the saltwater Budd Inlet. State officials are considering restoring the lake to an estuary to alleviate several of the problems associated with maintaining the lake environment, such as sedimentation, invasive species, and compromised water quality.

In 2005, the NOAA Coastal Services Center partnered with the state to develop an innovative approach to involving stakeholders in assessing the net social and economic benefits of a restored estuary. The state and the Center conceived a process in which local stakeholders, through focus groups, would identify social and economic values to be studied and would suggest methodologies for performing these studies. This process would contribute to the Net Benefits Analysis (NBA) of restoring the Deschutes Estuary, an important component of the larger Deschutes Estuary Feasibility Study. The stakeholders would also suggest ways for the community to be involved in decision making about long-term management of the resource.

NBA participants accomplished all three objectives of the stakeholder involvement process and enjoyed working together in a cooperative atmosphere to create a tangible product. This project demonstrates a process wherein stakeholder input is used as the foundation of a social and economic benefits assessment, generating public support for governmental management of coastal natural resources.
The Cumberland Plateau: Past Trends and Future Directions in Land Use and Values

The Cumberland Plateau region, extending from northern Alabama to southeastern Kentucky, has been the focus on considerable debate during the past five years concerning the proper balance between traditional resource utilization practices and non-timber activities. The Plateau, which is more than 80 percent privately-owned, has been identified as a region that contains one of the highest concentrations of biodiversity and endangered species on the North American continent. Additionally, the region has supported a significant forest products industry that has expanded in recent years. Furthermore, coal mining pressure is increasing on the Plateau as energy costs rise. More recently, this region has witnessed rampant residential development, as the value of land increases on the Plateau and traditional ownership patterns change. Moreover, the Cumberland Plateau attracts recreationists for a wide range of activities; including kayaking, rock climbing, backpacking, caving, golfing, horseback riding, and more. As a result of the increased pressure for all uses, several efforts have been initiated to address the effects of the competing demands on the Plateau’s lands. This paper will review trends in land use change, population growth trends, land markets and values, and resource utilization. The results reveal that the Plateau is the site of significant change in economic activity, residents, and attitudes.
The Commodification of the Landscape: Using Qualitative Insights to Explore Visitor Experiences in Ireland’s National Parks and Protected Areas

Parks and protected areas are often seen as human products of nature that may be demarcated, interpreted, and ‘museumized’ for the purpose of visitors and society. In contemporary Ireland, critical management issues surrounding the extent, appropriate form and scale of visitor centres and their associated infrastructural developments has caused some of the most acrimonious environmental disputes in recent history.

This paper critiques how distinctive Irish landscapes have been transformed into ‘experiences’ that can be marketed, sold and consumed just like any other commodities. It examines how tourist infrastructural projects in Ireland have instigated controversies concerning the commodification of landscapes and the resultant homogenization of nature. This recent demand for visitor centres and infrastructural developments in our national parks and protected areas is assessed through analysing the controversial visitor centre development in one of Ireland’s most visited sites, the Cliffs of Moher.

Survey questionnaires and interviews explore visitor and local reaction to the €31.5 million development of a “state of the art” interpretation centre and extensive visitor facilities. The local authority who manages the destination claimed this development will balance visitor comfort and enjoyment with international best practice at sensitive tourist destinations. The qualitative analysis investigates visitor and local opinion and reaction to the “new visitor experience” in order to explore the appropriate form and scale of development. The study compares the “new visitor experience” to survey data collected prior to the new development while also comparing “the old” and the “new visitor experience”. Visitors preferred method of interpreting and experiencing the landscape is also evaluated.

These visitor and local reactions and perspectives are presented and analysed, as are the dynamics of the conflict of maintaining the balance between attracting tourists to threatened environments, while conserving and implementing sustainable tourism practices. The paper highlights the extent to which monetary concerns are the driving forces behind these developments, arguing that protected landscapes in Ireland are at risk of loosing their attractiveness, cultural distinctiveness and ironically their unique selling point.
Upstream sources of natural resource professionals: one college’s efforts to understand how students choose resource careers and improve recruitment

The numbers of individuals entering natural resource management fields has declined dramatically nationwide since 1995. University of Wisconsin – Stevens Point College of Natural Resources (UWSP CNR) has also experienced a decrease in enrollment. The UWSP CNR is exploring ways to boost enrollment numbers and improve the pool of applicants to ensure a more diverse, enthusiastic student body prepared to learn. The College is looking upstream, studying the role natural resource career camps and other pre-college experiences play in leading students to the CNR. By determining the significance of these programs, UWSP CNR was better able to assess whether developing a closer relationship with these programs might yield substantive benefits for recruiting. The research proceeded in several stages. We used focus groups to explore the range of experiences that lead students to choose natural resource management fields. We then surveyed the UWSP undergraduate student body to identify differences among the full range of majors. This provided a relative assessment of the role that camps and other programs play in guiding student choice. We also deployed surveys to parents of camp participants to learn more about their post-camp experiences. We found a positive relationship between natural resource camp participation and enrollment in a natural resources university. We also found a positive relationship between natural resource career program participation and academic success at the CNR. By examining the relationship between those who attend natural resource career-oriented camps and those who succeed at UWSP CNR from both directions, the college was able to more meaningfully understand the role of pre-college natural resource career camps in guiding young people to natural resource programs. The results have policy implication for state and non-state groups assessing the utility of camps that emphasis natural resource careers and suggest that colleges should increase their involvement in these camps, even if only for their self interest.
Assessing the Economic Benefits and Economic Impacts of Recreational Boating on the Atlantic Intracoastal Waterway in North Carolina

The U.S. Congress authorized the Atlantic Intracoastal Waterway (AIWW) in 1919 to provide sheltered passage for commercial shipping and recreational/pleasure crafts. The U.S. Army Corps of Engineers (USACE) is responsible for maintaining the navigable water depth in the AIWW. Federal funding for maintenance dredging of the AIWW is quickly disappearing causing numerous concerns for those entities that rely upon the AIWW for navigation and their livelihood.

The USACE does not track recreational economic values when determining the need for maintenance dredging of the AIWW. Several interests in NC formed a partnership to fund an economic study of the value of recreational boating along the AIWW in NC. The underlying purpose of the study was to gather data that would assess the economic effects of continued maintenance dredging of the AIWW.

A scientific assessment of the economic impacts and economic benefits of recreational boating along the AIWW in NC was undertaken. The economic study began in June 2005 and concluded in November 2005. The major results are as follows:

1. Average expenditures per trip for NC resident boaters ranged from $565 - $1,430 for NC resident boaters and from $10,549 - $12,036 for non-NC boaters.
2. Baseline navigability conditions in the AIWW support recreational boater trips generating $257,000,000 annually in economic output within NC, over 4,000 jobs and $124,000,000 in wages/salaries, $35,600,000 in Federal taxes/fees, and $21,400,000 in state and local taxes/fees.
3. Baseline navigability conditions support an additional $2,850,000 in annual sales by NC boat manufacturers, generating $5,850,000 in state-wide economic output, 45 jobs with $1,780,000 in wages/salaries, $516,000 in Federal taxes and $200,000 in state/local taxes.
4. The estimated state-wide annual economic impacts of reduced AIWW navigability due to reductions in the numbers of boater trips are losses of $103,000,000 in economic output, 1,623 jobs and $50,000,000 in wages/salaries, $14,000,000 in Federal tax revenues, and $8,600,000 in state/local tax revenues.
5. The additional, estimated state-wide annual economic impacts of reductions in boat purchases from NC boat manufacturers are losses of $5,850,000 in state-wide economic output, 45 jobs with $1,780,000 in wages/salaries, $516,000 in Federal taxes and $200,000 in state/local taxes.
Where is biodiversity conservation in local planning?

Despite the abundance of knowledge generated about ecologically sensitive human development and the conservation of biodiversity, to date this information is having minimal influence on local land use practices. In urban and suburban areas -- which account for an increasing portion of our landscape -- biodiversity is widely ignored, overlooked, or simply not addressed within the constraints imposed by consumer choice, local regulations and guidelines, and developer preferences and decisions. We hope to bridge this gap so that conservation biology is used more effectively by participants who directly affect built landscapes. We will present findings from a web based surveys in three locations -- Research Triangle, NC, Ames, IA and Seattle, WA -- to reveal the status of biodiversity conservation among municipal and county planning departments, explain some of the reasons for differences in the degree to which biodiversity is conserved, and describe obstacles to more widespread action to conserve biodiversity in our urban and suburban landscapes.
Mainstream conservation behavior studies are correlational in nature and situation independent. Researchers typically utilize the NEP (New Ecological Paradigm) scale, which captures an environmental worldview, and correlates that with a multitude of stand alone variables (such as knowledge, demographics, experience, attitude, values, altruism, etc.) or other scales such as the GEB (General Ecological Behavior). Typically the research ends there. The problem inherent with this is three fold: (1) characteristically there are no experimental manipulations of those variables to determine if they are causal, (2) these studies largely ignore potential unconscious (evolved) mechanisms, and (3) they are assessed in a situational vacuum. A series of interrelated studies attempts to tackle each of these limitations in combination. 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. Furthermore, behaviorist principles enlighten proximate mechanisms that carry out evolutionary (ultimate) goals and also specify that current and future behavior is contingent upon a past behavioral history beleaguered with social rules. Combining evolutionary and behaviorist thinking offers a new approach to consider conservation behavior. Humans do not operate in an environmental or situational vacuum. The context/situation provides cues to appropriate behavior, given the adaptive problem at hand and the past behavioral history of the person. Said another way, there are social cues conveying norms and rules, along with cues eliciting past behavior-typical responses. The series of studies reported takes the same correlational measurements as other conservation researchers, but subsequently experimentally manipulates contexts to determine if the “typical” correlations hold, and then further offers predictions to novel situations based upon the concatenation of solicited rules, past behavioral history and Life History Theory traits. The studies will show why attitude measures may be sufficient to elicit intention but fall short in predicting overt behavior. Results are discussed as well as how this new approach to conservation behavior might help to integrate what has been learned from conservation psychology research and extend it into new, fruitful and more productive scientific inquiry.
Development of a Methodology to Predict Public Parking and Access Requirements Sufficient to Accommodate Projected Annual and Peak Visitation Demand for a Nourished Beach

As coastal communities experience consistent growth, both public and private sectors are increasingly concerned with shoreline enhancement to provide protection of property as well as access to coastal resources. Typically, extensive shoreline enhancement takes place through beach nourishment projects managed by the U.S. Army Corps of Engineers, and funded through a federal commitment matched by varied combinations of state and local sources. Since public funding is utilized in such projects, regulations require that sufficient parking and access for the general public be located reasonably near the project beaches. Inadequate provision of such may constitute a restriction on public access and use, thereby precluding eligibility for federal funding.

The difficulty, however, has always been in quantifying “sufficient” public parking and access. Historically, diverse methodologies have been used to determine this, and, as anticipated, yielded similarly divergent findings. A singular methodology which could be implemented across beach nourishment projects was desperately needed. To this end, researchers from the University of North Carolina Wilmington were contracted by the U.S. Army Corps of Engineers to develop and pilot a general application methodology for predicting annual and peak visitation at subject beaches and the parking and access requirements to accommodate projected visitation demand.

The resultant methodology included six components: (1) on-site surveys; (2) parking counts; (3) telephone surveys; (4) focus groups; (5) aerial photography; and (6) secondary data review. As a stipulation of the contract, pilot testing of the methodology occurred within the context of a large-scale recreation demand study of 67 miles of oceanfront beach in southeastern North Carolina.

Given the results of this study, it appears that the resultant methodology may indeed be capable of addressing federal requirements for sufficient parking and access to federally-sponsored beach nourishment projects under varying visitation demand settings. However, further large-scale utilization of the methodology will be required to substantiate this. In consideration of the rising sea level, fluctuation in severe weather patterns and increasing density of coastal development, such opportunities will no doubt present themselves as both public and private sectors increasingly look to federally-sponsored beach nourishment projects to protect property and provide access to coastal resources.
Evaluating Indicators of Resilience and Adaptability in Amenity-Transition Communities

In recent decades, many rural, natural resource-dependent communities have experienced ubiquitous and oftentimes substantial economic decline due to downturns in their commodity-oriented industries. In spite of this, communities with access to varying forms of natural capital have experienced an upsurge in activities such as recreation, tourism, second home growth, and retirement immigration. If managed properly, amenity-oriented development has potential to reverse economic decline by attracting tourists, entrepreneurs, younger and more educated workers, and retirees, and may ultimately generate economic diversification, local growth and an improved quality of life for residents. While there are literally thousands of potential measures of well-being, this study aims to identify deterministic variables of amenity-transition by examining indicators of community social and economic capital. To examine such a complex social and economic transition, these indicators will be coupled with indicators from the tourism and amenity-development literature, and linked to concepts from Resiliency Theory from the ecosystem science literature, in a longitudinal study of amenity transition communities in the Pacific Northwest. Results focus on measures of social organization and economic sustainability in three study communities. First, secondary indicator data will serve as a quantitative linkage between Social Capital and Resiliency Theories and the adaptive phases that communities may experience through this transition. Key informant interviews will be used to help evaluate the concepts and indicator variables that contribute to community resilience and adaptability.
Understanding Interactions between Federal Wildland Fire Managers and the Scientific Community: Ideals versus Reality

To help resource managers address the increasingly complex issues involved in wildland fire management, there has been increased emphasis on improving the flow of information between the wildland fire management and fire research communities. Effective communication between researchers and managers is an essential link in this information transfer process. In order to better understand the interactions between researchers and fire managers, we conducted an internet-based survey of 145 wildland fire managers in federal land management agencies across the western United States, including the U.S. Forest Service, National Park Service, and the Bureau of Land Management. The survey asked managers to describe their view of an ideal interaction with fire scientists, and then to evaluate what kinds of interactions they actually experience. The survey also illuminated some of the barriers managers encounter as they attempt to acquire and apply scientific information. In addition, we explored managers’ perceptions of both individual and organizational capacity to generate, communicate, and use research in management decisions.

Our analysis revealed some disparity between what managers consider an ideal research-management interaction and what is actually occurring. For example, 77% of managers say they agree that managers and researchers should jointly define and design research projects. However, only 5% of managers report doing so often. The survey also revealed that managers face a number of barriers in their interactions with researchers. For example, 90% of managers report that lack of funding to conduct research and hire knowledgeable personnel is a barrier they regularly encounter. However, 66% of managers agree that their agency encourages and supports interactions between researchers and managers.

This study contributes to the development of a framework for understanding information transfer between researchers and managers within federal wildland fire management as well as suggesting several potential approaches for incorporating research into management decisions.
Hopkin, Bill, Utah Grazing Improvement Program

A governmental approach to keeping ranchers on the land: the Utah Grazing Improvement Program

The last 30 years of fighting over land-use issues has begun to show negative results for the environment such as dead forests, severe wildfires, diminished watersheds, and low renewable capacity of the living resources of the land. At the same time it has become increasingly difficult for livestock producers to remain in business in a difficult economic and political environment. The resulting loss of working ranches is likely to lead to increasingly negative environmental conditions. The Utah Grazing Improvement Program combines policy efforts and rangeland improvement projects to increase the viability of ranching in the state. On the policy side, it corrects a situation where, for decades, no single person or program has been in a position to speak for, or represent, the interests of Utah's livestock industry during the debate over rangeland issues. On the management side, it will support an expanded number of projects that rehabilitate Utah's natural resources, increasing productivity and protecting the landscape for all Utahns. The benefits include increased water quality and quantity, added wildlife and livestock capacity, and better weed control; all of which can strengthen the state's rural economy.
Does Increased Risk in Adventure Recreation Translate Into Increased Legal Liability?

Recreational activities featuring risk and chance taking are increasing in popularity. Legal issues related to the use of public land and legal liability are becoming more commonplace. Some nations have regulated the adventure recreation providers (businesses) while others nations remain unregulated. The "Rule of Law" legal theory dominated international redress, equity, and fairness. Adventure recreation providers and individuals are held liable for negligence injuries, loss of life, and loss of property. In many countries the concept of "sovereign immunity" dominates. Sovereign immunity essentially exempts governmental entities from being sued. Sovereign immunity no longer exists in legal systems that use English Common Law as the foundation; however, most international legal systems provide the governments protection from being sued.

In English Common Law countries (i.e. United States, Great Britain, Australia, New Zealand, South Africa, Canada, etc) the use of adult waivers and releases are effectively utilized. Waivers and releases protect the adventure recreation provider from suits resulting from simple negligence, but not from gross or will and wanton negligence.

Technology has established a false sense of safety for adventure recreation providers. The use of GPS and cellular telephones are not a substitute for effective risk management and plans and safe equipment.

The use of public lands for adventure recreation is increasing worldwide. The use of public lands has reached a point where there are competitive activities for the same area. As an example white water rafting and wildlife observation interests may find themselves in conflict. These competitive interests turn to political pressure to establish their own interests and priority use. Thus, another risk of violating regulations and permit systems is becoming more frequent.
Exploring the Meaning of Urban Waterscape Preferences

Evolutionary theories hypothesize that water and vegetation are universally preferred stimuli to indicate resource richness and reproducing capacity of a place. Other study implied that people respond positively to natural settings with water and spatial openness (Ulrich, 1983). But, for a landscape designer, he still needs to survey the detailed thought to stride across the gap between them and their clients--the users. This study is to help the designers explore the mental constructs that compose and form people’s preference of urban waterscape. The research applied a modified ZMET (Zaltman Metaphor Elicitation Technique) method (Zaltman, Gerald, 1997) to elaborate the mental image of people’s preference. Briefly speaking, ZMET rooted in following premises: 1. Thought is imaged-based, not word-based, 2. Most communication is nonverbal. 3. Metaphor is central to thought. 4. Metaphors are important in eliciting hidden knowledge.

In this study, ten subjects with different professional backgrounds were interviewed, five males and five females. The research procedure was divided into ten steps: 1. storytelling, 2. excavating missing images, 3. sorting, 4. constructs eliciting, 5. selecting and describing the most representative picture to express the central thought, 6. collecting opposite image for inferring the original thought, 7. nonvisual sensory images (taste, tough, smell, color, sound, emotional feeling) analyzing for bringing unconscious thought to a level of awareness at which verbal articulation can occur, 8. building mental map, 9. producing summary image to represent the conclusive thought, 10. describing the conclusive thought with a vignette. At last, all subjects’ mental maps were combined to construct the consensus map that represents a metaphorical meaning of urban waterscape preferences. The result of this study can revealed basic reasoning processes and deep, useful insights of urban waterscape users and their latent and emerging needs. Such insights can provide designers of concepts and guidance for capturing people’s attention and engaging their thought processes.
Valuing Taiwan Forest Biodiversity: The Perceptions of Americans and Taiwanese

Forest provides both tangible and intangible benefits to people. Over development on forests endangered the forest biodiversity and ultimately human benefits. Therefore, biodiversity evaluation has emerged as an important issue in natural resources management. In addition, the global village concept points to the need to understand if non-users are willing to pay to preserve the forest biodiversity of far away and unfamiliar environmental areas. The purposes of this study are two fold: (a) to investigate the difference between Taiwanese and American residents stated willingness-to-pay (WTP) values to preserve the forest biodiversity in Taiwan and (b) to identify simultaneously the motives for the non-use value underlying their WTP values.

In 2002, we surveyed Taiwan residents and obtained 1,209 questionnaires. In 2003, the same questionnaire was mailed to American residents using a random selection approach and obtained 128 usable questionnaires.

The results showed that the stated WTP value of Taiwanese was significantly greater than that of the Americans (US$ 41.3 vs. US$12.4, respectively). The bequest motive and existence motive were ranked first and second for both Taiwanese and American respondents. To pay to preserve the Taiwan forest biodiversity was not solely motivated by ethical motives, but also by self-driven interests. The American respondents, however, favored ethical concerns more so than did the Taiwanese respondents. Three conclusions were drawn. (1) Some Americans are willing to pay to preserve the forest biodiversity outside the US continent, the economic amount and its meaning are not trivial, (2) Asian Americans demonstrate stronger intention to protect the forest diversity in Taiwan, and (3) The WTP motives contain altruism and self-interest driven components. Discussion of the findings and research implications are suggested.
Huang, Chang-Chan, Department of Tourism, Providence University, Taiwan

Transformation of Tourist Destination Image Patterns from the Organic, Induced, to Complex Stage: An Exploratory Study on Wang Kong Recreation Area, Taiwan

The formation of tourist image toward a destination was conceptualized as a three-stage process which consisted of the organic, induced, and complex stages. Previous literatures supported that tourists at different stages had different images toward a destination. How patterns of tourist destination image transform throughout the three stages has not been examined yet although it is vital to destination marketing. This was the major issue to be investigated in this study.

The study site is Wang Kong Recreation Area in Central Taiwan. Study subjects were drawn from the students of a university in Central Taiwan, who took the course of tourism planning in Spring semester, 2006, and 114 valid samples were obtained. To eliminate the noising effects of subjects’ characteristics on destination images, a within-subjects effect design was employed. All study subjects were asked to give their images toward Wang Kong by going through the stage before they were informed that Wang Kong was the field trip destination (i.e., the organic stage), the stage before they took trip to Wang Kong (i.e., the induced trip), and the stage in two weeks after the trip (i.e., the complex stage), respectively. Multidimensional scaling techniques were used to analyze tourists’ image at each stage and the resulting image patterns were compared throughout the three stages.

The results revealed that visitors’ unique images (e.g., oyster harvesting and oyster shell decoration) were deepened along with the stimulus of commercial travel information as well as on-site experiences. It was also found that the commercial information had significant influences on common-psychological-attribute images. Moreover, visitors at the organic stage had negative images about Wang Kong, which is a tourist destination lack of formal administrations. Their negative images which were further confirmed by their on-site experiences are impossible to be seen from commercial travel information.

Based on the findings of this study, it was suggested that local tourism operators in Wang Kong should cope with negative images immediately, and promote local tour programs associated with the unique images in order to improve the attractiveness of Wang Kong. Suggestions for future studies were also proposed according to the findings.
Huang, Hsiao-Chang, Horticulture, National Taiwan University, Taiwan
Chun-Yen Chang, Horticulture, National Taiwan University

Analysis of recreation impacts and satisfaction in ecotourism areas

The purpose of this research was to investigate the relationship between recreational motivation, recreation impacts and satisfaction. It also discusses how the types of activities and the stay duration affect the relationship between those three variables. Respondents were the tourists of Mei-Feng Farm, which is a famous ecotourism area in Taiwan.

The result shows that recreational motivation, recreation impacts and satisfaction were significantly related to each other. The study outcomes also provide administration office thorough principles of management to preserve ecotourism areas sustainable.

According to literature and field investigation, to understand the using of base, distribution of tourist, activities area and the present environmental impact to find out applicable factors of impacts in base applied for the questionnaire.

Respondents of this research were 152 tourists sampled at Mei-Feng Farm, and selected respondents were divided into three groups in terms of activities types and stay duration.

The Pearson product-moment correlation and T-test were used to test the hypothesis. As the results, three of these findings were worth summarizing: First, recreational motivation and stay duration weren’t significantly related to satisfaction. Secondly, part of the recreation impact was significantly related to satisfaction. Furthermore, the results also prove that the types of activities and stay duration were significantly related to some recreation impact perceptions.
Bringing sociological theory into our understanding of the social context of waste

ABSTRACT: Since the 1992 Rio Convention, a greater proportion of resources have been dedicated to the study and amelioration of the pollution of poverty. Although this is an ambitious and worthy goal, to focus on the pollution of poverty without a parallel inquiry into the pollution of affluence, ignores the substantial negative environmental impacts resulting from consumption practices. In the following article we consider the production of waste as an output from the consumption process. We review three central approaches from environmental sociology that aim to explicate consumer behaviour – structural, social practices, and individual. Structural approaches examine the political economy of waste and the institutional and infrastructural arrangements that encourage consumption, and thereby produce waste. Research into social practices examines how patterns of living (routines), lifestyle, and habits contribute to the proliferation of waste. The final area of study uses the individual as a point of departure – examining the social psychology of the individual and interpersonal dynamics of consumption. Drawing on these three approaches, and considering the relation between consumption and waste, we ultimately propose several courses of action to reduce consumption and thereby waste.
Managing forest road access on public lands: A conceptual model of conflict

Conflicts around the provision, maintenance and removal of forest road access abound in resource management. These conflicts arise since some people benefit while others are negatively impacted from road access. Through qualitative interviews with key stakeholders from two northern Ontario, Canada communities, we examined issues around road access. Conflict emerged as the core category from the interviews with conflicts primarily arising among tourism operators, community residents, and the resource management agency. We identified goal interference, social values, process inequity, distributive inequity and context as important contributors to conflict. Conflict primarily arises from the perceived inequity of decision-making outcomes (i.e., distributive inequity). Goal interference, social values conflicts, and perceptions of inequities in the decision-making process (i.e., process inequity) were important elements that influence perceptions of distributive inequity. Finally, contextual factors (e.g., management process, resource abundance) for each study area also have the potential to affect the presence and extent of conflict.
Conservation of working rangelands means conserving landscapes where power is shared between ranchers, public entities, and often, land trusts. One divergence from more standard conservation forms is the need to keep the workers working. The limitations of science-based management, the effect of the assumptions and attitudes of managers and conservationists, and the impact of the traditions and values of ranchers in working landscape conservation are illuminated when we examine meaning of stockponds for each group, and subsequent ideas about how they should be managed. Traditional activities shaped the western landscapes that are now of growing conservation interest. Stockponds are historically important as the key to the use of western lands for grazing, as "hot spots" of biodiversity in the arid west, and as a subject of management controversy in their contemporary setting. Ranchers are the "ecosystem engineers" of stockponds. Stockponds are crucial to ranch production and valuable to ranchers as family artifacts. For ecologists, they are important for wildlife and vegetation. Examining the conflicts and the science around stockponds in California, and their role in the conservation of biodiversity on rangelands, offers lessons about the challenges that anthropogenic landscapes, or what might be termed "hybrid ecosystems," present for conservationists and ecologists. Stockponds provide an opportunity to look at how conservation of working ranchland requires action at multiple scales, for example, at the landscape, pasture, and local ecosystem levels, and how different processes emerge as critical to conservation at each scale. Stockponds are both example of and allegory for many situations in working landscape conservation. Management of stockponds, and working landscapes, requires integration of social and ecological information at multiple scales, and long-term attention to the underlying assumptions of management.
Do steering efforts actually influence outdoor-recreation behavior? Results of social-psychological intervention experiments

New leisure activities such as snowshoeing or downhill biking are very popular and growing constantly, but they affect sensitive wildlife habitats (ecological conflicts) and other people showing different leisure activities (social conflicts). Efforts of recreation management tend to solve these conflicts by active steering through information and infrastructure. In two case studies, we evaluated the effect of such steering efforts in a social-psychological framework, i.e. we don’t focus on the planning process or the ecological component, but on the influence on behavior. Therefore, we focused on the following main research questions:

• Can the behavior be influenced by steering efforts and, thus, reduce social and ecological conflicts?
• Are observed behavior of recreationists and their self-reported behavior and attitudes consistent?
• Are resulting effects perceived by the recreationists as an improvement of the situation?

To answer these questions we conducted two intervention experiments:

(1) We evaluated the effect of steering efforts (interventions) that aimed at reducing social conflicts between downhill bikers and other recreationists such as hikers etc. To this end, we conducted a first survey among forest visitors just before the beginning of the interventions (installation of a separated down-hill trail) to investigate the attitudes, self-reported behavior and perceived conflicts. The second survey was conducted 15 months later by sending questionnaires to the same people of the first survey in order to measure the effect of the intervention and the perception of the effect.

(2) We evaluated the effect of interventions aiming at reducing the ecological conflicts caused by snowshoe walking in sensitive wildlife habitats. I.e., we measured how visitors of such an area actually reacted to steering efforts such as different variants of sign posting and information. As measurement methods we applied behavior observation and track registration before and during the interventions. In addition we conducted a survey among the snowshoe walkers aiming at investigating their attitudes and self-reported behavior.

The results of the first experiment show that the chosen steering efforts (separate bike-trail, sign posts, media communication and interdiction of bike transport by train) where well accepted by all parties and did actually diminish the number of bikers using illegal or multi-use trails for down-hilling. This effect was perceived as an improvement by forest visitors and, thus, reduced self-reported conflicts between hikers and bikers significantly.

The results of the second experiment indicate that snowshoe walkers overrate the ecological responsibility of their (self-reported!) behavior if compared with the observed actual
behavior. However, the gap between self-perception and actual behavior can be bridged and the latter be influenced positively by appropriate information, ecological education, rationales and appeals.

Finally it revealed to be necessary to combine on-site interventions with communication and education, which is provided before the start of the recreation activity (at home, at school etc.) because recreationists mostly do not like changing their plans once they started the outdoor activity. Moreover efforts must be reinforced continuously to avoid a decrease of once achieved positive effects.
Conserving subdivided nature: A comparative examination of conservation subdivision design in Oregon and South Carolina.

Many parts of the rural United States are undergoing dramatic social and ecological transformations as a result of amenity-related migration and associated residential development. Among the variety of development models advocated for these landscapes in transition, Conservation Subdivision Design (CSD) is seen both as an alternative to Traditional Subdivision Design (TSD) on the suburban-rural fringe and Planned Unit Developments (PUD) in areas characterized by their abundant natural amenities. Yet little research has examined the range of conservation features that are incorporated into the site designs for emerging communities. This research uses a comparative approach to examine examples of subdivisions that incorporate elements of conservation subdivision design in their master plans from the Eastside Cascades region of Oregon and the South Carolina Lowcountry. Specifically, this research explores the differing environmental qualities that are seized upon by developers in creating new subdivisions in formerly rural places, the particular ideas about conservation that are incorporated into their physical design, and the governance mechanisms that detail landowner responsibilities and appropriate behaviors within these spaces of conservation. Far from signaling a homogenous set of practices unleashed by economic restructuring and broader policy changes from above, these cases suggest a trend toward ecological governance that results in a diversity of hybrid conservation spaces and landscapes of consumption. We present a framework for understanding both the types of conservation goals associated with these communities and the types of new management issues that are likely to result. These findings have important implications for understanding the “multifunctional transition” in rural U.S. places and the challenges associated with the use of “conservation subdivision” in practice.
That contexts affect environmental attitudes and behavior is a central yet untested assumption in much of environmental sociology. Drawing on contextual theories, this paper investigates the influence of economic and environmental contexts on environmental concerns. These theoretical perspectives suggest that failure to protect the environment is a function of political processes that privilege economic concerns over environmental concerns. This paper discusses and presents tests of the assertion that lower levels of economic health may decrease public environmental concern. Data from a 1995 survey of Southern Appalachian residents on environmental attitudes were merged with county level data from the region and subjected to HLM tests for context effects. Findings support the assertion that economic context is important in explaining the relationship between social class and environmental concern across counties. Implications of these findings are discussed.
Shelter-in-Place as an Alternative to Wildfire Evacuation

Shelter-in-place during wildfire events is an underrepresented area of scholarship. Though research on chemical spills and tornadoes has long advocated shelter-in-place during emergencies, its applicability to the field of wildfire management appears only infrequently in conferences. This paper suggests that shelter-in-place may emerge as a viable alternative to evacuation in some wildland-urban interface fire situations. Several communities in the West have begun to explore opportunities for community shelters and other alternatives to evacuation. Because of the lack of US experience with alternatives to evacuation in wildfire fire context, we attempt to draw lessons from the disaster and risk communication literature related to other types of disasters. We maintain that these literatures provide insight into the considerations, precautions, and initial steps needed for testing the applicability of shelter-in-place during wildfire events. The most extensive review of shelter-in-place literature comes from chemical disasters or tornadoes and many studies show that with proper precautions, people are safer employing shelter-in-place than evacuation during disasters of relatively short duration. Recent efforts have extended this model to special needs populations during hurricanes. A limited overview of fire literature will provide context and situate these concerns in a larger social context. Literature on evacuation models demonstrates the difficulties associated with evacuation in rural areas most impacted by fire and outlines residents’ documented desire to remain in their homes during many such disaster events. We will discuss community planning concepts as a blueprint to prepare residents’ for possible sheltering in place strategies in fire events and also questions of accountability by land management agencies advocating shelter-in-place. Issues of insurance liability and involvement of county firefighters will be also discussed as possible barriers to implementation.
In the 1990s the Utah Division of Water Resources developed the Ken’s Lake Recreation Area, located just south of Moab, Utah, under projections of use and value. The purpose of this study was to estimate the use and value of the lake after more than ten years of use. The key objectives of the study were (i) to identify the characteristics of visitors to the lake, (ii) determine the use patterns of those visitors, and (iii) estimate the benefits of recreation at the area. An intercept survey was conducted from June through November 2005 and February through May 2006. Estimated total recreational trips is 11,000. Estimated recreational visits are 27,700. Estimated recreational visitor days are 35,500. The net economic value accruing to day users is estimated at $18.84 per trip. The estimated net economic value for multiple-day users is $99.69 per trip. The annual net economic value of recreational use at Ken’s Lake is estimated to be $295,700.
The Communities involvement and participation in the natural resources management is the only key to protect and manage natural resources which has a success in the Gambia.

In the Gambia the protection, administration and protection of natural resources is the responsibility of the Forestry Department, with all the technical knowhow is fruitless. Because bushfires, exploitation has increased.

But by the communities involvement we are able to protect 66 forest parks by joint Forest Park management agreement. community forest in the Gambia we have 319 communities who are actively involved in the protection and management of their own community forest. At moment we are able to put 28375.63 ha of the forests cover of the Gambia under proper management.

This proved beyond all reasonable doubts that the communities are the only means for the protection and management of natural resources because they realised the benefits derived from the forest for them.
Managing mountain bike recreation and user conflicts: a case study on Mt. Baker-Snoqualmie National Forest

Increasing demand for mountain bike use and potential conflict between user groups requires land management agencies to develop and test new management strategies. I evaluated a U.S. Forest Service recreation policy which allows seasonal mountain bike access on alternate calendar days on the Middle Fork Trail in the Snoqualmie River Watershed of Washington state’s Mt. Baker-Snoqualmie National Forest. Evaluation of perceived and actual conflicts between three user groups, mountain bikers, hikers and stock handlers, was conducted through administration of an on-site exit questionnaire to 233 trail users. A chi square analysis was used to differentiate user group responses and relationships. Preliminary results established that most respondents felt safe, had a high level of enjoyment, and experienced positive interactions with other trail users. This research provides a recreation conflict evaluation tool that can assist land management agencies to examine and implement conflict minimizing management strategies for a variety of recreation endeavors.
Examining the natural environment dimension of community attachment in an amenity rich locale

Community attachment has been an important research theme in community sociology for decades. Due to this attention, the conceptualization of community attachment has been compartmentalized into different dimensions. Dating back to Kasarda and Janowitz (1974), attitudes and sentiments pertaining to the local social context, such as a feeling of belonging or being at home in the local community, have been a primary focus of community attachment research. More recently, attachment to the natural environment and surrounding landscapes has been conceptualized as an equally important dimension of community attachment. The operationalization of this dimension, however, has not received the same attention and refining as has the social dimension of community attachment. Therefore, this work uses a new operationalization, borne out of research on attachment to place, to examine the natural environment dimension of community attachment in a high amenity region that has seen a large influx of new residents. Summit County, Utah, due to its rural character, pristine landscapes and booming amenity-driven growth, provides a unique context for examining how both of the aforementioned dimensions of community attachment are affected by length of residence and type of residency (seasonal versus year-round residence). In addition, the relationship between the two dimensions of community attachment will be examined to determine if one holds any predictive power over the other. In short, we attempt to further refine the operationalization of the natural environment dimension of community attachment and increase our understanding of its relationship to the social dimension, while examining how additional variables may be linked to community attachment in areas with abundant natural amenities and large amounts of seasonal homes.
Landscape Change and Global Homogenisation

One of the dominant impacts of globalisation is the homogenisation of cultures and national identities. It is well established that the impact of television, world travel and the internet has produced an amazing uniformity of cultural values across the globe over the past 2 decades. This trend in the process of implementing ‘sameness’ is one of the underpinning objectives of globalisation, and is reflected in the built and natural environments. Both the urban and natural landscapes are affected in similar manners, where homogeneity impacts both environments: buildings look the same in Frankfurt and Melbourne; and parks and reclaimed landscapes retain the same species of trees worldwide.

It can be argued that celebrating cultural difference through the natural and built landscape is a key strategy in combating global homogenisation. Thus, the inclusion of strategies that maintain and preserve natural landscapes such as protecting and enhancing indigenous species, conserving geological features and rehabilitating impacted ecosystems remain critical. In the same manner, architectural vernacular is an important theme in different urban and rural environments, where the cultural history is recorded in the development of the built form.

This paper provides a theoretical basis for the retention and restoration of cultural and natural environments. We argue that at this point in time, the built environment struggles to celebrate ‘difference’ and actively engages in the production of cultural erosion. Cities across the globe are examples of this. The natural landscape presents a very important opportunity to deviate from this pattern and reinstate ‘difference’ in an effort to combat global homogenisation. This involves recognising the way practices of globalisation are managed at an everyday level through the built and natural environment. The pattern of global homogenisation will be explored and empirical examples will be developed to demonstrate how this process impacts the built and natural landscape.
Boater Compliance within Manatee Conservation Zones in Florida and Techniques for Quantitative Assessment of Vessel Speeds

In Florida, the endangered West Indian Manatee (Trichechus manatus latirostris) is negatively impacted by a variety of natural and anthropogenic factors. To facilitate recovery of the species, the Federal Manatee Recovery Plan (FMRP) specifically focuses on reducing watercraft-induced mortality through boat speed regulatory zones, educational programming, and other interventional modalities. Still, watercraft-strokes remain the single greatest cause of mortality, with 25-30% of manatee deaths caused by propeller wounds or hull impacting (FWC, 2006b).

Several qualitative wake propagation studies have demonstrated that fewer than 50-60% of Florida’s boaters fully comply with established speed restrictions (e.g., Gorzelany, 1996, 2001, 2004; Tyson & Combs, 1999). These qualitative investigations have shown vessel compliance within manatee conservation zones to vary by vessel type, vessel length and zone location. Other boater studies unrelated to the manatee issue suggest that marine conservation attitudes and self-reported compliance with environmental regulation may also be associated with vessel and operator attributes.

This study relied on discreet observation to determine vessel distance from the observer, and the elapsed time spent cruising through a defined area. Trigonometric calculation was then employed to determine vessel speeds within manatee conservation zones. To better understand operator non-compliance, the research utilized hull registration numbers from observed vessels to facilitate a follow up mail survey.

Fewer than half of those observed fully complied with speed restrictions (45%), and poor congruency was found between speed discrepancy (maximum allowable minus observed) and self-reported compliance as assessed with the mail survey (r = .024). Observed vessel speeds (hence compliance) varied by vessel type, size and site. Although boater attitudes were found to be positive overall, conservation attitudes were poorly associated with compliance (r = .062). The proposed presentation offers an exploration of the observational techniques utilized to ascertain vessel speeds, as well as a discussion of the associations between setting, boat and boater attributes, and vessel compliance within manatee conservation zones.
Changing Priorities of Place in the South Carolina Low Country

This research examines structural factors contributing to 'sense of place' for African American and White residents in coastal South Carolina. We expect sense of place or people's perceptions of both the natural and social community to contribute significantly to resident perspectives on urban growth. This study is an extension of exploratory analyses conducted 5 years ago, which indicated community positions on growth were divided mostly along racial lines—African Americans appeared more receptive of growth initiatives, while Whites were appeared opposed. The present research monitors changes over time in responses to growth. Recent focus group data suggest African American positions on growth may be changing to include diverse perspectives, including stronger anti-growth positions. Such changes indicate the dynamism of sense of place, both at a particular point in time and also longitudinally.
Using the Potential for Conflict Index to Clarify “No Tolerance” Norms for Off-Leash Dogs at City of Boulder Open Space and Mountain Parks

Natural resource management requires both descriptive and evaluative information. Descriptive information demonstrates how different management actions produce different impacts. Evaluative information identifies management objectives and standards that define quality experiences. Norms are often used to conceptualize and analyze evaluative judgments of resource management. For many behaviors or conditions resulting from the behavior examined in past research, “less” impact is often more acceptable than “more.” Encountering no visitors, for example, is consistently evaluated more positively than seeing many visitors. Other research, however, suggests that “no tolerance” norms may exist when visitors agree that any level of impact is unacceptable. We used data from on-site surveys (n = 951) to examine visitors’ norms for five direct and six indirect dog/owner behaviors at 16 areas managed by the City of Boulder Open Space and Mountain Parks (OSMP). Direct behaviors involved dogs interacting with visitors other than their owners (e.g., dogs approaching visitors uninvited). Indirect behaviors involved dogs interacting with wildlife or other dogs, or owners not picking up after their dogs. Given the behaviors examined, we hypothesized “no tolerance” norms were likely to occur. We used the Potential for Conflict Index (PCI) to clarify visitors’ level of normative agreement. PCI ranges from 0 (no conflict) to 1 (maximum conflict), and a graphic representation of PCI visually displays information about central tendency, dispersion, and shape of normative responses simultaneously. As predicted, with the exception of two indirect human-dog interactions (dogs playing, dogs off trail), all evaluations reflected “no tolerance norms” and were unaffected by the number of times that behaviors were observed. For “dogs playing” and “dogs off trail,” acceptability ratings were neutral with PCI values of .30 and .35, respectively. There was less agreement for dogs approaching uninvited (PCI = .42), owners repeatedly calling their dogs (PCI = .45), and dogs sniffing visitors (PCI = .48). Consensus regarding unacceptability of behaviors was evident for norms related to owners not picking up (PCI = .10), dogs jumping on visitors (PCI = .18), and dogs pawing visitors (PCI = .21). The PCI and associated graphic displays facilitated understanding visitors’ norms on OSMP lands.
The effect of environmental cues and social cues on fear of crime in community park settings

Fear of crime in park settings can be a barrier to attaining important outdoor recreation benefits. Fear of crime may be evoked by cues in the environment that symbolize threat or danger. Important among these cues are environmental cues such as symbols of concealment, where a potential offender could hide and social cues, the presence or absence of compatible others, symbolizing that a space is safe. This research examined the effect of environmental cues (low concealment versus high concealment) and social cues (absences versus presence of mutually acceptable users) on fear of crime in a park setting. Study 1 used 540 randomly selected visitors of three Salt Lake City parks. Study 2 used 532 University of Utah students. The sample in Study 2 was used to capture a potentially broader range of fear responses including individuals who may have been displaced from park setting because of fear of crime. Each study used a 2 x 2 Repeated Measures Experimental Design with respondent’s sex as a covariate. Manipulation of the independent variables, environmental cues and social cues, took place via photographic representations of a community park setting. Fear of crime was measured using a 7-point single-item indicator. Repeated measures analysis of variance revealed statistically significant (p < .05). Interactions suggested that environmental and social cues operate together to influence fear judgments. In addition, the effect of these cues on fear of crime depends on the sex of user. Design and maintenance implications include maintaining sight lines and keeping features attractive and functional, so as to attract other visitors to symbolize the safety of the area.
Industrial resource development, environmental change and native hunting culture: a clash of values?

Environmental change and Metis aboriginal wildlife harvest have become entrenched in a two-way relationship between a degraded environment and a decline in hunting lifestyles. Existing research on this region and a literature review of Metis people in Canada confirms the historical relevance and social importance of hunting, trapping and fishing within Metis culture. In situ interview research in seven North Western Saskatchewan Metis communities found significant local concern and opposition regarding environmental degradation and landscape change, and the effects this change has on hunting and other traditional land-use forms. Similarly, my interview results suggest a number of social and cultural changes that contribute to changed Metis attitudes towards wild-life products and ‘hunting lifestyles’.

Most importantly, physical alteration of the environment, such as from commercial forestry activities, offers resource-based employment opportunities that are welcomed by many community members. Paradoxically, while many interviewees eschew these uses of the forest, they welcome forestry jobs and thus discount collectively stated concerns in their community about environmental degradation. The divergence between traditional land use concerns and employment desires makes this value clash appear to be about environmental change in the community. A deeper analysis of the interviews suggests that given the lack of employment opportunities in the region, Metis persons must in essence choose between income autonomy, for which there are many incentives, and implicit support for commercial activities that may undercut hunting and other traditional land uses by being employed by particular industries. Many of the respondents expressed a strong need to maintain a cultural bond to the (changing) environment, and cognitive dissonance about the nature of the work available to them. This paper speaks to the ways in which Metis people reconcile their traditional activities and identity with their resource-based work opportunities.
This paper explores conflict and cooperation over environmental and natural resource management across international borders. The increasing intensity of resource use amid growing concern for the environment threatens future conflict between nations dependent on a shared and finite resource base. Despite recent international progress on the issue of water management, there remains a need for additional structures of conflict resolution to ensure the cooperative management of international water resources. U.S.-Mexico relations pertaining to the management of the Colorado River informs understanding of resource conflict and provides an informative example of both failures and successes in the realm of transboundary resources management. Despite past negotiations over the quantity and quality of Colorado River water entering Mexico, recent environmental changes have instigated renewed tensions over proposed modifications to the handling of agricultural waste water in the U.S. At issue is the operation of the Yuma Desalting Plant (YDP) for the reclamation of agricultural drainage water during times of drought. The construction and negotiated function of the YDP is reviewed in this paper as a case study in transnational conflict aversion through problem-specific, local-scale cooperative organizations. This paper employs the concept of unilateralism to frame the history of Colorado River management and account for the failure of treaties and past agreements to advert current water resource tensions. The innovative formation of an unofficial and problem-specific working group, representing a range of interested parties, is examined as a creative solution that adds an additional scale of conflict resolution to international legal standards and binational treaties addressing conflict over water resources. Specific strengths and limitation of the approach employed in the case study are identified, informing the generalization of the YDP conflict to other cases of international disputes over water resource management.
Jun, Jinhee, Texas A & M University, USA  
Gerard T Kyle, Texas A & M University  
William C Norman, Clemson University  
Laurie W Jodice, Clemson University

Enduring involvement of Recreational Anglers

A substantial body of research has noted the advantage of the involvement construct in terms of its managerial and marketing application. This study extends previous efforts that have demonstrated how different levels and types of involvement influence individuals’ behavior and attempts to categorize recreational anglers into homogeneous groups using their involvement profile. The two objectives that guided this study were (1) to identify homogeneous groups of participants based on their involvement profiles, and (2) to profile identified market segments based on their motivation, consumptive orientation, place attachment, self-reported behaviors and socio-demographic characteristics. Data for our study were collected from prospective visitors enquiring about angling opportunities in the Santee Cooper area in the Spring of 2003. The Santee Cooper lakes system is nationally renowned for angling opportunities featuring striped bass and catfish. A modified Dillman (2000) procedure yielded 430 usable surveys (a 20% response rate). A K-mean cluster analysis procedure of the 5 involvement dimensions revealed a four cluster solution. Analysis of variance (ANOVA) showed significant differences between clusters for 5 facets of involvement. Cluster 1, Highest Involved, accounted for 29% (n=126) of the respondents and measured the highest on all five facets of involvement, followed by cluster 2 (36%, n=154), cluster 3 (26%, n=111) and cluster 4 (9%, n=38). That is, cluster 2 and cluster 3 measured the second and third highest on all five dimensions respectively while cluster 4, Low Involved, measured the lowest on the involvement dimensions. Next, ANOVA and Chi-square tests were conducted to examine if four groups were different on the motivation, consumptive orientation, place attachment, self-reported behaviors (i.e., days and hours of fishing, number of fish caught, and intention to future fishing trip) and socio-demographic characteristics (i.e., gender, age, education, income and ethnicity). Results illustrated that four groups were different in terms of the gender distribution, motivation (Escape, Experience, Privacy, Family and Social), two dimensions of place attachment (Place Identity and Place Dependence) and three dimensions of consumptive orientation (Catch Many Fish, Catch Big Fish and Keep Catch). Significant differences between groups were found for hours of fishing, number of fish caught, and intention to future fishing trip. These findings further demonstrate that the involvement construct is a useful tool for identifying viable target markets for tourism destinations.
Ecological visions of successful river restorations – are they also aesthetically pleasing to the public?

River restoration as a measure to improve both flood protection and ecological quality has become a common practice in river management. While project planners have clear ecological objectives with regard to the restoration of river corridors, it cannot necessarily be assumed that the public will view the effects positively. For public acceptance of such projects is mainly based on aesthetic perception criteria. Therefore, it was our aim to analyse the relationship between visual attractiveness and ecological objectives.

We conducted a representative Switzerland-wide survey (N=1005) using sets of visualised restoration scenarios with given experts’ assessments of the ecological integrity of these scenarios based on eco-morphological criteria, and related them to people’s aesthetic preferences. We further compared aesthetic preferences with how natural the public perceived river corridors to be, and how much these corridors satisfy public needs.

The results of the survey show a stronger positive relationship between aesthetic preferences and eco-morphological quality than expected. Our analysis indicates that the public views the aesthetic outcomes of even slight river restoration efforts positively and that the public’s aesthetic preferences are primarily influenced by perceived naturalness. Our data further confirm a very strong relationship between both perceived naturalness and satisfaction of people’s needs, and aesthetic preferences. Interestingly however, analysis indicates that the availability of use infrastructure seems to contribute very little to people’s aesthetic preferences for particular river states. Implications of these findings for the planning and management of river restoration projects will be discussed.
Landowner Changes in Tennessee's Northern Cumberlands

Population growth, shifting demographics and changing resident and landowner attitudes are critical parts of the emerging rural-urban interface in Tennessee’s Northern Cumberlands. As this interface evolves, the need to identify and understand landowner and residents’ attitudes regarding these natural resources has become more apparent. Using a survey of current landowners conducted in the region, this paper explores the trends in landowner and resident attitudes on the northern portion of the Cumberland Plateau in Tennessee (Cumberland, Fentress, Morgan, and Scott Counties). Trends in the importance and reasoning for owning and managing land were identified along with the importance of community to landowners. Additionally, a model was developed to assess alternative incentive structures for conservation practices. The model estimated the likelihood of landowners enrolling in conservation programs based on landowner and land characteristics, landowner attitudes, and knowledge and previous experience with existing conservation aid programs.
Impacts of nature-based tourism on boreal bird populations in protected areas

Bird tourism is a growing sector of nature tourism. Tourism and recreation can have negative impacts on birds, which can result from direct disturbance and indirectly through habitat modification. Recreation has been discovered to have an impact on the species richness, density and breeding success of bird species. As studies of the impacts of nature tourism on animals have so far tended to concentrate on single species, recreation and tourism induced alterations in forest bird-species communities are basically unknown. Yet, scientific results on potential impacts on bird communities are needed for the planning and management purposes as increasing disturbance by tourists can be consequential for the threatened species preferring natural habitats, and whose ranges can thus be concentrated in protected areas.

We investigated the possible impacts of recreation and tourism on forest birds in Oulanka National Park, in north-eastern Finland. By using an existing bird data set collected through the line transect method over several breeding seasons we more specifically focused on the following questions: (1.) Does the disturbance caused by tourists affect bird density, species richness and species composition? (2.) Are some species more vulnerable to disturbance than others? To study the foregoing questions we compared the bird populations detected in hiking trails to bird populations in undisturbed control areas. Furthermore, we modeled the bird species richness and abundances to explore the relative importance of environmental variables and the tourism-related disturbance in explaining the variation in bird communities. It is expected that different groups of bird species (e.g. cavity nesting species and open nesting species) respond differently to human-induced disturbance. The results can be used in planning and managing protected areas.
Keiter, Robert B, College of Law, University of Utah, USA

Glacier National Park and Its Neighbors: A Twenty Year Study in Regional Resource Management

Twenty years ago Glacier National Park was considered the American park most at risk from external threats, such as mining and timber harvesting on adjacent lands. This finding led us to undertake a study during the mid 1980s to examine how Glacier officials were defending the park from these external threats. We concluded that the park’s non-confrontational strategies were tenuous at best, but that some protection had been achieved by strong laws enforced by environmental advocates. We also noted the park’s early efforts to promote a regional management vision. Since then, the concept of a regional ecosystem protected across formal borders has progressed significantly, though still imperfectly. This talk, based on recent interviews and documents, is a twenty-year reassessment of resource management in the Glacier region, revisiting controversies from the earlier study and examining several new ones. It also evaluates the actual forces that drive—and impede—efforts to manage land in accord with habitat and watershed realities, rather than boundary lines drawn on a map.
Kelly, Erin C, Oregon State University, USA

Ownership Change in the Forest: Institutional Investors of Industrial Timberland and What it Means for Local Communities

Within the last ten years, institutional investors have become the dominant industrial forest landowners in the U.S. Institutional investors include Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs). These are tax-advantaged corporate structures that purchase and manage forest lands for investors. Where traditional forest companies, referred to as “vertically-integrated,” owned both the timberlands and the mills, the newly-dominant institutional investors own only the timberland. This paper will address three questions: 1) Who are institutional investors? 2) How are they managing their forests? 3) What are the implications of institutional investor forest ownership in terms of community capacity and development, place attachment, human capital, and economic infrastructure? This paper will first review available academic and gray literature on institutional investors across the United States, then apply these lessons to Oregon’s landscape through analysis of local newspaper articles that detail individual sales and local perceptions of institutional investor transactions.

Some expected results involve tenure length, ownership objectives, and the underlying social fabric of impacted communities. For example, many analysts have projected that TIMOs and REITs will have short tenures, which may lead to low levels of investment in silvicultural treatments, a lack of involvement with local communities, and parcelization of the landscape. Other analysts have focused on the relatively low level of debt carried by institutional investors and the conservation opportunities offered by partnerships between TIMOs, local governments, and land trusts. This research can inform community developers, policymakers, silviculturists, extension agents, land-use planners, and others who will need to adapt to this large-scale change in forest ownership.
Kepe, Thembela, Department of Geography, University of Toronto, Canada

Paradise Under Fire: Writing People into “Pristine” Environment in South Africa

As a country that ranks third most biologically diverse in the world, with close to one million species, many of which are endemic, South Africa’s environment has become central to many national debates about conservation, economic development and human rights. While concern about human threats to this biodiversity continue to occupy researchers and policy makers alike, there is an equally well-developed view and campaign to present significant portions of South Africa’s environment as ‘unspoilt’, ‘untamed’, ‘pristine’, ‘natural’ and even ‘wild’, to mention a few. The paradox is that many of these areas often overlap with areas which attract concern of conservationists as being threatened by local people or unsustainable development. Nevertheless, the favourable images of these environments are positive when they are able to attract sustainable development, mostly through tourism, or when they serve as a rallying point to block unsustainable development. However, the ‘pristine’ image rhetoric can be negative when it presents images of ‘empty zones’, where there are no people who use local natural resources. Research shows that ‘environmental orthodoxies’, whether positive or negative about the state of the environment, continue to influence environmental policy making in Africa and beyond. Using a case study of the Wild Coast, a highly celebrated and revered region in South Africa, in terms of its biodiversity value and naturalness, this paper presents scenarios that challenge the unqualified grading of the Wild Coast as ‘pristine’. It does this by discussing examples of livelihood activities of the Mpondo people that do transform the environment over time. In fact, the paper contextualizes both the images of ‘pristine’ environment on the one hand and a threatened environment on the other hand. It argues that if local people and their livelihood activities continue to be invisible in dominant environmental discourses, then their needs, way of life and rights will continue to be marginalized. The paper also asks whether or not these positive images about the area constitute ‘false’ advertising that could yield negative results in future?
Place as Hidden Treasures in Urban Environments

Place and community researchers often champion unique or special places that individuals and groups believe are meaningful. Such places have been described as sacred places, special places, and cherished places. Some researchers suggest studying place meanings in urban areas because of needs to improve quality of life for people who live in cities. This paper focuses on identifying unique or special places that present themselves as hidden treasures in people’s everyday urban environments. We believe that a better understanding of what constitutes an important place as well as why that place is important will benefit planners and land managers who wish to incorporate public input into decision-making for urban environments.

Photo-elicitation was adapted as a method because it allowed the research to be centered on the everyday life of participants. Cameras were distributed to participants who lived in Urbana, IL; they were asked to take pictures of places important to their daily routines. Conversations with participants about their photographs identified a number of commonplace environments as being important, and often these environments were not prominent on the landscape or hidden from public visibility. These places, referred to as “hidden treasures,” are the subject of this paper. Preliminary analysis indicates that the place meanings of these urban places were connected with civic pride, escape from daily routines, and self-identity.

The complexity of urban landscapes makes it difficult to identify and understand hidden treasures. The focus here is to help people construct the meaning of special places in their everyday lives that often go overlooked in light of the dominant narratives that ascribe importance to places. The findings suggest the protection and public value of unique urban places.
Kernan, Bruce S, Kernan Consulting, Ecuador

The Galapagos National Park: Management Plans, Exotic Species, and IUCN Guidelines

Because it occupies over 97 percent of one of the few archipelagos in the world with the majority of its native flora and fauna intact, the Galapagos National Park has an extraordinary value for the study of evolution and adaptation. The introduction and spread of exotic species is the greatest threat to the park’s biological integrity. Since 1974, although four management plans have been prepared for the park, the threat from exotic species has increased, mostly due to the indirect effects of increased tourism. This article analyzes, based on the IUCN guidelines for management planning of protected areas, the effectiveness of the Galapagos National Park management plans in relation to the threat from exotic species and recommends ways to make future management plans for the Galapagos National Park and the IUCN guidelines more effective.
Stakeholders' attitudes towards the return of black bear to Northeast Texas

This interdisciplinary study uses human dimensions tools from wildlife, sociology, history, and geography to look at the attitudes of residents living along the Sulphur River corridor of Northeast Texas towards black bears and the return of the species to the region. The area has a long history of black bear as a part of its culture, however, extirpation approximately seventy-five years ago ended much of that. With the potential of reintroduction into the prime habitat area, either forced or natural, Texas Parks and Wildlife and Stephen F. Austin State University conducted a stakeholders survey to determine attitudes and knowledge concerning the black bear, and to identify "hot spots" for intensive education and information purposes. The presentation will take a brief look at the results of the study and how management may apply these results to public management.
Predicting National Forest Recreation User-Fees and Patronage Using GIS and Spatial Models

Abstract: Theoretical and empirical research has heightened the debate over user fees for park and recreation facility access. Many studies have been conducted on the perception of patrons toward user fees and willingness-to-pay issues in relation to various socio-economic and demographic (SED) attributes and trip/users characteristics (TC). Previous studies, however, have rarely measured how SED and TC affect voluntary user fees in camping facilities. In particular, relatively little is known about the potential discrepancy between the required actual fee to be paid and what is collected (i.e., anticipated fee revenue versus actual fee revenue) for patrons of national forests. The objectives of this study are twofold: (a) to examine the impacts of SED and TC on user fees as a part of revenues to natural resource areas; and (b) to determine whether the propensity to pay or visit the park fee exhibits a spatial pattern that is other than random (i.e., if the observed patterns are spatially auto-correlated).

This study used secondary overnight camping fee envelope data collected in 2000 from the Shawnee National Forest (SNF), Illinois and 2000 census data to examine the relationship between fees and SED and TC. Straight-line distance from visitor origin to the center of forest was used to facilitate model estimation under the general assumption that spatial flows to the facility decline with increasing distance as a negative exponential gravity-type model (Fik & Mulligan, 1999). Stepwise regression models were performed. Moran’s I test for a spatial autocorrelation analysis was also performed on both the dependent variables and the residuals of the regression models.

In Model 1, testing the effect of SED and TC on actual fees to be paid, the variables population, income, and education-associates were positive and significant, while distance and percentage white population were negative (F=20.811, p<0.001, R²=0.819). Model 2 tested the effect of SED and TC on actual fees paid, with results that were similar to that of Model 1; with the exception that percentage white population was not statistically significant (F=26.029, p<0.001, R²=0.813). Model 3 examined the relationships between fee balance (required fees versus fees actually paid) and a series of independent variables. It is interesting to note that the estimated coefficient associated with educational attainment was positive and significant and the estimated coefficient for party size was negative and significant (F=43.753, p<0.001, R²=0.771). Moran’s I tests on regression residuals found no evidence of spatial autocorrelation in any of the models: Model 1 (I=0.0186, p>0.10), Model 2 (I=-0.060, p>0.10) and Model 3 (I=0.066, p>0.10). Moran’s I tests on each dependent variable also found no evidence of an auto-correlated spatial pattern.

Using revenue-wide approach, findings of this study suggest that visitors from largely populated areas, who were Caucasian, high-income, and of high educational attainment tend to positively contribute to potential and actual fee revenue to the forest. It is interesting to note that large party size and over-night visitors were likely to pay required fees less than anticipated. Improvements in fee payment monitoring systems might be considered (targeting overnighters and large groups) to help generate increased revenues, reduce maintenance costs, and alleviate ecological impacts.
Collaborative watershed-scale governance presents a dilemma in democratic societies. Participatory democracy at the watershed-scale, in which individuals directly and self-selectively engage in decision making, occurs within the framework of national or subnational government, in which citizens elect agents to represent them. Tensions arise over the legitimacy of participatory decision making processes operating within a system of representative government.

The case study of the Grand River Conservation Authority in southwestern Ontario, Canada is an instructive crucible of this dilemma. The Grand River Conservation Authority is one of thirty-six provincially created watershed management agencies in the Province of Ontario that manage water and other natural resources in partnership with individual landowners, local, provincial and federal governments and other organizations. The Authority is mandated to manage, protect and restore the Grand River watershed’s freshwater resources on behalf of constituent municipalities. Twenty two municipal councils representing thirty four upper and lower tier municipalities directly appoint members to the Grand River Conservation Authority Board. It is through their appointed representatives that member municipalities engage in the Authority’s administration and operation.

While conservation authorities have been much investigated, little empirical work has focused on the appointment and contributions of board members. Yet, their roles as decision makers for conservation authorities and their liaison function with the municipalities that appoint them make them vital players in regional, environmental decision making.

A pilot study of the Grand River Conservation Authority revealed that there is no consistency among the municipalities in how they appoint the board members who function on their behalf. It also found considerable variability in how board members perceive their roles as board members and the board as a whole. Some municipalities are represented by local elected officials, others by citizens who have responded to an announcement in a local newspaper. The implications of this lack of consistency raise fundamental questions about the nature of democracy in regional-scale environmental decision making.
Southeast Alaska went through a major economic transition during the 1990s. Saw mills and pulp mills, which formed the economic base for several communities, closed, resulting in the loss of more than 4,000 jobs region-wide. Commercial fishing declined due to changes in regulations and market conditions. At the same time, tourism grew rapidly. New cruise ship ports opened and existing cruise ports expanded capacity. Other communities embraced more specialized forms of tourism, such as nature-based attractions, sport fishing, adventure and cultural tourism. The tourism industry provided employment opportunities for some Alaskans displaced by shifts in other industries.

The implications and impacts of these economic shifts have not been studied at the sub-county/borough level, in part because of numerous boundary changes. Alaska represents a unique geographic area that is more isolated from large population centers than similar resource-based areas in the lower 48 states. Using the census tract relationship files to make BNA’s/census tracts comparable between 1990 and 2000, this research explores socio-economic changes in southeast Alaska, with particular attention to the role of tourism and amenity migration in reshaping communities. We are particularly interested in considering whether the growing influence of tourism relates to changes of several indicators of well-being (poverty, income distribution, education). We will also examine whether there is a notable change in the number of newcomers to SE Alaska (indicating the possibility of amenity migration) and the types of jobs that are now important to area economies. Where possible we will integrate findings from past interviews and other primary data research already conducted in the area with these finding from secondary data.
Tobacco-free park policies in Minnesota

A growing number of cities and counties in Minnesota have established smoke-free policies in park areas around the state. Yet, little is known about the enactment, compliance, and support for tobacco-free park policies. The goal of this study was to evaluate the support for tobacco-free park policies by park directors. In order to address this question, a phone survey of park directors in Minnesota (n=257) was completed in 2004. Thirty-six percent of park directors surveyed (n=70) reported a tobacco-free park policy within their park system. Almost half of park directors with a tobacco-free policy in place (47%) reported the policy was not difficult to enact, and few reported non-compliance problems (26%). Park directors in a community without a tobacco-free park policy reported that a key barrier to enacting a tobacco-free park policy was limited community interest; additional data on public opinion in Minnesota has shown that 70% of Minnesota residents support these policies. Further, the majority of park directors without a tobacco-free policy reported concerns over policy compliance as a barrier to interest in enacting a tobacco-free park policy. These results suggest that the perception of problems related to tobacco-free park policies is much greater than the reality experienced by park directors with a tobacco-free park policy in Minnesota.
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Knowing the Land: a review of local land knowledge revealed in ranch memoirs

Lack of long-term ecological monitoring and research data present a challenge for sustainable rangeland management in many areas of the West. Ranchers and other land managers have local knowledge gained from ongoing experience in specific places that could be useful for understanding ecological change in relation to management practices and environmental events. Local knowledge is defined as knowledge gained by daily contact with the natural world and ecological processes. Unfortunately, little is known about ranchers’ local knowledge, and few studies have systematically examined the types, depth and validity of this knowledge. Ranch memoirs offer one source of insight into rancher knowledge. In this study, I analyzed ranch memoirs from across the west to investigate the specific types and depth of local land knowledge held by ranchers, coding for different knowledge categories. I found that many ranchers have a holistic understanding of the landscapes they manage that includes both management and ecological knowledge. In addition to learning from experience, social interactions are an important part of rancher education and create a shared culture of knowledge about landscapes. In many of the memoirs, it was difficult for ranchers to see long-term patterns of change, potentially because of their ongoing intimacy with local landscapes. In all the memoirs reviewed, ranchers revealed a deep sense of responsibility and connectedness to the landscapes they manage and steward. This review of ranch memoirs highlights what ranchers know about both management impacts and ecological processes and what that knowledge can contribute to the understanding of sustainable management of rangelands in the West.
A study on management strategies of ecotourism in Taiwan

The purpose of this study was to generalize the framework and category of ecotourism development model in Taiwan, as well as to propose management strategies for sustainable ecotourism. Therefore, the study surveyed the visitors about their types of tourism tendency and agreement level of management strategies for ecotourism in the area of different management levels which included the area from Cingjing Farm to Wuling National Forest recreation Area, and Taroko National Park in Taiwan.

Through the analyses, the study obtained the following conclusion:

1. Totally speaking, all visitors had the highest agreement level on the related management strategies of “education and learning” which was under the dimension of “visitor management”. However, they had lowest agreement level on the management strategies of “payment of established entrance fees and additional donations” which was under the dimension of “visitor management”.

2. Visitors in the destinations of the case study can be separated into four different level types of the tourism tendency. Therefore, there were significant differences in the agreement level of ecotourism’s management strategies among those four types of tourism tendency. However, there were no significant separations of the tourism tendency among the visitors in the different destinations of the study area.

According to the foregoing results, the study suggested certain ecotourism’s management strategies relate to the terms of “distinguish different level of ecotourism”, “stress the important of ecotourism program planning”, “complete and appropriate education strategies”, “limitative management and charge machinery”. Furthermore, the study suggested four different level of ecotourism models to be the frameworks while public sectors develop ecotourism.
Managers of public resources usually have to incorporate the opinions and values of involved stakeholders as well as understand the complex institutional constraints and opportunities that influence the decision making process. Involving federal, state, local, private and public stakeholder groups is difficult because they have diverse values and preferences about the use and management of public resources. The overall influence of an individual stakeholder’s or stakeholder group on a negotiation will depend both on their relative power and their level of conviction for a particular outcome. How stakeholders use their influence can greatly affect the time, effort and costs of the decision making process. Many programs and tools have been developed in economics, decision sciences and elsewhere to facilitate group negotiation and decision-making. While these tools have been successful at addressing various pieces of the natural resource decision making process, their use in isolation is not enough to depict fully the complexities of the physical and biological systems with the rules and constraints of the underlying economic and political systems. Decision makers often do not understand information regarding improving the natural resource decision-making process until after a decision has been made.

The purpose of this study is to integrate concepts from economics, decision analysis, and institutional analysis into a single, comprehensive approach called Disparate Stakeholder Management (DSM). The objective of developing the DSM approach is to help decision makers better describe, measure, communicate and resolve management issues with disparate stakeholders. We demonstrate the DSM through a case study of elk and bison management in Southern Greater Yellowstone (SGY). We describe how we developed the DSM and how we used it to develop a production possibilities curve for environmental and economic objectives. We then show how the DSM was used to map a range of policy scenarios for the SGY and to map the preferences for over 40 stakeholder groups that were interviewed.
The hunter identity: Serious leisure and social class

Serious leisure is the systematic pursuit of an amateur, hobbyist, or volunteer activity that participants find so substantial and interesting that, in the typical case, they launch themselves on a career centred on acquiring and expressing its special skills, knowledge, and experience (Stebbins, 1992, p. 3). In contrast to casual leisure which is easily obtained (e.g. watching movies, go for a stroll in the park or spend a day at the beach), serious leisure require dedication, time and effort. Given the high level of commitment it may serve as a focus point for self definition and social belonging – that is a focus point for identity.

Thus, serious leisure is yet another term that moves identity formation from the realm of production to the realm consumption and spare time activities; an idea that connate the discussions on post, late, and high modernity. The paper aims to cross over this possible antagonism, by arguing that leisure activities may be firmly rooted in the production sphere, for instance by means of the performers social class background.

This paper is based on field work and in-depth interviews with a group of young working-class men that lives in a small rural village in the eastern part of Norway. They are all dedicated hunters and they have chosen to live their lives in a community that are marked by all the problems typical of rural areas today: Depopulation, decline in resource-based industries and manual labour etc. Drawing on this material we demonstrate how hunting practises contain the qualities of serious leisure as well as elements of their father’s and grandfather’s working-class culture. Further, the paper gives an example of how serious leisure can be an important factor in reproducing (working-) class culture and (working-) class identities even in the context of a strong decline in number of working-class jobs.
Kretschmer, Holger, German Sport University Cologne, Germany

Planning sport on urban green - Requirement of nature-based sport activities in an urban environment

Outdoor recreation in Germany is no longer related to a rural or natural environment. To be outdoors has become a popular part of daily recreation and sport activities in urban parks are an important aspect of this development. Existing concepts for planning sport are still deal with facility-based activities only and landscaping in an urban environment does not also consider nature-based sport activities. As a consequence, there is the necessity of new ideas and concepts for planning and managing nature-based sport activities on urban green.

Basic information for planning nature-based sport activities in an urban environment are the requirements of sports people. The analysis of their needs in matter of sport and environment are the benchmarks for all arrangements in planning. Regarding this it is necessary to work out a profile of requirements to create new planning strategies or improve existing ones.

The dissertation “Planning Sport on Urban Green” identified the basic requirements of nature-based sports in an urban environment. To find out the needs of sports people, a triangulation of quantitative and qualitative methods has been used. A field questionnaire (n=1065) was the quantitative base of research. In addition to that, the method of visitor employed photography (n=42) was used to get a detailed picture of an ideal space for active recreation. The method was modified and adapted to sport activities in an urban environment.

By using the triangulation it was possible to develop a model of a semi-natured sports area in an urban environment. The model shows the fundamental topics which have to be recognized when planning urban parks and semi-natured areas for active forms of outdoor recreation. On the basis of the model, planning guidelines have been developed considering existing strategies for planning sport and urban landscape.
Community Based Natural Resource Management on Private Conservancies in the Great Limpopo Conservation Area

Historically, wildlife conservation in southern Africa focused on the designation of protected areas managed by central government agencies. Starting in the mid-seventies, the limitations of centralized wildlife management was increasingly recognized. Wildlife management authorities responded by enacting legislative changes to transfer wildlife management authority to private landowners and later also to communal land management authorities. While these changes led to increasing private investment in wildlife management and also in shifts in community perspectives regarding the value of wildlife, they did not explicitly address disruptions of historical migratory routes. For example, the 2-million hectare Kruger National Park in South Africa cuts across the migratory routes that followed the easterly flowing river systems. Recognizing that political and land management boundaries seldom correspond with wildlife migratory patterns conservationists have become increasingly enamored in transfrontier conservation. The area surrounding the Limpopo River has been identified as holding particular promise in southern Africa for a more holistic large-scale approach to conservation. Covering 35,000km the proposed Great Limpopo Transfrontier Park (GLTP) will link the Kruger Park in South Africa, the Limpopo Park in Mozambique, and the Gonarezhou Park in Zimbabwe and will also encompass several private conservancies to the east of the Kruger and to the north of the Gonarezhou Parks, as well as many communal areas in all three countries.

While private conservancies are seldom considered in terms of community-based resource management, these entities are, in fact, comprised of communities of landowners with common conservation and land management interests. In many instances, they have given up significant portions of their individual rights in order to coordinate land management decisions. The extent to which such coordinated private land management is contributing to large scale conservation in the GLTP has not been addressed. This will be discussed in our paper. We will also compare the benefits and opportunity costs faced by private landowners incorporated in the GLTP through their membership of a conservancy. Two conservancies in Zimbabwe and five in South Africa will be compared with respect to land management integration and level of landowner commitment to the larger conservation initiative.
The Changing Socialscape for Indigenous Research

Increasingly indigenous peoples are taking a stronger role in research directions for their community, and requiring greater accountability from the researchers who study in their communities. How has this influenced researchers' approach to research in indigenous communities? These sessions will address the nature of research questions derived from community work, the nature of findings returned to the community, capacity building in research activities, new standards for research agreements and relationship agreements, and how the culture of academia has adjusted to a changing social context for indigenous research.
Kuentzel, Walter F, University of Vermont, USA  
Thomas A Heberlein, Rural Sociology, University of Wisconsin - Madison

Life Course Changes and Competing Leisure Interests as Obstacles to Boating Specialization

In a recent study, Kuentzel and Heberlein (2006) challenged the specialization framework by using panel data to show that most boaters (approximately 60%) do not follow a trajectory of participation that resembles a progression from novice to expert. This paper is a follow-up study that asks the question: what kept people from becoming boating specialists? The analysis drew from 3 waves of a panel study of boaters at the Apostle Islands National Lakeshore who were first mailed a questionnaire in 1975, and then twice more in 1985 and 1997. This study used a life course analysis to explore the relationship between changes in boating specialization and life course events that can affect leisure participation, including marriage, job change, residence change, health issues, changing leisure interests, financial well-being, the empty nest, and retirement. The results showed that those who did not become boating specialists reported more life course disruptions and changing leisure interests, particularly in the earlier stages of life when one is faced with the challenges of marriage, child bearing/rearing, career development, and financial security. The results also showed that aging was not significantly related to most specialization indicators. Even though older people were more likely to sell their boat, many found it a time in their lives to reinvigorate their boating interest and participation. A relatively “stable” and less complicated life appears to be the best predictor of specialization.
Hyperextraction, path dependence and community: social transformation and land use change in Western Kansas

During the 20th century, Kansas has experienced several boom and bust cycles influenced by forces such as the general social transformation of rural America, the performance of the US economy and the process of global integration. While metropolitan areas and their hinterlands in Eastern Kansas were able to diversify their economies, the socioeconomic development of rural areas in Western Kansas became inherently linked to agriculture and resource extraction industries. Utilizing the Kansas portion of the High Plains Aquifer made large scale irrigation possible, enabling many communities to withstand climatic variation, unfavorable demographic trends and economic restructuring, but at the same time it resulted in a resource dependent development path. This dependence, in relation with global processes such as international migration and the emergence of global commodity chains, determines how natural resources and land are now used in the region.

This paper introduces a cross-disciplinary, system-level approach to examine socioeconomic transformation and land use change in the context of dependent development patterns in Western Kansas. We investigate land use patterns, economic trends and population dynamics over time, and discuss how the current trends are linked to community capacity and related to long term sustainability. Our research indicated that population growth in rural Kansas is closely linked to water availability. At the same time, the industry structure built on groundwater reserves is characterized by the dominance of immigrant labor. Hence, areas in better situation with respect to water reserves still have to face the challenges of changing population structure. Dramatic and sudden changes in population composition require significant community capacity to address successfully, and not all communities are equally equipped for this task. Successful integration of new population groups, including the understanding of their culture regarding land use, is a key factor in creating a more diversified and thus more sustainable economic structure and social organization which can mitigate the negative impacts of globalization. Our paper discusses the emergence of dependent development patterns in Western Kansas, examines the subsequent social, economic and land use changes linked to community level policy making.
Using residents’ attachment to home and community as segmentation base for exploring their propensity to engage in protection activities

The importance of engaging residents of the wildland-urban interface in wildfire education and planning activities is becoming increasingly important for agencies attempting to minimize the impact of wildfire on life and property. In spite of this, there is evidence to suggest that elements of communities at risk remain ambivalent about threats arising from wildfire. In an effort to identify these populations, we segmented residents living within the wildland-urban interface surrounding Cleveland National Forest in San Diego County using indicators of their attachment to their home and community. Our working hypothesis suggested that those most attached would be most inclined to engage themselves in activities designed to protect these settings from wildfire. Our data were collected from a random sample of residents lying within a .5 mile zone surrounding the National Forest (n=721 @ 33% response rate). Our segmentation procedure (K-means cluster analysis) produced six distinct segments varying in the type and intensity of attachment. We then explored variations across segments on indicators of their attitudes and propensity to engage in both home and community protection activities; i.e., mechanical thinning, prescribed burning, the creation of defensible space, firewise construction, and participation in community-based programs. We observed a number of variations across segments on these indicators. We also plotted the identified segments to spatially represent their location around the forest. These findings have the potential to assist agencies working to educate and better prepare residents for wildfire. Using residents’ attachment to home and community as a segmentation base can help these agencies identify at–risk communities and better target educational programs that assist residents’ efforts to minimize impacts of wildfire on their homes and communities.
As nature based tourism continues in increase in popularity, more rural destinations are becoming part of the tourism landscape. These regions are often unsuited to economically profit from the tourism industry. Because of their lack of capital, education, and familiarity with the tourism industry, rural areas are often reliant on more developed urban areas for capital, expertise, and promotion. This dependency commonly results in the people of the rural area receiving only a small percentage of the money spent on rural tourism, as most of the money is siphoned to urban areas (Britton 1982, Farver 1987, Milne 1987,). This “leakage” of money can prevent the rural area from developing economically. Rural areas in developing countries often have even greater trouble keeping tourism dollars in the community as the lack of capital, education, and familiarity is particularly acute in these regions (Tosun 2000). While leakages have been extensively analyzed, it is unclear if leakages will increase or decrease as the tourism industry develops in a village, and there is a need to further research the means to effectively reduce leakages.

This paper draws on fieldwork performed in six rural villages in Northern Thailand during the fall of 2006. This paper addresses three objectives: one, to identify the obstacles that the rural villagers face when trying to profit off of the tourism industry; two, to analyze what traits may lead to high leakages; and three, to identify strategies that may decrease leakages. Quantitative surveys were performed on every business that served tourists to determine that business’s leakage, and thus the total leakage of tourists’ dollars from the village. This data was then used to compare the villages’ total leakage to the level of development in the villages to analyze how economic development effects leakages. In addition to the guided surveys, informal interviews with key stakeholders in the tourism industry were performed to identify the particular obstacles that the rural villages face when trying to participate in the tourism industry. Finally, this paper examines three strategies, currently employed by the villagers, that may lower leakages and evaluates the effectiveness of these strategies.
Continue or discontinue place identity on a fragmenting landscape: Examining the effect of landscape change on place identity

Place identity and related concepts which explore the human-environment relationship within a specified geographic context are gaining popularity in natural resource management. It has been suggested that individuals may not be conscious of their feelings to a place until there is a threat of change. Research has been devoted to defining the concepts and examining their effects on behavior. However, a theoretical understanding of how environmental change impacts these psychological constructs and related behaviors has not been adequately addressed. The study to be presented is part of a dissertation to examine the effect of perceived landscape change on the relation between place identity and behavior. A structural model depicting the hypothesized associations among perceptions of landscape change, three dimensions of place identity, and behaviors taken to preserve or change the identity was developed based on identity control theory (Burke 1991 & 2004). The model will be tested on a sample of private landowners in the Texas Hill Country where significant landscape change is taking place.

A questionnaire has been developed and includes the measurement items for the latent variables in the model. All the items are worded to reflect the context of landowners’ identity associated with their property in the Hill Country and will be measured using 7-point scales. A survey will be mailed to 900 landowners in the area during February and March in 2007. The sample was selected using stratified random sampling based on three property size strata. Data will be analyzed based on covariance structure analysis using LISREL. Model fit will be evaluated by χ² tests and model fit indices. The effect of perceived landscape change on the three dimensions of place identity and behaviors will be examined using invariance tests. Respondents will be categorized into two groups based on how much landscape change is perceived to be problematic to their property. Chi-square differences in the paths of the structural model between the groups will be examined to determine if significant effects of perceived landscape change exist on the relationships between dimensions of place identity and behaviors. Implications of the findings for open space conservation will be discussed.

Reference
At the Intersection of Market, Landscape and Culture: an Investigation of Rural Youth’s Adaptation and Visions of Resilience in Mongolia

Since the 1990s, when Mongolia switched from a centralized communist economy to one based on the free market, the country has experienced much change. Changes in the economy have reverberated through the society and have impacted practices involving landscape use as well as the Mongolian pastoralist culture.

This paper investigates how Mongolian youth negotiate their life plans vis-à-vis a post-communist political and economic milieu. The opportunities and challenges encountered by youth at this particular intersection of market, landscape and culture are much different than what previous generations have dealt with. The pursuit of greater educational opportunities requires people to go to larger centres to access them. Alteration of the practices involving the pasturelands as well as environmental changes impacts the continued viability of the pastoralist way of life. Youth and their parents comprise a large number of those undertaking migration to larger locales and as a consequence, their decision to leave impacts not only themselves but also the community which must cope with a shrinking population base.

The data for this paper comes from a 2006 study involving 928 surveys and 13 interviews with mostly youth from a rural Mongolian community that is coping with significant out-migration due primarily to a dearth of educational and employment opportunities. A compelling theme emerging from the data is the belief that (access to) a good life can be found in Ulaan Baatar, the capital city and largest urban area, despite the knowledge that the city is overcrowded and that jobs are not always plentiful. The findings shared in the presentation are both quantitative and qualitative, focusing on the data that most clearly explains the ways in which Mongolians, especially the youth, are imagining, preparing for, and currently adapting to the changing economic and environmental conditions of living in a pastoral community in the middle Gobi desert.
Adaptive governance of Antarctic tourism: a policy analysis

Antarctica is a global common, governed by the Antarctic Treaty System (ATS). In the past fifteen years tourism in Antarctica has grown substantially, with tourist numbers increasing from 2,500 to more than 30,000. In the same period the Antarctic governance system has seen a number of developments, most notable the adoption of the Environmental Protocol in 1991 (entered into force in 1998), which sets forth the rules for environmental protection of all human activities in the Antarctic Treaty area. The International Association of Antarctica Tour Operators, founded in 1991, manages the commercial activities of its members based on self-regulations and guidelines, in close co-operation with national science programmes and under endorsement of the ATS. Nevertheless, in recent years a growing concern arises among policy makers and academia on the robustness, effectiveness and consistency of the current Antarctic tourism governance regime.

Building on recent insights on adaptive governance of socio-ecological systems (Falke et al. 2005) and robust polycentric governance of common pool resources (Ostrom 2005), this paper will analyse the academic literature and policy documents on Antarctic tourism management and regulation produced during the past fifteen years. The following research questions will be answered:

• What constitutes the current Antarctic tourism governance regime; how has it developed during the past fifteen years; and what are the main criticisms it has generated?
• How can the principles of adaptive and robust polycentric governance be applied to the two Antarctic tourism (self)-regulatory regimes; and why is this important?
• How can the coherence and adaptive capacity of Antarctic tourism governance be enhanced?

In this paper it is argued that improving coherence and adaptive capacity of the current governance regimes is necessary for a sustainable development of tourism in Antarctica. Improvements are suggested, including the development of a shared problem framing, the development of a common future vision and strategy, the integration of knowledge and experience through an open dialogue between stakeholders, and the legal framing of a range of self-regulatory measures currently employed by the tourism industry.
Investigation of park satisfaction – Links to demographics, past experience, norms, and quality in Florida State Parks

The purpose of this study is to examine the relationship between satisfaction and related concepts that influence the strength of satisfaction in a state park setting. Based on literature review, it is hypothesized that park visitor satisfaction is explained by demographics, past experience, norms, and service quality. Demographics included age, income, residence, and gender. Past experience included the first-time/repeat experience and the level of past use. Norms included three indicators: crowding, conflict and value. Finally, service quality was measured by five factors: Quality of natural setting, staff, information, supporting facilities, and recreational facilities.

Twenty-five Florida State Parks were selected for the sample based on geographical districts and park features. The survey was administered four times during a one-year period. A total of 12,114 surveys were returned for a 40% response rate. A sequential multiple regression analysis was performed to analyze the data.

In order to predict satisfaction, demographics were first entered into the regression equation which resulted in a significant relationship in visitors’ satisfaction. Then, past experience was added to the equation. Significant variance in satisfaction was explained by past experience. Including norms in the equation also significantly contributed to the prediction of satisfaction, yielding an incremental R2 of .22. Finally, the analysis indicated that significant variance in satisfaction was explained by service quality yielding an incremental R2 of .07 for an estimated total of 31% of explained variance using the adjusted R2 for the full model. The regression weights demonstrate that value was the strongest predictor followed by natural setting and support facilities. Income, the level of park use, crowding, and recreational facilities were also significant predictors of satisfaction.

Overall, norms and service quality were major predictors of satisfaction. If visitors perceive value and low crowding, they are more likely to be satisfied with their park experiences. It also implies that visitors are more concerned about the quality of park environment, cleanliness of restrooms, parking, and several recreational facilities. The findings from study can also be used by the Florida Park Service for pinpointing deficiencies and improving visitor satisfaction.
Matching expectations to on-site experiences: An application of expectations-disconfirmations theory

Expectation-disconfirmation theory (EDT) has been used to research leisure satisfaction. The main tenet of EDT is that people match expectations to experiences and from this comparison, they appraise their satisfaction. The constructs of expectations, disconfirmations, and satisfaction fit the dynamic nature of a multiphase leisure experience: anticipation, travel to destination, on-site experience, return trip home, and recollection phases. Real-time disconfirmations (the interactions between expectations and on-site experience) that may predict the levels of satisfaction have not been intensively researched.

This study examined the experiential process of a backpacking trip by capturing the on-site disconfirmations as well as pre-trip expectations. The study also investigated the on-site satisfaction along with satisfaction in the recollection phase. On-site disconfirmations and satisfactions were captured at two different points of time in order to track any potential shifts during leisure experience. The sample was 155 Grand Canyon overnight backcountry hikers 2005-2006. Four questionnaires were administered from pre-trip to on-site and to post-trip phases. The pre-trip questionnaire asked expectations for nine domains of setting conditions and seven domains of preferred experiences. The two on-site questionnaires that asked levels of achievement on the domains were completed on the first and the last night of the hikes, respectively. The post-trip questionnaire asked participants to recall satisfaction.

The results of the repeated measures of ANOVA showed that on-site disconfirmations were largest the first night compared to the last night. On last night of the on-site trip, participants’ experiences generally matched the expectations for most of the domains. The on-site satisfaction also changed accordingly from moderate satisfaction on the first night to high levels of satisfaction on the last night. Larger disconfirmations on the first night resulted in moderate satisfaction, but smaller disconfirmations on the last night resulted in higher satisfaction. The highest satisfaction was the recalled global satisfaction. Path analysis showed that although on-site disconfirmations had direct effects on the on-site satisfaction, they had no effects on recalled global satisfaction. The results implied that people recollect their past experiences more favorably than their actual experience. These results support the “rosy view” hypothesis discussed in literature in social-psychology.
The exploration on the progression of users' benefits in a forest setting: a qualitative perspective

Many researches related to environmental perception and environmental preference have indicated that people tend to prefer natural environment; and people will have a positive experience in the planted environment. The pioneer study adopted qualitative approach to extract and analyze experience factors for natural environments. The findings indicated that through the whole experience of natural environment and cognition process, some major outcomes and benefits are generated, such as 'obtaining knowledge and experience', 'influencing attitude and behavior', 'generating psychological benefit', and 'generating health benefit'. Those data suggest a fairly orderly progression in the appearance of various benefits.

The study also emphasizes in-depth exploration on users' experience benefits and suggests a progressive response of benefits of the natural environment experience. The ordering of these benefits suggests that there may be a dependence of each successive benefit on those that preceded it. In other words, the benefits appear to build on each other. On the cognitive-behavioral dimension, the fist category of benefits is an awareness of the relationship between the individual and the natural environment. The followed category of benefits is the changing of attitudes and behavior such as respecting environment and protecting resource. On the psychological-healthy dimension, the fist category of benefits is an appearance of the sense of relaxation and tranquility in a being-away natural setting. The followed category of benefits is the improvement of psychological and physiological states (health).

Through implementation, this study explored the progression of human being's experiences, perceptual responses and benefits on natural forest settings. Ideal landscape planning and design guidelines and a clearer insight on the mechanism of users' benefits in natural settings would be provided for landscape professionals and researchers.
The effect of off road vehicles on water quality and benthic macro invertebrates on five stream crossings on the Angelina National Forest in Texas

The impact of Off-road and Off-Highway vehicles on stream quality was evaluated using benthic macroinvertebrates, physicochemical, habitat and statistical analyses on 5 stream crossings on the Angelina National Forest in Texas. Sites were monitored once monthly for twelve months. Sites were selected based on evidence of high previous use by off road vehicles, principally dirt bikes and ATV’s. Thirty chemical and benthic parameters were examined both upstream and downstream of each crossing. In non of the cases was there a significant difference between upstream and down stream measurements of water quality, turbidity, sedimentation, or aquatic life suggesting no impact on aquatic life or the chemical parameters from current ORV activity. The trail crossings were on well established trails. Visual observation indicated that erosion and sedimentation had occurred at an earlier date suggesting that trails become stabilized over time.
Leong, Kirsten M, Cornell University/National Park Service, USA

The tragedy of becoming common: Landscape change and perceptions of wildlife

Since 1970, more Americans have lived in suburbs than anywhere else in the country, and exurban development is now the fastest growing residential sector. At the same time, changes in land-use practices and conservation efforts have increased numbers of many wildlife species. As a result, wildlife are adapting to urbanizing settings and to humans. People are encountering wildlife more frequently with varying reactions to the interactions, often leading to conflicts over suburban wildlife management. One species demonstrates the conundrum well—white-tailed deer (Odocoileus virginianus). The National Park Service administers a number of parks in suburban areas that experience impacts related to deer. In-depth interviews conducted with residents living near three parks yielded insight into community perceptions of deer to better understand these conflicts. Interviewees’ evaluations of their experiences with deer appear strongly influenced by both frequency of encounters and deer behavior. Deer were described more positively when perceived as rare versus common and wild versus tame. Yet cultural conceptions of “wildness” were based on deer behavior in the absence of humans rather than adaptive ability. This study suggests that the coexistence of people and deer in urbanizing landscapes creates a positive feedback loop: when deer are rare and “wild,” people actively seek encounters; deer become habituated when people are unthreatening, which lowers their fear response and brings them into contact with people more frequently; people become habituated to deer as they become less novel and act less “wild”; habituated deer cause undesirable impacts to people; a level of human tolerance of negative impacts is exceeded where deer are no longer viewed as wildlife, but as pests. Just as Roderick Nash describes wilderness as a “state of mind,” so too is “wildness” in wildlife. The extent to which humans and wildlife continue to coexist may depend on the ability of our cultural conceptions of “wildness” to keep pace with the rate at which wildlife adapts to anthropogenic landscape change.
Community-based natural resource management and tourism partnership in Botswana: which way forward?

This exploratory study examined the effectiveness of Community-based natural resource management (CBNRM) and partnerships as strategies for promoting community involvement in environmental conservation and sustainable use of resources for tourism and extractive purposes within Sankuyo Tshwaragano Management Trust (STMT) in the Okavango Delta area and the Chobe Enclave Community Trust (CECT) in Chobe District within Botswana. The key research questions were: 1) What forms of CBNRM and tourism partnerships are associated with specific outcomes within the designated areas? 2) How effective are community-based natural resource management and tourism partnerships in the designated areas in realizing desired policy and community goals? 3) What are the major challenges and issues facing CBNRM and tourism partnerships in Botswana?

The key findings are: 1) Partnerships in the form of joint-ventures, contractual sublease and management arrangements were more effective in promoting conservation, creating greater appreciation of natural resources, promoting safari hunting and tourism, and in generating revenues for local communities; 2) joint-ventures, contractual management arrangements, and hunting subleases can enhance the local capacity to manage natural resource, control tourism development and ensure efficiency and equitable distribution of revenues under certain conditions; 3) the STMT established arrangements that enabled it to be more involved in the management and distribution of benefits from its own community tourism businesses and joint-ventures with private sector operators within its CBNRM area. Unlike CECT, STMT seems to have increased its capacity by investing some of its revenues in income generating tourism ventures and sponsoring its students to undertake business management, marketing and tourism career related courses within the country; 4) STMT had special programs to provide support to the elderly and community residents in need; and 5) Both CBRNM organizations face many challenges and issues including lack of budgeting processes, weak financial control and management systems, insufficient tourism related skills, no active involvement in resource monitoring, lack of a common vision, planning, and a sustainable strategy for natural resource management. Based on the findings, we propose a specific partnership model for effective CBNRM and tourism development to be tested in Botswana and similar areas.
Stepping outside the NEPA box: Changing the rules of engagement for local participation at Yosemite National Park

National Parks are open systems embedded in their organizational environments, yet park managers have historically focused their attention within park boundaries and failed to civically and socially engage local communities. The limited engagement park managers have with local communities is typically park-centric such as: formal National Environmental Policy Act (NEPA) mandated public involvement processes, or “park partnerships” designed to disproportionately benefit the park. This study explores transboundary community and social capital building at Yosemite National Park (YNP) in central California, USA. Scholarly review of public participation in natural resources management has focused on NEPA mandates, alternative dispute resolution, partnerships, and collaborative management while ignoring the implications of resource managers simply being good neighbors. This study begins to fill that gap by highlighting institutional changes in the National Park Service (NPS) and their influence on local public participation.

YNP managers are reaching out to local community members to: increase communication, dispel rumors, and build trust. Based on three years of participant observation of park outreach programs and 50 in-depth key informant interviews with park staff and local community participants, this study concluded that YNP has created and strengthened transboundary networks and expanded local community participation in park programs, including individuals from underrepresented populations. The study found two main factors leading to increased local public participation: 1) an institutional organization that openly encourages interaction with local community members; combined with 2) changes to where, when and how public outreach is performed. These results offer a new institutional model for NPS managers that more fully engages their organizational environments, and provides public lands managers with options to change the nature of public participation during standard operations.
Socioeconomic Monitoring for Community-based Marine Protected Areas in American Samoa

Throughout the Pacific, the establishment of a network of marine protected areas (MPAs) has become a stated priority. Under the goals of the US Coral Reef Task Force and Micronesia Challenge, Pacific Island nations and territories have agreed to establish MPAs in twenty to thirty percent of near-shore marine habitat. Attention to the human dimensions of MPAs is acknowledged as a priority by the governments and international NGOs involved in these efforts, and a number of guidelines and protocols for socioeconomic monitoring have been developed to assist protected area managers in this practice. However, limited local training and capacity exists in socioeconomic monitoring, and knowledge regarding human interactions with the marine environment is generally limited during the establishment of new MPAs. This poses a range of challenges for effective MPA management.

In American Samoa, eight community-based marine protected areas have been recently established, the majority of which are co-managed with the American Samoan government. This presentation provides an overview of a training program on socioeconomic monitoring conducted with the multiple agencies involved in American Samoa’s community-based marine protected areas, presenting the outcomes and challenges from the training and pilot surveys. Particular attention is given to the role of socioeconomic assessment and monitoring as a tool for community-based MPA management in American Samoa, the potential extension of these tools for use the islands’ existing federal and territorial MPAs, as well as the use of socioeconomic tools in the establishment of new MPAs that are planned within the region.
Service Models for Culturally Diverse Customers

Customer service is a concern to a variety of industries including the park, recreation, and tourism sector. Because of the demand for responsiveness and high quality service from government agencies, customer service has emerged as an important issue in park and recreation management. This issue has been identified repeatedly as a mandate in the public sector. In addition to serving domestic populations, the growing international nature of diverse visitation to park and recreation areas, points to the need to understand how to host and educate diverse customers. The purposes of this study are two fold: (a) to test a proposed service model for culturally diverse customers in a park and recreation setting and (b) to examine the stability of model through three subgroups including Hong Kongers, Mainlanders and Anglos.

During 2005 - 2006, we surveyed visitors to the Pokfulam Country Park near metropolitan Hong Kong. Using a systematic random selection approach and purposive sampling at sites known to be heavily used by visitors with diverse ethnic backgrounds, we obtained a sample of 253 Hong Kongers, 153 Mainland China Visitors, and 233 Anglos (overall N = 702).

Data allowed us to present a structural model with six constructs including culture, experience, crowding, service quality, satisfaction and behavioral intentions. The results showed acceptable validity and reliability of measures in the constructs across models. The structural equation modeling analysis revealed that the effects of culture on the marketing factors (i.e., service quality, satisfaction and behavioral intentional) were much stronger than the effects of culture on recreational factors (i.e., experience and crowding). Further analysis of the three subgroup models showed acceptable model fits as revealed in the overall model. Findings suggest managers should provide programs tailored specifically to culturally diverse visitors to help them enjoy their trips so as to promote a place where the diverse cultural groups can be best served. Discussion of the findings and research implications are suggested.
Sustainable Tourism Strategies on Fish Farming Area along Taiwan’s Southwest Coast: Comparison of Residents and Experts

Coastal areas are rich in ecosystem, culture and abound with recreational resources. The southwestern coast of Taiwan has a long history of fish farming. However, the utilization of current land and industry development needs to be reorganized and relocated, due to the overuse of groundwater and stratum. Residents and experts might have different views and perspectives on these issues. This study considers the sustainable development of local assets, economical aspects and conservation of ecological resources. Based on environmental, economical, and social dimensions recommended by UNEP and WTO, this research suggests the transitional strategies of Taiwan’s southwestern coastal fish farming areas. Literature review and expert focus group further identified three goals and 55 action strategies. Importance-feasibility analysis was utilized to evaluate the different priority between residents and experts. The findings showed that the strategies of environmental sustainability and social sustainability were both considered to be high important and high feasible. While the strategies of economical sustainability was considered to be less important. The experts put more importance in environmental and social sustainability than residents, while residents had higher important values in economical sustainability. Both of experts and residents thought feasibility of social and economical were higher than environmental strategies. It implies that costal conservation and community participation are two major issues when developing local tourism. In fact, natural environment, social, and industrial developments are intertwined, either from the perspectives of collective or individual strategic goals. Therefore, when coastal communities develop sustainable tourism, they should not only include a certain aspects or only emphasize a few strategies.
Stakeholder Views toward Biomass Harvests and the Bioproducts Industry in Maine

The emergence of bioproducts industry that can augment and/or replace petroleum-based products is seen as a critical step in transitioning the U.S. economy toward energy independence and a more sustainable, renewable resource-based future. Interest in developing a bioproducts industry in Maine is growing given the state’s abundant forestlands and need for sustainable economic development, particularly in resource-dependent rural areas. The social acceptability of bioproducts is distinct from its technological feasibility and ecological sustainability – all of which are critical to the ultimate success of the industry. As bioproducts harvest and processing technologies move into the implementation stage, support from stakeholders including forest landowners, the forest products industry, the interested public, and the general public is critical. A baseline understanding of stakeholder knowledge and beliefs relative to their acceptance of a bioproducts sector was identified as key in both planning and the outcome assessment aspects of development. We conducted a systematic analysis of the many stakeholders that will affect and be affected by the emergence of a bioproducts industry in the state. Our goal was to identify areas of concerns, willingness to accept, and other constraints to landowner, industry, and public support. We did this through a mixed methodology approach of newspaper/literature content analysis and qualitative interviews with key individuals. Our preliminary findings will present these results embedded within lessons already learned from the rich “social acceptability of forestry” literature. The seminar will also discuss the policy, education, and framing implications of bioproducts research and industry development. This material is based upon work supported by the National Science Foundation under Grant No. 0554545.
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Mekbeb E. Tessema, Environment and Society, Utah State University
Dale J. Blahna, USDA Forest Service

Using secondary data to describe community-resource linkages for Utah’s Grand Staircase-Escalante National Monument

Many rural communities are highly dependent upon nearby public lands for a variety of goods and services. These range from forest products and livestock forage, to a wide range of recreational opportunities. Such community-resource linkages are particularly important in the rural West, where local economic dependence on public lands is particularly acute due to limited private lands, marginal productivity, limited economic diversification, and high levels of social and economic isolation. Public land management agencies face a number of mandates to consider the effects of management on local communities. While agencies have historically done a good job of considering biological and physical impacts of alternative management options, many agencies lag far behind in their analysis and use of social science data when it comes to understanding the impacts of resource planning decisions on local communities. In this paper we demonstrate how existing secondary data can be used to describe community-resource linkages in and around Utah’s Grand Staircase-Escalante National Monument.
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Destination image of Sun Moon Lake National Scenic Area, Taiwan

Sun Moon Lake National Scenic Area (SMLNSA) is a famous tourism destination in Taiwan and attracts nearly three million visitors annually. Most foreign visitors visiting Taiwan would visit SMLNSA. Destination image has been shown to be an important influence in the selection of vacation destinations. The purpose of this study was to find the destination image of SMLNSA from foreign tourist point of view. Results of previous visitor survey indicated that most foreign visitors of SMLNSA came from Japan, Mainland China and United States of America. Thus, the 15 destination image items in the questionnaire were collected from portal sites in those countries and tourism resources of SMLNSA. The questionnaire was translated into Japanese, simplified Chinese and English. The hotels were chose as survey sites. The results of this study showed that most of foreign visitors highly agree with that SMLNSA is a place of beautiful nature scenery (5.28/6), but slightly agree it is a place with very convenient transportation (3.92/6). Two destination image factors were extracted by factor analysis, namely: diverse recreation activities and various facilities, and relaxing atmosphere and beautiful scenery. The destination image of foreign visitors from English speaking countries, Japan and Mainland China are significantly different. The foreign visitors from English speaking countries and Mainland China are more agree with that SMLNSA is a place with diverse recreation activities and various facilities than Japanese visitors. Mainland Chinese visitors are more agree with that SMLNSA is a place with relaxing atmosphere and beautiful scenery than Japanese visitors.
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Bau-Show Lin, Department of Horticulture, National Taiwan University

Economic impact of the firework festival at Sun Moon Lake National Scenic Area in Taiwan

Sun Moon Lake is one of the most popular scenic areas in Taiwan. Thousands and thousands of people come to visit here every year especially during the firework festival, and tourists’ expenditures contribute economic benefits to the host city, Nantou County. Objective of this study was to assess the economic impact on Nantou County during the firework festival at Sun Moon Lake National Scenic Areas (SMLNSA) by input-output analysis. The data were collected by the survey conducted on-site with tourists at major scenic spots of Sun Moon Lake National Scenic Area during the firework festival in 2005. The National Technical Coefficients Matrix was adjusted by location quotients to derive a Local Technical Coefficients Matrix of Nantou County and was used in this study. The results show that average expenditure during the trip is 2,099 NTD per individual traveler and brings 2,518 NTD economic impacts, and per group traveler spends 2,559 NTD and brings 3,086 NTD. The results of I-O analysis also indicate that the firework festival in 2005 tourists’ expenditure of 213.9 million NTD generates 256.7 million NTD of economic impacts and 9.2 million NTD of income. These results reveal that the firework festival at SMLNSA brings huge economic benefits to the host city even held just a short period every year.
Economic impacts of Taroko National Park, Taiwan

Taroko National Park is famous for its landforms, ecological resources, and aboriginal culture. These unique attributes attract lots of people to visit the park every year. Tourist expenditures during the trip can bring direct and indirect economic impact and increase income and employment in the host community. The purpose of this study was to estimate the economic impact of tourism on the Taroko National Park and the nearby community using an input-output analysis. Those tourists visiting Taroko National Park were chosen as sample. The results showed that average expenditures in Hualien are 1,961 NTD and 7,038 NTD respectively for every individual traveler and group traveler. On average, each individual traveler bring 2,642 NTD and each group traveler bring 9,475 NTD economic impact to the local economy. As the result, tourists of Taroko National park in 2006 bring 4.43 billion NTD economic impacts to Hualien, and 324 million NTD to Taroko National Park and host community. Total tourist expenditures also generate 1.75 billion NTD income effect to Hualien and 142 million NTD to Taroko National Park and host community. According to the results, it is suggested that economic impacts of national park festival events should be assessed. Since environmental conservation is the most important objective of national park, low environmental impact ecotourism is strongly suggested for future national park management to bring more economic benefits to the host community.
The aboriginal tribe’s attitude toward promoting ecotourism in the Taroko National Park of Taiwan

The purpose of this study is to investigate the residents’ attitude towards ecotourism and their acceptance of the proposed management methods in the Taroko National Park of Taiwan. The administration office of the Taroko National Park is promoting the cooperation relationship with the local residents—the aboriginal tribe—on the ecotourism program. The plans include promoting the ecotourism in the national park, training the tribe people to be the interpretator of the national park, encouraging the community’s participation.

The Sunzen village, an aboriginal tribe in the Taroko National Park, were selected as the investigation site. The investigation work includes the census of each household, the in depth interview with the administration officers and opinion leaders in the village. A content analysis followed with the note of the in depth interviews were adopted and the depicted conceptual codes were then used to develop a structural questionnaire. The questionnaire include 6 sections, the understanding of the ecotourism, the self-recognizes of their own tribe, etc..

By the on site investigation, 646 residents were found and 23 selected samples were in-depth interviewed. From the interview, the residents are more concern on the issue of the education of their tradition and historical cultural of their tribe, the education of the communication and cooperation methods with the NGO and government administrations, diminishing the differences in education and income level, and improving the communication opportunities in this region. 96 samples completed the questionnaire. Most of the residents are willing to promote ecotourism in this area and to cooperate and accept necessary limitations on their daily life or pay their effort (money and time) on it. Furthermore, they have foreseen the possible impacts due to the development of the tourism and will like to take it. However, they still think the economic development is more important than the protection of the resources and the purpose of development of the ecotourism is making more money. They also feel proud of their cultural tradition, the hunting, the cloth weaving, and the traditional face tattoo. And they do welcome professional assistants on promoting their culture.

Differences were found between in-depth interview and local residents questionnaire survey. It represents the different cognitions between administration officers and community people, possible reasons were discussed.
Boomers and Pre-Boomers: Recreation and Migration

There is substantial interest in the Baby Boomer generation due to its size and the conventional wisdoms that “boomers” are both wealthier and healthier than previous generations at this stage in their life. Oregon State Parks sponsored a statewide survey of 1,219 Oregon “boomers” (born 1946 to 1964) and “pre-boomers” (born 1926 to 1945), covering current and expected recreation patterns, recreation motivations, and factors affecting migration decisions. Survey results provide insight regarding the role of natural landscapes in migration decisions and the impact of demographic transitions on recreational use of these landscapes.

Detailed results will be presented, including respondent forecasts of recreation participation patterns 10 years into the future. There is inherent uncertainty in forecasts, but they allow recreation managers to provide for expected future participation patterns rather than for past patterns (this follows the logic of the Wayne Gretzky quote: “I skate to where the puck is going to be, not where it has been”).

With respect to broader results, data indicate that boomers feel younger than they are, though this is even more true for pre-boomers. Evaluations of past changes in overall recreation participation and comparisons across age groups within the sample support the traditional concept that recreation participation declines with age. However, respondents clearly expect their participation to increase over the next 10 years, both overall and, on average, with respect to individual activities.

In terms of migration, some factors affecting migration are out of human control (e.g., climate). Nonetheless, the most important factors are landscape-oriented and can be managed to varying degrees. These factors include beautiful scenery and outdoor recreation opportunities, which are affected by local, state, and federal land management agencies.
Measurement and quantification of factors affecting acceptance capacity for white-tailed deer in southern Michigan

Wildlife professionals across North America recognize the need to integrate ecological and human dimensions information to meet the challenges of changing stakeholder demographics, expectations and activities. Despite this support, a lack of standard methods to quantify social information which complement existing biological data and relate meaningfully and directly to wildlife management decisions has left managers struggling to consistently apply social data to local and state management decisions. We suggest management that sets objectives based on acceptance capacity for a species, through a clear understanding and incorporation of stakeholder perceived impacts (important positive and negative outcomes of interactions with wildlife, as valued by humans), may better align management objectives with socially-desired outcomes, producing more acceptable wildlife populations.

The objectives of this study were to use model selection processes to identify factors that have the greatest effect on acceptance capacity for white-tailed deer, and compare perceived impacts and subsequent acceptance capacities for deer among 3 commonly identified stakeholder groups (hunters, farmers and rural residents that neither hunt nor farm). We present findings from 21 semi-structured interviews and a mail questionnaire sent to 3,392 residents of a mixed agricultural-forested landscape with increasing residential development. Frequently considered stakeholder characteristics (such as demographics, tenure on the landscape, and stakeholder group) related poorly to acceptance capacity, whereas perception of impacts explained a majority of variation in acceptance capacity for deer. Non-hunting, non-farming rural residents, a stakeholder group of increasing size and influence throughout the range of white-tailed deer, perceived a suite of impacts distinct from those perceived by hunters and farmers. We offer management strategies based on acceptance capacity, through incorporation of stakeholder-perceived impacts, applicable across the range of white-tailed deer and to the management of a diverse suite of wildlife populations.
The Southwestern Market for Big Game Hunting Permits and Services: A Hedonic Pricing Analysis.

According to the 2001 National Survey of Fishing Hunting and Wildlife Associate Recreation (NSFHWAR) a total of 595,000 individuals hunted big game in the states of Arizona (81,000), Colorado (231,000), New Mexico (112,000), and Utah (171,000) in 2001 (NSFHWAR 2001). In terms of big game hunt days, individuals spent 860,000 days in Arizona, 1.6 million days in Colorado, 711,000 days in New Mexico, and 1.3 million days in Utah for a total of 4.47 million hunt days during the 2001 season. Expenditures for big game hunting in each of the southwestern states were also substantial; with U.S. residents spending a total of $121 million in Arizona, $210 million in Colorado, $101 million in New Mexico, and $187 million in Utah in 2001. In all, $619 million was spent on big game hunting in the region for the 2001 season. Although the bulk of big game hunting days are still spent of public land, between 1991 and 2001 there was a noticeable increase in the number of days spent big-game hunting on private land (Mozumder et al. 2004).

Although traditional non-price allocation mechanisms, such as lotteries, still serve as the primary permit allocation tool, state-supported market based private big game hunting permit distributions are common in the southwestern states. This paper presents a hedonic pricing analysis of the market for specific big game hunting transactions in the four corners region (i.e., New Mexico, Colorado, Utah, Arizona).

Multiple hedonic models were estimated under a variety of specifications to calculate implicit prices for a vector of attributes that comprise the observed hunting transactions data our findings indicate that transactions including private permits are significantly more valuable than comparable transactions where only public permits are available. This finding underscores how valuable state game resources are and suggests that southwestern game management agencies must continue to make strides in the areas of public access, habitat preservation (restoration), anti-poaching efforts, and game herd health (i.e., the prevention of chronic wasting disease).
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Level of Specialization and Place Attachment of Anglers in Taiwan

Level of specialization has been used to explain variation in attitudes, preferences for facilities and settings, and environmental attributes. Recreation specialization may associate with feelings about places and outdoor recreation activities. Recent research showed that recreation specialization has been associated with individuals’ attachment to a place. Therefore, the purposes of this study were two fold: (a) to examines the level of specialization among anglers and their attachment to scenic east coast in Taiwan, and (b) to examine if there is an association between level of specialization and their attachment to scenic east coast.

Recreation specialization was a five dimensional scale including level of experience, skill level and ability, centrality to lifestyle, enduring involvement, and equipment and investment. Place attachment scale included 15 items representing the place identity and place dependence dimensions. In July and September 2006, we surveyed visitors to the scenic east coast near Hualien, Taiwan. Using a systematic random selection approach and purposive sampling at sites, we obtained a sample of 283 anglers.

The results showed that (1) three level of specialization were identified, (2) three place attachment dimensions were identified and named: place dependence, place identity, and centrality to lifestyle and (3) high experience level, high skill level, and high centrality to lifestyle tend to be associated with the place attachment dimensions, however, anglers involvement and expenditure level had no association with the place attachment dimensions. Implications for environments and outdoor recreation management were discussed. Suggestions and recommendations were made for practice and future research.
Framing Farming: Wisconsin Dairy Farmers As Stewards of the Land

Dairy farmers employ multiple frames and identities in the praxis of producing milk. This paper focuses on the cognitive schemata and identity creation of the farmer as land steward. Further analysis also includes frames of maximizing production, feeding the world and keeping food affordable. Data from the 2006 Life Satisfaction and Dairy Farming survey of Wisconsin dairy farmers show that both type of farm system and involvement in specific farm organizations have significance in the frames and identities used by farmers. Despite the contested public perception and debate of the impact of different dairy farm systems on the land and environment, farmers from all types of farm systems to varying degrees indicate the importance of being a steward of the land in their operating narrative or frame. The importance or relative weight of this frame of farmer as land steward differs significantly by involvement in farm organizations. The quantity and quality of dairy farms in Wisconsin has important implications for the economy, for communities, for families, and for the land. This research will be helpful in understanding farmer frames and motivations in the praxis of farming.
Natural resources on Tennessee's Cumberland Plateau: a survey of residents' values

In the process of governance, political power has often become the primary tool for influencing decisions. Objective information about public values and interests regarding natural resources and their use and conservation is often incomplete, biased or simply not available. Democratic governance requires that natural resource agencies, public officials, natural resource stakeholders, and the public at large have a good understanding of these values and interests. This paper identifies the values and interests residents of Cumberland, Fentress, Morgan and Scott Counties in Tennessee have regarding selected endangered species and their habitat. This region of Tennessee has experienced increased interest in economic development and environmental protection in the last decade. Using a mail survey, residents’ values and the relative strength of these values were identified regarding the use and protection of natural resources linked with threatened and endangered species. Residents in this area indicate strong conservation values and moderate use(non-recreation) values, and expressed preferences for policy strategies involving education and regulation. Adding to what is already known about the multiple values that people hold regarding natural resources, the obtained information can help those involved in the governance process better understand how to address the use and conservation of natural resources in the study area.
Looney, Chris, Environmental Science Program/PSES, University of Idaho, USA
Shannon Donovan, Environmental Science Program, University of Idaho
Yaniria Sanchez de Leon, PSES, Soils Division, University of Idaho
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Sanford D Eigenbrode, PSES, Entomology Division, University of Idaho
Michael Jennings, University of Idaho
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Nilsa Bosque-Perez, PSES, Entomology Division, University of Idaho

Linking social and biophysical conservation perspectives in an endangered ecosystem: the Palouse as a model

The Palouse region of southeastern Washington and adjacent Idaho is a working landscape dominated by agricultural production, with less than one percent of the original bunchgrass prairies remaining. Government agencies and conservation groups are beginning efforts to conserve Palouse prairie remnants, but lack critical information about attitudes and perceptions among local landowners toward biological conservation. The location and condition of native biological communities is also mostly unknown.

We integrated biological survey data with social data from interviews and participant mapping exercises to look for relationships between the biophysical and social landscapes of the Palouse. We combined GIS layers of participant-identified ‘special places’ with maps of native biological communities to identify overlap (and lack of overlap) between ‘special places’ and areas of high biological diversity. These maps and interview narratives were used to address the following questions:

1. Where is native biodiversity concentrated on the Palouse?
2. Where are socially important places in the Palouse?
3. Why are some locations socially important?
4. What overlap exists between biodiversity and socially important areas?

We found that biological diversity is spread across the Palouse, frequently in tiny, species-rich remnants that are privately owned. Socially important places encompassed all parts of the Palouse, including agricultural areas, urban centers and undeveloped properties important for recreation and natural experiences. Prominent geographic features of the Palouse that support large, species-rich biological communities tended to be important to stakeholders for multiple reasons, and may be useful starting points for conservation efforts. This study will be useful to government agencies and conservation groups seeking to craft conservation strategies that consider the breadth of stakeholder perceptions and their connection with the Palouse landscape. This study also demonstrates how GIS tools can be used to link biological and social data sets to aid conservation efforts on private land.
Reframing “peak” oil: uncovering the social, technical and organizational forces behind oil depletion

The purpose of this project is to situate the problem of “peak” oil and energy depletion within its historical and cultural context. As environmental sociologists have shown, our particular social context affects not only which problems we recognize, but how knowledge itself is produced about these problems. Oil depletion is no exception, although many scholars and policy-makers merely accept energy limitations as a looming fact, without questioning the social context of these “facts.” I will be extending sociological work on the social construction of the “environment” to the problem of oil depletion, paying close attention to how the problem is “framed” or imagined by various public actors. Multiple perspectives converge on the issue of technology and development, with widespread appropriation of the idea of “green” or “sustainable” development. Disagreements hinge not on whether new technological developments are desired, but on which areas are most promising. The most imposing historical and cultural force framing the issue of oil depletion stems from a reliance on expert scientific and technological thinking. A techno-scientific mentality with an emphasis on management and policy pervades current approaches to the problem of oil depletion. Individuals and communities that find themselves at the margins of this knowledge-system have little imagined room to directly address their own energy problems, leaving them with no other choice but to appeal to a higher authority. The problem of “peak” oil needs to be reframed to include its social, technical and organizational context, in order to open-up the possibility of questioning the techno-scientific mentality that currently limits potential (local, smaller-scale) courses of action.
Measuring and Comparing the Public’s and Scientists’ Perspectives on Conservation Values

The Highlands Conservation Act of 2004 (H.R. 1964) mandated a comprehensive review of five conservation values throughout Pennsylvania’s Highland region. A major component of this assessment was the gathering public input to both identify places of high conservation value and the perceived threats to those places. To gather this information, we made use of key informant interviews and facilitated group discussions. A formal set of questions was used to conduct all interviews and standard protocols were used in each facilitated group which included multiple mapping exercises. Concurrent with these efforts to gather the public’s perspectives, a panel of scientists was convened to gather and use secondary data to identify highly important areas for conservation. This paper reports on these processes and presents comparative findings from both approaches. The data indicate that the public is very capable of highlighting such areas and need to be involved in such processes in the future is clearly evident.
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Will it Still be Appreciated? Nature-Based Recreation and Future Landscapes – A Case Study in Mueritz National Park (Germany)

Introduction
In most of Central European National Parks, inside core zones, remnants of untouched nature are strictly protected, while in development-zones “tomorrows wilderness” will be established. In some parts, management is still allowed to secure high biodiversity resulting from traditional land use.

Research Area
Mueritz National Park is situated in the North-East of Germany, 100 km north of Berlin. It was established in 1990. Management actions of the park authorities are: Forest treatment to increase the speed of change in artificial pine plantations towards natural broadleaf dominated stands, allow natural processes in older forests, restoration of wetlands and a less intense agriculture, where landscape is supposed to be kept open for biodiversity. These goals might have severe impacts on landscape.

The region is affected by huge socio-economic changes. Traditional forms of employment diminish while nature-based tourism has become an important economic factor in the region.

Research Questions
- Which sceneries are seen to be attractive in Mueritz National Park and how is landscape perceived?
- What changes in landscape can be expected in the future?
- Do these changes affect the attractiveness of the park?

Methods
Prediction of Landscape Changes
- Using Delphi-method for agricultural land
- Simulating the development in forests with the growth model “SILVA 2.2”, developed at the Institute for Forest Growth at Munich University

Scenic Preferences and their Perception
- Interviews with passers-by

Expected Results and Aims
By bringing together these results, it is possible to name a possible loss or improvement of scenic quality in the future. Goal of the study is to be able to realize possible conflicts due to landscape changes before they emerge. Based on this information, Mueritz National Park authorities plan to initiate a dialogue process with various user-groups and stakeholders. Also the park management can be adapted. The study can also be seen as an example for other regions facing similar developments.
Influence of markets on the structure and composition of northern Appalachian hardwood forests

Over the last 135 years timber harvesting has continually influenced the composition and structure of the Northern Appalachian forest. Market activity during this period can be separated into four eras characterized by patterns of timber removal and natural regeneration. Between the end of the Civil War and the Great Depression, the lumber industry harvested a large portion of the mature softwood and hardwood inventory. In several areas timber was processed by large mills that could deplete local timber supplies in less than a decade. These overstory removals resulted in even-aged stands containing high proportions of shade-intolerant and mid tolerant hardwood species. During the Great Depression, timber harvesting decreased and marginal farm lands were abandoned and allowed to revert to forests. Mill size declined due to scarcity of timber and subsistence cutting for localized markets became common. During World War II cutting intensified to meet the needs of wartime and post war markets but mill size remained small. After World War II, the furniture industry became the dominant user of hardwood lumber and diameter-limit cutting became widespread. Such harvests left partial overstories, thus favoring the regeneration of shade-tolerant species and the development of stands with uneven-aged structures. In 1973, the adoption of floating exchange rates ushered in an era in which higher quality hardwood materials were exported. Domestic demand for hardwood products also increased in the 1980s and 1990s. Sawtimber demand resulting from these events further promoted partial harvest based on quality and species. Today, the Northern Appalachian forest often exhibits a varied structure and composition that reflects a diverse history of market induced disturbance at a time in which the nature of this disturbance appears to be again changing.
Historical changes in the riparian habitats of Labrador’s Churchill River due to flow regulation: the imperative of cumulative effects assessment

This paper reviews an investigation into existing and potential cumulative effects of large-scale hydroelectric development on the riparian habitats and cultural landscape of Labrador’s Churchill River (Mishta-shipu).

There has been little documentation or analysis of the ecological effects associated with the Churchill Falls project, one of the largest hydroelectric facilities in the world, built during the 1960s and 70s. It flooded over 6000 km2 of traditional Innu territory, destroyed one of the world’s largest waterfalls, dewatered several rivers, and artificially regulated 75% of the flow through the lower Churchill River. Additional dams are now planned that would dramatically transform the remaining river valley.

In order to better understand the patterns of change in riparian plant communities throughout the watershed, a combination of observations made by local Innu and Métis elders, historical accounts by travellers and scientists, historical and recent photographic imagery, and research from other boreal regions affected by hydroelectric development has been examined, along with recent botanical surveys.

The concerns of local Innu and Métis elders were key in guiding the focus and direction of the research. They shared an empirical knowledge based on their use and observations of the river corridor over time, as well as their perspectives on the personal and cultural significance of changes in the riparian landscape.

The species richness and structural complexity of riparian plant communities has diminished under all types of artificial flow regulation including storage reservoirs, control reservoirs, former spray zones, reduced flow, and downstream reaches. Local elders who participated in this study all believe that large-scale hydroelectric development has had severe and unacceptable effects on the riparian landscapes in the region. Land use along several affected river corridors, as well as traditional knowledge that developed within these riverine landscapes has already been eroded by the Churchill Falls project. However the lower river valley continues to maintain substantial ecological and cultural value that would be lost with the construction of additional dams.

The paper examines how interdisciplinary cumulative effects assessments can contribute to the way that society makes decisions about large-scale economic activities that create extensive and long-term ecological change.
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Integrating cumulative impact assessment into state environmental review programs

Following the establishment of National Environmental Policy Act of 1969 (NEPA), many states in the US have adopted environmental review (ER) procedures and created “NEPA-like” programs. State ER procedures direct state agencies, and in some situations local authorities and private parties, to analyze the potential environmental impacts of proposed development projects and natural resource management activities. Despite a rich literature on federal practices, little is known about state ER including the legal requirements, administrative processes, and effectiveness of ER practices. Even less is known about protocols for measuring the combined, incremental cumulative impacts of proposed projects. We compare state ER policies and practices through a review of enacted state legislation and agency rules followed by a survey of state ER program administrators, staff, and project managers. We investigate the legal and administrative frameworks of ER for each state including an examination of cumulative impact assessment (CIA) procedures. This examination informs our assessment of CIA practices, through which we identify the barriers and potential of incorporating CIA into state ER processes. We find that 15 states have an ER program, but that the comprehensiveness of each program varies considerably. An additional 18 states have adopted ER procedures for certain types of projects, but the stringency of procedures varies. The remaining 17 states have no formal requirements opting instead to regulate environmental impacts through state permitting programs at the discretion of the individual permitting agencies. We present survey results on perceived barriers to and potential for ER implementation and the development of CIA procedures. We also discuss implications for state policy development, including efforts to improve ER and CIA practices in states with ER requirements and develop model legislation that could be adopted by states without ER requirements.
Visitor evaluation of the night sky in Bryce Canyon National Park and Cedar Breaks National Monument

Natural lightscapes are an important resource for many natural areas, including Bryce Canyon National Park and Cedar Breaks National Monument in Utah. Both of these locations afford visitors many interpretive program opportunities. At Bryce Canyon, stargazing and astronomy programs were attended by over 28,000 visitors in 2006, essentially equaling the remainder of all other interpretive programs combined. To better serve their visitors, parks need to understand what drives this public interest and expectation. Additionally, the National Park Service is making an effort to restore dark skies through visitor education and interpretive opportunities. In 2006, during the summer and fall seasons, 1179 visitors to Bryce Canyon and Cedar Breaks completed a thirteen-item survey. The main items appraised attitudes involving night skies and the perceived benefits of night sky viewing. Surveys targeted two populations: day use visitors and those taking part in a night sky related program. Visitors engaging in a ranger-led interpretive program on stargazing valued the importance of the resource more than day users, t(1147) = -4.70, p < .01. In general, day users of the parks viewed the night sky as an opportunity to enjoy nature and to be alone, while night users perceived the night sky as an opportunity to better understand the universe and spark curiosity in science. Results also indicate the night sky and associated stargazing programs are more important to the travel plans of Bryce Canyon visitors than Cedar Breaks visitors, t(1146) = 3.628, p<.01. In sum, the results show visitors to Bryce Canyon and Cedar Breaks have positive attitudes towards night sky visibility and the interpretive opportunities in the parks. Nearly all respondents (99.4%) identified a national park, a local park, or a wilderness area as a preferred location to stargaze. Visitors clearly value this important resource and benefit from the programs dedicated to light pollution and the interpretation of the cosmos.
Treadmill of Destruction and Monticello, UT: A Case Study of Uranium Milling, Popular Epidemiology, and Community Empowerment

In this presentation, I will discuss analyses of interviews with a Monticello, Utah, grassroots activist organization, called the Victims of Mill Tailings Exposure (VMTE). Between 1942 and 1960, Monticello was home to Monticello Mill, a government-owned and -operated facility which processed uranium. Even after the mill’s closure, four large uranium tailings piles were left at the south end of town until their removal by the EPA’s Superfund project in the mid-1990s. Now, residents contend that Monticellans are experiencing elevated rates of cancer, respiratory ailments, kidney and renal failure and other health problems due to their exposure to the mill and its tailings, though government scientists deny such claims. I worked closely with the VMTE group and conducted in-depth interviews with the members, as well as a detailed documentary analysis of letters to the editor from the (local) San Juan Record newspaper. With these invaluable sources in hand, I use a grounded theory approach, with Schnaiberg’s Treadmill of Production (1980) theory informing my analyses, to develop a picture of what happens to the fabric of a rural community when the health of its residents are jeopardized and when patterns are perceived in such health complications. Furthermore, I examine the precarious role of the federal government in this situation, trying to negotiate community well-being with national security concerns. In this presentation, I will examine the role the state, especially the military, plays in circumstances involving uranium milling and its connection to the Treadmill of Destruction theory put forth by Hooks (2005). In addition, I intend to explore effects on the community, trust in government at all levels, and the ethical implications of such interconnections.
Environmental education and outreach as a component of successful ecosystem restoration in the Cache River Wetlands

Current experience with ecosystem management and restoration projects in the United States suggests that communication, education and outreach initiatives promote public awareness and ecosystem values. Establishing a protected area in a rural region of low income and low educational attainment places additional responsibility on natural resource agencies and non-governmental organizations to engage and empower local residents. Agencies involved with ongoing preservation and restoration of the internationally recognized Cache River Wetlands in southern Illinois, for example, need to build community capacity to sustain these efforts. A 2000 social survey of southernmost Illinois area residents, however, found that race and how far one lives from the wetlands complex were related to restoration activity awareness. Respondents were residents of small, rural communities located in three of the poorest and most racially diverse counties in Illinois. Study findings suggest that African-American residents in general were less aware of the wetlands complex as well as onsite programs and services offered at the wetlands-associated federal wildlife refuge, such as enjoying and learning about nature. Furthermore, this lack of awareness most certainly implies lack of participation in planning or decision-making processes. We propose that education and outreach programs targeted at area youth will be necessary to address previous omissions and effect permanent change. We describe an initial effort to explore how low income and minority southern Illinois youth view and interact with nature. The themes, relationships, and patterns identified through qualitative analysis will serve as the foundation for recommendations to local natural resource professionals and educators who seek a more inclusive approach to ecosystem restoration.
Preventing catastrophic change to the western landscape: federal-state fire management and suppression coordination

According to National Interagency Fire Center statistics, the 2006 wildland fire season was the worst on record. Extensive wildfires in Oklahoma and Texas that occurred in January and February contributed significant acreage to the 2006 total. Issues of forest health and fire suppression on public lands are once again receiving the glare of public and media attention. Open lands in the western states, however, exhibit a mixed pattern of multiple ownerships. Incursion of residential development into forest and grassland buffer areas, referred to as the wildland-urban interface (WUI), requires collaborative interagency strategies in the face of large wildfire events. How best to coordinate fire protection measures in the WUI has emerged as a major concern of local, state, and federal agencies responsible for fire management and suppression. Telephone interviews of state foresters and/or public lands commissioners from twelve western states were conducted to determine how state officials assessed the effectiveness of federal fire preparedness, fire suppression, and federal-state coordination of decision-making and response. A typology of federal-state working relationships was developed and related to extent of fire, percent federal lands, and political culture of each state.
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Sense of place: A Case Study of the Buckeye Forest Council

This paper examines the role that a sense of place can play in environmental advocacy. The analysis integrates the organization behavior and sense of place literatures to examine how organizations define, create, and capitalize on a sense of place. Using qualitative research methods, this case study of the Buckeye Forest Council, a nonprofit organization active in southeastern Ohio, provides an in depth look at how a nonprofit organization has utilized a sense of place to achieve its organizational mission. Results indicate that using education, inspiration, and advocacy, the Buckeye Forest Council has both created and successively utilized a sense of place for the protection of state and national forest lands throughout Ohio. Of the strategies and techniques used by the Buckeye Forest Council, the group’s quarterly newsletter Martha’s Journal, their Timber Monitoring Program, and the annual Buckeye Gathering emerged as particularly effective for creating and utilizing people’s sense of place.

This research into how organizations create and capitalize on a sense of place in environmental advocacy and public participation provides an important contribution to our understanding of place-based natural resource decision-making. Resource managers and citizens increasingly are embracing the fact that land management success often hinges on the ability of multiple stakeholders to not only acknowledge each other, but also to consider their role and place within a larger ecosystem. Stakeholders are coming to recognize that nature is a socially constructed concept that is framed by experience bound to a local setting. Stakeholders and managers alike are coming to understand that within each physical context is a sense of place that guides behavior and action. This multidisciplinary research into how organizations create and capitalize on a sense of place provides an important contribution to our understanding of place-based natural resource decision-making.
Landscape change and planning in coastal North Carolina: applying a model of long-term landscape change to Currituck County

Currituck County, North Carolina, is the northeastern-most county in the state. It includes a peninsula of mainland, a large swath of the Currituck Sound, and a stretch of coastal sand banks. Barely above sea level, the ecology of the landscape has long been prone to change. The threat of sea-level rise is a critical issue in this low-lying landscape. Still relatively remote, the landscape is now under the serious threat of urban development from Norfolk, Virginia as well as the coastal sprawl endemic to the Outer Banks. One of the most significant interventions proposed for this sensitive area is a seven-kilometer bridge across the shallow sound connecting the mainland with the coastal dunes. Critical resources in this coastal county include wetlands, estuaries, maritime forests, sand dunes, and the associated biota.

Using a specific method of modeling long-term landscape change, this paper lays out a method of understanding natural and anthropogenic landscape processes simultaneously. These processes include the geomorphology of coastal areas, wetland ecology, climate change, and human interventions. The long-term landscape change model examines keystone processes at both long-term (>1000 years) and short term (<10 years) scales. Such an analysis is necessary for the county to envision and plan a sustainable future.
Evaluating Group Process and Its Relationship to Group Outcomes

Consensus-based approaches to decision-making are hypothesized to be more effective, because they promote better communication of perspectives, more creative responses, and stronger commitment to implementation. Most of the research on this topic has examined consensus-based groups using case study and survey methods, which presents methodological problems because there are no control groups. This paper discusses the findings from an evaluation of local government advisory committees as a type of stakeholder-based decision process. The study involved a survey of 713 advisory committee participants using a modified approach to Dillman’s (2000) tailored design method. The survey generated 488 responses from individuals on 83 different committees, with a total response rate of 70%.

The purpose of this paper is to summarize the different methodological underpinnings of this evaluation and highlight some of the findings that may assist other evaluation efforts. In particular, analysis of the results reveals several findings that may help other researchers evaluating collaboration cases, including: (1) self-defined group “accomplishments” are primarily measuring group products, (2) the predictive capacity of context and process variables varies depending upon how you define group results, (3) decision rules of groups have limited predictability on group results, and (4) several process variables are consistent predictors of group results.
Comparing environmental concern and activism in regions in Germany

While research on environmental concern suggests its presence globally, an ongoing debate seeks to uncover the social forces underlying its expression. Recent research posits that the sources of concern for the environment are context-specific, driven by subjective values in some contexts and by objective conditions like pollution in others. Such studies are limited however in the analytical strategy selected to explore the hypothesized relationships. This research builds on previous work and examines the correlates of environmental concern and environmental activism in regions in Germany as a test of proposed differences rooted in context. In brief, analyses examine relationships between subjective and objective sources of attitudinal and behavioral aspects of environmental concern, expressed as environmental political activism.

While some similarities are apparent across regions, some notable differences exist that require further exploration. On the one hand, results generally point to similar patterns regarding the social forces underlying environmental activism, as the effects of previously identified individual-level predictors of activism largely work through other variables, specifically general concern for the environment and behavioral intentions considered to demonstrate a willingness to sacrifice for the environment. On the other hand, however, the absence of attitudinal influences in eastern Germany challenges the notion that subjective values influence concern for the environment similarly in developed countries, a notion proposed in recent research. Exploration of whether objective conditions influence environmental concern and activism, linked specifically in the case of former East Germany with the legacy of the communist system, allows for examination of the context-specific hypothesis noted above. These analyses build on the subjective values results described previously, allowing for context-specific differences in environmental conditions to be elucidated and the exploration of hypothesis from recent cross-national research to be explored in more depth. Differences between the competing explanations will be described, and implications of this research are to be discussed.
Are the Determinants of Trust Similar Across Contexts?

Trust is widely believed to be a key feature underlying citizen support for government and governance and their participation in various aspects of the political process. The forces underpinning it are not well understood, however, at different scales and directed toward specific institutions and organizations. In this research, we explore whether levels and sources of institutional trust are linked with context in two ways: in terms of national boundaries and with regard to comparisons between rural and urban areas. This research explores the determinants of trust in environmental groups and government departments as mechanisms through which individuals express environmental attitudes as pro-environmentally related actions. We explore these relationships in nineteen countries using general population survey data, emphasizing a comparison of rural and urban contexts within Western industrialized and former state socialist countries. Investigating the dynamics underpinning trust cross-nationally extends prior research, recasting the focus to underscore the global importance of environmental issues. While some similarities can be discerned, notable differences also exist. Policy implications are discussed.
Experiencing the landscape through a rose tinted lens

Our understanding of how people actually experience landscapes, why people hold the landscape values they do, and under which circumstances, are often based on assumptions made from a generalized and static position. One must be careful of this ‘view’, which neglects the influence of what people are doing, and how they are moving, within the landscape.

However, capturing the complex nature of landscape experiences and values – especially visual, non-visual and mobile aspects – demands innovative methods. Our approach develops and tests various combinations of new and established techniques for collecting and analyzing dynamic visual, audio and observational data. These include indoor semi-structured interviews, outdoor ‘go-along’ unstructured interviews, participant observation, and review interviews using headcam video data as a prompt, to study how a variety of walkers and mountain bikers experience the landscape. We evaluate the efficacy with which different combinations of such tools can provide valuable insight into different dimensions of landscape experience: social interaction, the playing out of particular identities, motion and practices and how landscape experiences and values are influenced by these.

This research is extended to include application of this methodology to understanding how access rights are enacted: what values, norms and practices can be identified as important in producing the boundaries between acceptable and unacceptable recreational use and behaviour? How are they negotiated, contested and codified? How do formal and informal institutions of access combine to influence behaviour in the enactment of access rights? What are the respective roles of legal and moral authority in shaping land use practices? We will investigate these questions with reference to Scotland’s two recently designated National Parks and their respective access strategies.
The impacts of tourism on biodiversity hotspots: research opportunities and dilemmas.

Tourism is growing rapidly and is one of the world’s largest industries. It is clearly linked to biodiversity-rich biomes, such as tropical rainforests and coral reefs, and destinations with abundant collections of birds, fish and/or mammal species or novel and unusual species. As such, high levels of tourism and biodiversity often occur together. The maintenance of biodiversity then becomes critically important for tourism as well as a suite of other reasons. Little is known however about the complex interactions between tourism and biodiversity. This paper explores the opportunities and dilemmas in researching this interface and the associated interactions.

A significant and under-researched opportunity is exploring the potentially symbiotic (positive) relationships at this interface and moving beyond a previous focus on conflictive (negative) interactions. Another opportunity is developing a transdisciplinary approach to understanding the relationship between tourism and biodiversity integrating environmental, social and economic concerns. An associated challenge is the different paradigmatic locations of ecologists, sociologists and economists, both within and between these disciplines. Two other dilemmas are confusion over the definition of biodiversity and a lack of knowledge about ecosystems and how they function. Both have the potential to impede research efforts. The paper concludes by recommending some future possibilities for researching this important interface between tourism and biodiversity hotspots.
Educating for Environmental Collapse: The Re-birth of Tragedy

The emergence of environmental collapse as a topic of contemporary social commentary suggests it is becoming legitimated as a social concern (Diamond, 2005; Wright, 2004; Kaplan, 2000). Environmental collapse, with respect to natural and cultural goods, creates situations of moderate to severe scarcity. Environmental educational theory, as presently conceived and implemented, does not prepare citizens and society for regional or global environmental collapse. Its' ethical framework, a rights-based conception of distributive social justice, is suited only to conditions of relative scarcity (Mather, 1993). Martha Nussbaum's landmark work (1986), The Fragility of Goodness: Luck and Ethics in Greek Tragedy and Society, outlines an ethical framework, informed by ancient Greek notions of tragedy, which appears to offer a means for citizens and society to address situations of environmental collapse. This ethical framework is founded on an understanding that life circumstances can force choices between equally unpalatable options and it provides a means for understanding and addressing such circumstances, to the extent this can be done. If environmental collapse is a concern, then the ethical framework Nussbaum describes is a good structure upon which to found environmental educational theory.

The central theme of this paper is encapsulated by the concluding sentence of The Club of Rome's Limits to Growth Report: "The crux of the matter is not only whether the human species will survive, but even more whether it can survive without falling into a worthless state of existence (1972, p. 200)." This is more than a comment about how environmental collapse can leave humanity lacking the basic material means of human flourishing: it's a comment about how our acts can so diminish our ability to appreciate the goods of human flourishing, that it can be better to not survive. Accordingly, this paper is driven by two questions. Can we prepare our society and citizens both to confront the horrors of collapse and remain viable participants in a social democratic sense? If so, what characteristics must we engender in our citizens and society to make this possible?
Scenarios as a tool to identify values and define cultural landscape objectives

The rapid change of cultural landscapes is a topic in Europe. The European Landscape Convention (ELC) is a sign for the increased political awareness regarding the loss of landscape diversity.

A conscious landscape development requires landscape quality objectives. Tools have to be developed to identify the values of landscapes and the preferences of landscape users. Scenarios are an appropriate tool as they are capable to provoke the debate about landscape changes, preferences and action alternatives.

On behalf of the German government an interdisciplinary expert group developed cultural landscape scenarios for Germany in 2030. In our contribution we present the methodological approach to develop and to picture scenarios.

In texts and collages we developed scenarios that present conceptual images of how landscapes could look like in 2030, based on foreseeable trends, uncertain but possible developments and options for societal action in order to pursue landscape objectives. These scenarios are neither predictions nor are they forecasts - they are stories that transform information into thought experiments.

As a framework for the scenarios we defined fixed and variable factors. Fixed factors are the globalization and the demographic change, which plays an important role in Germany. These two are fairly foreseeable trends which are backed by many forecasts. Second, we defined the economic development (as a function of a multitude of dependent factors, like mobility or resource use) and the intensity of governance as relevant variable factors. We combined these in a quadrant model to derive four spaces of landscape development and futures. In each quadrant we thus got examples for a possible cultural landscape in 2030.

The scenarios were then depicted visually by the creation of collages out of contemporary and historical picture fragments. This visual projection of the future complements the narrative component of the scenario texts and aims to fuel the debate.

Scenarios prepared in this way are tools to develop cultural landscape objectives. They provoke questions about possible future landscapes, societal preferences and action in order to achieve these objectives.
Estimating the implicit costs of adopting Hybrid-Electric and Hydrogen Fuel-Cell Vehicles due to Dynamics in Consumer Preferences

Discrete choice research and modeling has been successfully applied to measure behavioural trade-offs in natural resource management. Our study extends the application of this technique to capture dynamics in Canadian consumers' preferences for two new vehicle technologies under different market assumptions: The hybrid-gas electric vehicle and the Hydrogen fuel cell vehicle. Our study comprises of two national stated-preference surveys, and the results support the relevance of a range of vehicle attributes beyond purchase price in shaping consumer preferences towards clean vehicle technologies. They also corroborate our hypothesis that the degree of market penetration of clean vehicle technologies is an influence on people’s preferences (‘the neighbour effect’). The understanding of such consumer behaviour is important for policy makers to design effective policies that increase the uptake of environmentally sustainable technologies over the long-run.
Supplementing Tennessee's Regulatory Framework through Habitat Conservation Planning

The Cumberland region of Tennessee has low population levels, a moderate climate and extensive forests and waterways of rich biodiversity and scenic beauty. These characteristics are increasingly a magnet for tourism, recreation and residential development. Rapid land development in regions lacking appropriate institutional capacity to steer and manage such activities often results in negative social, environmental and/or economic impacts. A Habitat Conservation Plan (HCP) is being developed in the region as a planning tool to help balance development and conservation activities. In developing any new institutional tool like this HCP, it is important to first understand how existing policies are shaping the decision environment. This study reviews the regulatory framework relevant to threatened and endangered (T&E) aquatic species in Tennessee, gathering perspectives from multiple agency and NGO informants on key implementation challenges and limitations. Informants expressed concerns that current implementation will not be adequate to protect species in the face of increasing pressures on water resources, citing problems related to 1) fragmentation and uncertainty in decision-making 2) political pressures affecting permitting decisions, 3) adversarial dynamics among participants, and 4) lack of enforcement mechanisms. Potential benefits of an HCP and how it might address some of these problems are discussed.
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Has Smokey really taught the public that all fire is bad?  Science findings on public views of fire and fuels management - myth versus reality.

Discussions about social issues of fire management often place a significant portion of blame for the problem on a particular segment of the population. Urbanites, "new" people, and seasonal residents are often portrayed as being less informed about the fire risk and therefore less supportive of proactive fire management efforts. However, these views, that are presented as fact, are actually unproven conventional wisdom that can mislead rather than inform. Studies of public perceptions of fire management have found little consistent evidence that any one segment of the population - whether urban or rural, old or new, seasonal or permanent—is more or less informed about the fire hazard or has a distinct set of views when it comes to fire management. In some cases, the conventional wisdom may actually be counter to reality. This presentation will discuss a number of examples where research findings do not support the standard story and discuss possible explanations for why reality differs from conventional wisdom.
Taking over the reins: trends, challenges and opportunities of changing property ownership for NRM

The rural rebound has been established as an important international trend. In Australia, there has been some significant research examining the emergence of post-productivist landscapes as part of the rural rebound. To the extent there is a rural rebound we can expect higher levels of change in rural property ownership. However, there has been no Australian research specifically examining trends in rural property ownership and the implications for natural resource management (NRM). To explore this topic we have analysed data from state government property sales records and spatially-referenced data we have collected through surveys of landholders across large regions in three Australian states.

Our research shows evidence of a substantial and increasing rate of change in rural property ownership. In our most recent study, 50% of properties surveyed are predicted to change ownership in the next ten years, doubling previous rates identified from the analysis of property sales data. In this study, almost all recent property owners have lived in the district for less than ten years, suggesting that most of the predicted change will result from new residents moving into the area rather than family succession or existing owners purchasing properties.

Newer residents are significantly different from existing landholders. They own smaller properties, are less likely to be farmers by occupation or members of local watershed organisations. Newer residents value their properties more for habitat and less for income from agriculture. Differences in property management are also evident with newer residents less likely to adopt most sustainable farming practices. The trend to increased property turnover and the extent of differences between new and longer-term residents have important implications for watershed management agencies. Managers will need to adopt innovative engagement approaches to accommodate the different values, capacities and information sources of new residents.

These trends are likely to have wider implications for government policy. For example, drought policy assumes that landholders who lived through the most recent drought will apply lessons learned when they encounter the next drought. If half of all rural properties change hands in the next ten years there will be many who have not experienced drought when the next drought occurs.
Demand for water in Queretaro, Mexico: A study of the willingness to pay for piped water services

This paper presents an example of the use of the contingent valuation (CV) method to calculate the economic value of water services. We examined the demand for water supply improvements in the city of Queretaro, Mexico, where the government is considering the construction of a new water supply system to provide water. However, the new hydraulic infrastructure and the improved water supply services will cost a significant amount of money to the city. It is therefore of interest to know the economic value of having improved piped water services in this city.

The methodology employed in this paper follows Briscoe et al. (1990), Goldblatt (1998), Whittington D. (2002) and Whittington et al. (2002) who estimated the willingness to pay for improved water supply services using the CV method. The data used in our analyses were collected with two in-person surveys of Queretaro’s households.

In the surveys we asked residents if they would be willing to pay a certain amount of money for an improved water supply system that provides them with water 24 hours a day and that is good enough to drink straight from the tap. We used this question to estimate the willingness to pay for the improved water services and know the factors that affect the residents’ preferences for the improvements.

Our results show some of the first evidence from Mexico that residents living in poor areas are willing to pay a significant proportion of their income for private piped water services in their households. This information can be used to build a pricing scheme according to the residents’ socio-economic characteristics and to calculate cash flows of the benefits derived from the water supply improvements. Using conservative criteria, our estimates suggest that the total economic benefits for an improved water supply system sum to 42.9 million Mexican pesos (approximately 3.8 million US dollars) per month.

References

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Investigating the influence of personal values and perceptions on beneficial land management practices in the Canaan-Washademoak watershed, New Brunswick

In New Brunswick, much of the riparian land is in private ownership; thus, individual land management practices have a large influence on the ecological structure and function of adjacent watercourses. The literature has linked socio-psychological variables, including values and perceptions as precursors to individual behaviours. The objectives of this research are to determine the relationship(s) between landowners' personal values and perceptions and their land management practices. A mail-back survey was administered to 611 private residential and recreational riparian properties in the Canaan-Washademoak watershed. The Total Design Method for delivering effective surveys was followed and a 53% response rate was obtained. Preliminary results indicate that landowners (1) hold strong scenic, familial and recreational values for their property and the region; (2) perceptions of a high level of individual stewardship; and (3) high levels of engagement in beneficial land management practices. Further analysis will determine the correlation(s) between the socio-psychological variables and behaviours and the mediating affects of sociodemographics (eg. age, gender, income, education). An increased knowledge of the socio-psychological drivers of behaviour will lead to a better understanding of the landowner barriers to adopting beneficial land management practices. Consequently, public education and policy initiatives can be more effectively developed to promote improved land stewardship, ultimately creating and maintaining healthy riparian and aquatic ecosystems.
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Treating the land: Tennessee farmers' adoption of conventional and alternative soil amendments

While conventional farming practices are frequently implicated in natural resource controversies and blamed for negative environmental outcomes, other farming practices, such as the adoption of various alternative soil amendments, can aid in the solution of environmental problems. Several non-conventional materials, such as environmentally safe manufacturing waste (e.g., gypsum wallboard from mobile home manufacture), can provide potential benefits to farmland, environmental quality (e.g., decreased soil erosion and improved water quality), manufacturers (e.g., reduced disposal costs) and communities (e.g., increased life of existing landfills). The objective of this study was to determine farmers’ experience with and willingness to use various soil amendments, including conventional and alternative materials, particularly those involving the beneficial re-use of manufacturing waste products. A mail survey of 2200 farm owner/operators in the state of Tennessee was conducted in the spring of 2006 (final n=1,001; response rate of 50% after removal of ineligible respondents and incorrect addresses). This paper reports on farmers’ past and current use of, perception of, and willingness to use various soil amendments. Using the theoretical guides of the Theory of Reasoned Action, the Diffusion Farm-Structure Model, and the Alternative-Conventional Agricultural Paradigm, we test alternative factors behind farmers’ willingness to use conventional and alternative soil amendments.
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Forests dominate Pennsylvania’s landscape. Most of those forests are privately owned, nearly 70% or 12 million acres. Unlike public forestlands which are managed by public mandate for multiple-use, private forests are managed independently for diverse objectives by their respective owner(s). Understanding what motivates and guides management decisions on private forestlands is the first step toward protecting the myriad ecosystem services provided to all Pennsylvanians by those lands. Past research efforts to understand private forest landowners have depended on opportunistic samples or, if drawn randomly from the populations of owners, are small samples that frustrate segmentation or sub-regional analyses. This paper outlines a methodology employed to conduct a state-wide survey of forest lands and landowners that will enable the development of targeted and focused service, outreach programming, and collaborative community interactions. A large, county-based sample was drawn randomly for every county in Pennsylvania, save Philadelphia County, for a total of 13,200 private forest landowners. A mixed method approach was taken to explore a variety of private forest issues including the disposition of standing timber, ownership patterns and tenure, harvesting history, ownership objectives, recreational access, informational pathways, general understanding of ecology and forestry, and landowner attitudes, and perceptions of harvesting, cooperation among landowners, and impacts of regulation and development. Patterns of parcelization and fragmentation were explored in counties where GIS parcel databases were available; the first panel mail-survey has been conducted; and site visits to a subset of respondents’ properties are underway.
Quantitative evaluation of crowding and conflict perception in an urban forest park, Japan.

In our rapidly aging society, it is expected that demands for natural recreational areas nearby residential areas will increase, leading to an increase in the number of visitors. The types of visitor activity and visitor behavior are expected to vary, to include, for example, bicycling, jogging, wild plant picking, and dog walking. In such areas, this diversification of activity combined with an increase in visitor numbers is expected to detract from the recreation experiences the park should provide. The Nopporo Forest Park is designated as a natural park and, as such, the park is required to provide scenic beauty and a natural experience. However, as it is located close to Sapporo, which has a population of approximately 1.89 million, the park also serves as an urban park.

The purpose of this study was to estimate visitor preferences toward activity types and congestion in a natural park located close to a big city, using an image-based stated choice approach. Developed images depicted different usage levels of various activity types (walking, bicycling, jogging, wild plant picking, and walking with a leashed or unleashed dog) and different numbers of users. The experiment was administered on site to 401 park visitors. Visitors were asked to rank three images in their preferred order. Data provided by 322 of the 401 visitors was analyzed using econometric models.

The quantitative results suggest that, compared with the most common and usual activity of walking, certain activity types and behaviors have considerable influence on recreation experience. In particular, wild plant picking and dog walking were found to increase perception of crowding by 4-fold. Moreover, the socio-demographics of visitors influenced their perception toward different activity types and behaviors. These findings suggest that park managers can greatly improve recreational experience by controlling undesirable visitor activity and visitor behavior.
Decisions regarding the use of natural resources often lead to controversy, especially if people’s livelihoods are directly affected by the outcome. This was certainly the case in Idaho with the wolf reintroduction in the 1990’s. The wolf reintroduction in Idaho and Yellowstone National Park received a tremendous amount of press coverage and captured the rapt attention of people in Idaho and around the country. As Tichenor, Olien, and Donohue suggested, a community’s structure is often reflected in media coverage, especially when that coverage concerns conflict. The purpose of this study is to determine if community structural pluralism played a role in framing press coverage of the Idaho wolf reintroduction. This paper reports qualitative content analysis of two newspapers in Idaho: the Idaho Statesman, the state’s largest daily newspaper and the Recorder Herald, a small weekly covering Salmon and Lemhi County, Idaho. The concept of structural pluralism suggests that smaller communities’ newspapers are more heavily influenced by only a few power brokers in a community and that they may be more reluctant to report conflict. Our analysis suggests that structural pluralism does factor in the framing of the wolf reintroduction coverage in both newspapers, but does not show that the smaller newspaper shies away from conflict as early structural pluralism research suggests.
Agricultural Landowners’ Preferences for Conservation Easements and Conserving Amenities

Private lands in the intermountain west and elsewhere are being utilized for rural home sites fueled by a growing demand for open space and related amenities. One tool used to preserve open space is conservation easements. This approach protects environmental amenities through the sale or donation of the developmental rights for a piece of property. Much of the current research on conservation easements has focused on the general public’s preferences regarding land preservation and land use. Currently there is a gap in the literature examining open space preservation issues and preferences from a landowner’s perspective.

The primary question posed in this research is, “What are important factors affecting producers’ preferences regarding the placement of a parcel of land under conservation easement?” The purpose of this is to assess landowner preferences regarding conservation easements, land preservation and attributes they wish to protect. Knowing these preferences could be useful to communities, public organizations and land trusts trying to provide open space to meet the growing demand for such amenities. Information was gathered through a series of focus groups held in Wyoming and Colorado. The focus group participants were agricultural landowners in these areas. Data was collected through open-ended group interviews and participant observation. Data were then analyzed using accepted qualitative research methods.

Landowners discussed many of their likes and dislikes with conservation easements in these sessions. The overwhelming response from landowners was a dislike for perpetuity. Landowners also discussed an interest in conserving wildlife habitats on their property as well as open space. The participants in these groups felt the general public would like to preserve their land for open space as well, but also for recreational purposes. Landowners seemed unwilling to give up managerial control on their property. They also were not willing to give public access to their lands. If either of these things were to happen, most did not believe they would be interested in a conservation easement.

These focus groups point to the need for more education to both land trusts and landowners. Moreover, these results provide the foundation for an in-depth landowner survey currently being conducted.
Coastal erosion is a serious problem affecting the Gulf of Mexico, primarily affecting the Gulf Coast of the state of Louisiana. Federal funds are required to address this issue, and such funding appropriations will be dependent on how serious the problem is perceived by the American public. The functions, natural resources, and goods that Louisiana’s wetlands provide contribute substantially to the national economy. For example, one-third of the nation’s seafood originates from these wetlands, along with 40% of the United States’ oil and natural gas. These wetlands also serve as a source of recreation for hunting, fishing, and ecotourism. Moreover, eleven threatened or endangered species have been reported to live and thrive off Louisiana’s coastal wetlands. Louisiana’s Wetlands also serve as a natural buffer for severe storms. The US Geological Survey has declared that Louisiana lost more than 100 miles of coastal marsh as a result of Hurricanes Katrina and Rita. Since 1930, Louisiana has lost more than 1.2 million acres of coastal wetlands, with estimates of annual loss at 22,000 acres.

We conducted a self-administered mail survey of single-family homeowners during summer and fall 2006 to determine the extent to which residents of the Mississippi River Valley were aware of the issue of coastal erosion and support for federal funding for restoration. The survey was conducted using a random sample of residents in 10 states in the US Mississippi Valley: Louisiana, Mississippi, Arkansas, Tennessee, Missouri, Kentucky, Iowa, Illinois, Wisconsin, and Minnesota. We received 1190 (28.45) completed questionnaires. Most respondents (70.4%) perceived reducing coastal wetland loss as an important issue, however a small minority (7.2%) were aware of the national educational campaign conducted by the state of Louisiana to inform the American public of the issue. Although most respondents stated they were not familiar (46.2%) or slightly familiar (35.6%) with current efforts to restore coastal wetlands in Louisiana, 56.7% responded that current funding for such restoration was too low. This paper will provide further examination of factors contributing to public perceptions and awareness of the issue, as well as incorporate a values-orientation model of public support for funding for coastal wetland restoration.
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Triple bottom line reporting in irrigation: Evaluating its outcomes

The number of organisations choosing to report on their triple bottom line (TBL) performance has grown rapidly in recent years, especially among those involved with natural resource management. This could be seen as a positive trend. Organisations that devote time and resources to incorporate TBL performance indicators into their regular reporting processes could demonstrate that they have a greater commitment to social and environmental responsibility. However, critical analyses of the resulting TBL reports frequently identify a lingering preoccupation with public impression management rather than a commitment by the organisation to monitor and improve upon its sustainability performance. We suggest that this preoccupation is exacerbated by a focus on evaluating report content at the expense of an evaluation of the process of reporting and its desired outcomes. We have therefore created an evaluation framework which focuses on the process of reporting: how the organisation uses the process to learn, the capacity and relationship building that evolves, and how this influences the organisation’s contributions to the development of sustainability. Evaluation criteria were identified from case studies of social, environmental and/or sustainability reporting processes documented in the literature, and synthesised into three desired outcomes of TBL reporting and ten prompts for discussion and reflection during evaluation. The criteria test the extent to which a TBL reporting process (1) is collectively owned; (2) uncovers the unsustainable practices that require a response; and (3) results in actions that make a difference, inevitably challenging the business-as-usual operations of the organisation. These criteria were recently used to review the TBL reporting process being developed by Murrumbidgee Irrigation (MI), a newly privatised irrigation water supply company in Australia. Our collaboration with MI to provide a participatory environment in which MI staff can formatively evaluate its burgeoning TBL reporting process has provided us with an excellent opportunity to trial the framework and assess its prospects as an agent for change.
Remnants of medieval field patterns: Spatio-temporal changes and conservation principles

This paper studies the remnants of medieval pluzina, a typical Central European historical field pattern, dating back to the 13th or 14th century A.D.

In medieval Czech, the word pluzina meant the crop fields, meadows, pastures and roads belonging to one village. Today, pluzinas are visible as patterns of long, narrow fields, separated and defined by hedgerows. The model of sustainable landscape design, pluzina hedgerows enhance the landscape’s connectivity, increase its biodiversity and act as erosion control features. Moreover, pluzinas are very attractive parts of farming landscapes, similar to the bocage landscapes found e.g. in Northern England, Scotland or Brittany. These patterns are therefore an interesting subject not only to historians, but also to ecologists and landscape architects. However, during the last 150 years, the majority of these landscape structures has vanished, owing either to the intensification of agriculture, or the abandoning of pluzina to gradually change back into a forest.

As this is the first comprehensive study of pluzinas in the Czech Republic, it was necessary to first carry out a regional survey to gain base data and a basis for comparison (the Pilsen Region, SouthWestern Bohemia, 7,561 km²). In this survey, aerial photographs, historic maps and GIS tools were used to study the their total area, level of preservation and types.

Following this analysis, the best preserved and most representative pluzinas were chosen for case studies. These case studies examine the spatio-temporal changes in the last 150 years of the hedgerows (changes in their width, density) and changes in the land use of the agricultural land. Equally important was collecting supporting data describing the landscapes in which they were found and testing it, using the Minimal Adequate Models based on ANOVA to determine the effects of environmental and socio-economic driving forces relevant to the vanishing or preserving of a pluzina.

Based on these findings, guidelines were defined for legal protection of pluzina landscapes, as well as methodological guidelines for their adequate management. Also discussed are specific tools of landscape planning which can be applied to promote the conservation and restoration of these valuable landscape patterns.
Moneta, Mary, Department of Sociology, Western Kentucky University, USA
D. Clayton Smith, Department of Sociology, Western Kentucky University

The Effects of Wildland Fire on a Natural Resource Dependent Community

There has been little research produced strictly looking at human dimensions of wildland fire, especially in southern rural communities. This research examined Bell County, Kentucky. Bell County has suffered many wildland fires, especially wildland fire arsons over the past 5 years. In June of 2006 questionnaires exploring residents' perception of wildfire fire on the social and economic well-being of local community were sent to a random sample of area residents. Using Kumagai, Carrol and Cohan's (2004) propositions on the social impact of disaster and the theoretical framework of Emile Durkheim's (1933) view of community and collective consciousness, the primary purpose of this research is to understand the effects of wildland fire on the social and economic well-being of a community.
The dynamic characteristics of natural resource issues in the rapidly changing wildland-urban interface (WUI) are overwhelming resource professionals, according to recent focus groups in the southern U.S. Respondents suggest that knowledge about land-use planning and managing fragmented forests, and communication skills for working with local policymakers and interface residents would be helpful. With support from the Southern Group of State Foresters, USDA Forest Service, and U.S. Fish and Wildlife Service, the University of Florida, School of Forest Resources and Conservation created a set of training materials to help meet these needs. While management efforts in the interface have historically focused almost exclusively on fire, this program defines the interface as “an area where increased human influence and land-use conversion are changing natural resource goods, services, and management.” The materials use the many interconnected interface challenges (e.g., nuisance wildlife, water quality, critical habitat, traffic, privacy) as a framework for discussion and skill building. The program consists of four training modules: 1) Interface Issues and Connections, 2) Managing Interface Forests, 3) Participating in Land-use Planning and Policy and 4) Communicating with Interface Residents and Leaders. The package includes 37 interactive training exercises, 29 fact sheets, 23 case studies, 4 trainer’s guides, PowerPoint® presentations, and a video. All of the materials are available at http://www.interfacesouth.org/products/training/changing_roles.html.

The modules are being used by natural resource agencies, particularly state forest agencies, across the South to help their staff solve challenging interface problems.

It has been distributed to over 450 people and used in a variety of state-wide training programs. Our post-training evaluation data reveal that Changing Roles is relevant, useful, and innovative material. One participant commented that it “is a very thorough program that really does a good job of explaining the multiple components of WUI. I would think that this is the most complete set of information and training activities within the nation.”

Natural resource professionals in wildland-urban interface regions across the continent can help address these new needs and challenges. Although the case studies are South-specific, these training materials could be easily adapted and used in many parts of the country.
Human Induced Switches on Public Lands Boundaries: The Emergence of Ecological Islands

This paper examines the interactions between land cover changes and human activity near the boundaries of public lands. Grounded in a human ecology approach and guided by island biogeographical theory (Wilson 1999), the paper empirically examines multiple dimensions of mechanisms that may drive land cover changes along these boundaries. The implications of island biogeographical theory (Wilson 1999) suggest that setting aside regions of land for conservation purposes may not have the desired outcomes. Publicly owned lands become “islands” and may be of insufficient size or too isolated to allow the targeted ecosystems to continue to function as hoped. Compounding the problems of isolation, size and fragmentation, conservation or preservation of land as publicly owned parks or forests may function as human-mediated ecological switches, inducing specific land cover changes outside the publicly owned land itself. Utilizing satellite data and a suite of sociodemographic data over a 10 year span, this research uses statistical tools to produce geographically weighted regression maps of landscapes surrounding a national river and national forest areas. These maps are used to analyze privately held areas near public lands for the purpose of explicating locally differentiated mechanisms underlying land cover change. Traditional analyses produce globalized and average results for regions, but this research demonstrates empirically the importance of locally varying mechanisms. Research results suggest policy makers and natural resource planners may be able to anticipate and incorporate these local variations into future planning and policy cycles.
Can U.S. National Parks Withstand a Downturn in Visitation?

The US National Park Service has the dual objectives of preserving resources for future generations while promoting current enjoyment. Throughout the 20th century use grew rapidly. But per capita visitation to US National Parks began declining in 1989, a trend correlated with increasing video and internet usage. Both national parks and state parks have experienced declining attendance, and Congress has held hearings on ways to remedy the attendance decline.

Should the parks be “repositioned” to be more attractive to contemporary urban “wired” society? Or should preservation predominate? We present a policy analysis of the attendance downturn and suggest potential solutions. After reviewing attendance data, we question if the apparent decline is short term or if longer term cultural shifts suggest still further declines. Current trends suggest may indicate repositioning to bolster visitation.

But repositioning raises ethical questions about preservation. Can we accommodate non-traditional park uses—uses to generate more visitors (and more revenue) if they are inconsistent with preservation? Should the parks be opened to more motorized uses or more commercial development? How should we even consider such questions?

Our analysis draws on the work of Frederick Law Olmsted and Joseph Sax. Olmsted favored development that sustained “appreciative use.” He believed everyone had a ‘contemplative faculty’ enabling an appreciation natural environments, but its exercise required focused attention; park design both can and should help achieve that focusing. Sax extended Olmsted’s arguments suggesting that appreciative uses of national parks are legitimate, but that activities focused purely on self may not be legitimate.

While “appreciative use” resists precise definition, it does provide some platform for considering policy decisions. We argue that park policy should emphasize the natural, the walkable, the non-motorized. Only alternative uses encouraging appreciation should be developed. The market philosophy that dominated thinking for the past 20 years must be rethought to articulate non-commercial preservation values. Policies should be family/visitor friendly including lowering dependence on fee revenues and encouraging modestly priced facilities. The market is unlikely to sustain non-commercial parks into the future. The focus on visitor numbers, economic benefits, and financial sustainability risks “killing the goose that laid the golden egg.”
Two Rivers and One Challenge: Managing Horseback Use at the Ozark National Scenic Riverways

In 1964, Congress designated a portion of the Current and Jacks Fork Rivers in southeast Missouri as the Ozark National Scenic Riverways (ONSR). This site is an outstanding recreational resource that attracts over 1 million visitors annually. Perhaps the most unique feature at ONSR is the karst topography. Since much of the river system is recharged by groundwater, this area contains some of the largest freshwater springs in the nation. The Ozark economy is tourism-based and water-dependent.

Horseback use at ONSR has increased dramatically over the last decade. Much of this popularity is due to trail rides sponsored by privately-owned horse stables located outside the park boundary. Park managers are concerned about the impacts of horses and test the amount of fecal coliform bacteria in the water on a regular basis. If the E. coli count is excessive, then water quality advisories are posted to warn visitors about the potential health risks of incidental contact. The purpose of this study was to compare the environmental, social, and managerial perceptions of horseback riders with other outdoor recreationists (anglers, canoeists, boaters, and rafters/tubers) at the ONSR.

A mail-back survey was conducted with a random sample of visitors during the summer and fall months of 2006. Questionnaires were distributed to individuals (n=1,180) in proportion to their activity selection. A total of 648 were returned, yielding a response rate of 55%. Horseback riders rated the environment as more pristine than other visitors. They were unaware of the social issues reported by participants in other activities and were least supportive of managerial controls. Although these findings are preliminary, the data suggests that horseback riders are oblivious to the situation or in denial.

The challenge for ONSR is to develop a comprehensive management strategy that addresses the environmental, social and managerial aspects of outdoor recreation. Part of this solution must include horseback riders, a group that might be difficult to reach with traditional conservation messages.
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Troy E Hall, Conservation Social Sciences, University of Idaho
Linda Kruger, PNW Research Station Juneau, AK USFS

Linking recreation and natural resource management across multiple scales

In this paper we examine the interaction of public lands recreation management with the management of other natural resources across multiple analytic scales. To do this, we present two theories used to address scale issues in ecology and explore how they can apply to recreation planning. We propose that understanding the major ecological scale theories and how they are used in the study of ecosystems by researchers, and in natural resource management by the U. S. Forest Service, will help identify potential frameworks for management of recreation with other resources in a more integrated fashion. This paper is organized in four parts. It begins with a brief introduction to terminology related to scale to provide clarity and consistency. Second, two different theories used in managing and researching scale issues in ecology (hierarchy theory and the theory of patch dynamics) are outlined to better understand how these frameworks may be used in research and planning for the management of ecological systems. The third section presents the two primary planning frameworks used in recreation by the Forest Service: the Recreation Opportunity Spectrum (ROS) and the Limits of Acceptable Change (LAC). A discussion of how each of these frameworks can be integrated with ecological theories of scale follows presentation of each planning framework. We conclude with a discussion of how application of these scaling frameworks can be used in spatial planning to further integrate analysis of recreation with other resources on Forest Service lands.
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Evaluating Collaboration or Evaluation for Collaboratives: Roles of Researcher/Practitioners in Community-Based Forestry

For more than a decade, researchers have been seeking to understand natural resource collaboration using a wide variety of research methods, both qualitative and quantitative. Some have sought to understand collaborative processes and participation, their role in governance, and their relationships to other social and political institutions. Others have explored the impacts that collaboration has had on environmental, social, and economic outcomes. Another somewhat smaller group of researchers have sought to undertake research to support collaborative efforts themselves rather than to study collaboration. This approach to research has been particularly prevalent in community-based forestry. This paper will reflect on a variety of approaches, methods, and outcomes of community-based forestry research in the United States. It will compare those projects that seek to understand community-based forestry with those that seek to support community-based forestry through applied research.
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Robert Schroeder, Pacific Northwest Research Station, U.S. Forest Service

Changes in traditional territorial use and perceptions by the Huna Tlingit in Southeast Alaska

The well-delineated territories established centuries ago by Tlingit clans remain relevant today to a native people still struggling to document their long standing co-existence with, and continued dependence on, the coastal ecosystems of Southeast Alaska. Territory information is vital not only to native identity, but also in responding to the myriad issues associated with ongoing state and federal agency land and resource management. In responding to Southeast Alaskan cultural issues, land managers and researchers rely heavily on territorial boundaries documented in 1946 by Goldschmidt and Haas in their study of Tlingit and Haida possessory rights. While Goldschmidt and Haas added immeasurably to our understanding of Tlingit territory, their limited field season (3 months in 12 communities) precluded an in depth understanding of territorial use and in some cases led to dramatic errors in territorial delineation.

We interviewed tribal elders as well as young resource harvesters to verify territorial boundaries described for the Tlingit community of Hoonah, Alaska and to determine how traditional territories are regarded today. Our study indicates that Tlingit perceptions and use of traditional territory are increasingly shaped by modern social factors including settlement patterns, employment regimes, and inheritance laws. Subsistence practitioners’ use of territory has also been significantly altered by natural and anthropogenically induced changes in landscape features and fish and wildlife populations, state and federal regulatory factors, technological advances, and the external pressures wrought by commercial and sport resource uses. Land managers must recognize both traditional territory boundaries which hold special cultural significance for Tlingit people as well as lands and waters heavily used by current subsistence harvesters. Importantly, changes in perception and use of territory affect appear to be affecting not only resource harvesting practices, but also the Huna Tlingit’s sense of tribal identity.
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Confounding influences of scale and methodological choices in GIS analyses of noise externalities

The results of investigations focusing on environmental externalities, particularly those considering ostensibly negative impacts on indigent and protected populations (e.g., environmental justice studies), are critically dependent upon the choice of which analytical strategy is applied in deriving statistical outcomes and upon the spatial resolution of the research design as dictated by the choice of reference unit and the selection of a particular areal analysis methodology. Based on the GIS analysis of noise impacts at a large Midwestern airport, the author identifies several potentially confounding effects associated with common research strategies and examines the implications of these for biasing outcomes, finding that results as reported in research literature can vary significantly as a function of methodological choices. Please note: Portions of this analysis have been previously published in the Professional Geographer (56:574-86) under the title, "Spatial Scale and Population Assignment Choices in Environmental Justice Analyses."
Residents Perceptions about Community-Based Tourism Development in Rural Western Botswana

Community-based tourism has been largely promoted in rural areas as a tool for conservation and economic development in the developing world. Such tourism development is popular principally due to the high degree of local involvement in planning and decision making within communities. Since community-based tourism is locally driven, there is a strong tendency to protect the natural and cultural environments, while generating economic benefits for the whole community.

Tourism in Botswana is still at an early stage of development. Although tourism (largely wildlife-based) is currently one of the largest generators of income and employment, especially in rural areas, the overall potential for further growth has yet to be maximized. Given the economic benefits of tourism, the livelihood strategies for most rural communities in the country vary between livestock rearing, utilization of veldt products, and government welfare programs. Community-based tourism initiatives have become a major strategy to generate additional income and employment. Rural communities have adopted this policy as a new tool for sustainable community development to alleviate poverty.

The purpose of this study was to explore the potential for community-based tourism development in rural southwestern Botswana from the perspective of local communities. This exploratory research was conducted in July 2006. A field study was designed and in-depth interviews were used to collect information from key informants living in the Kgalagadi district. The interviews were conducted in five villages and settlements within the district.

From the findings it was evident that most key informants perceived the Kgalagadi district as a tourist destination with a promising potential for community-based tourism development. However, they noted that most tourism resources were underutilized; a small proportion of the local people benefited from tourism, particularly those who owned tourism enterprises and understood tourism as a business. Also highlighted was the need for the government to provide adequate infrastructure, including upgrading existing roads, and provide tourist related facilities to maximize tourism benefits to local residents. Overall, such assessments of the current attitudinal climate of the local residents are important for appropriate planning of community-based tourism development. The success of community-based tourism initiatives is largely dependent upon the support and active involvement of members of the local community.
The evolution of property rights: implications for conservancies in South Africa

Wherever conservation areas have been established they changed the existing system of property rights commonly without the consent of those who traditionally held property rights. Not surprisingly, the legitimacy of protected areas is contested in many parts of the world. The intent of such contestation is to redefine property rights in ways that are considered more just and equitable. Also, as society diversifies its uses of the goods and services that are potentially available from conserved areas the issue of property rights becomes more complex and difficult to manage. Attempts to address the complexity of property rights in conservation areas include the establishment of cooperative approaches such as bio-regions, trans-boundary conservation areas and conservancies. Conservancies promote the integration of conservation with other nature-based land-uses. Conservancies, in the South African context, are viewed as a land management concept that enables for two or more parcels of land under different types of ownership to be brought together for the cooperative management of shared biodiversity and cultural resources. However, exclusive property rights held in the individual properties still remain. Thus, in bringing two or more parcels of land together, different landowners bring some or all of their exclusive rights into a collective arrangement (the conservancy) of inclusive rights. And although conservancies are established for a number of shared objectives, the problem of how to balance individual and collective demands remains. Changing property rights among landowners are potential sources of misunderstandings between individual and collective demands regarding what is perceived appropriate and compatible with conservation. This paper aims to highlight the need for a system of social learning that builds a robust organisational arrangement that addresses emerging and changing demands in the dynamic and complex arrangements of property rights in conservancies.
The Influence of Site Quality Attributes on Choice of Mountain Biking Trails in the Research Triangle, North Carolina

Mountain biking has proven to be one of the fastest growing outdoor recreation pursuits over the past two decades. The consequences of this growing population of mountain bikers has caused land managers to identify this sport as a significant new use issue facing recreation managers. The aim of this study is to explain the user choice process and the impact of site quality attributes on trail choices of mountain bikers through an integrated methodology with revealed preference modeling and trail condition assessment techniques. The major research question is to ascertain whether site quality affects mountain bikers’ trail choice preference. By understanding site characteristics and users’ choices, managers will be better able to identify and prioritize the management of facilities and trail impacts.

Data collection started in September 2006 and will continue through February 2007. The study area consists of six mountain biking trails within the Research Triangle Area of North Carolina. This region has a high population density, within which there exists a multitude of mountain biking opportunities. Each mountain biking trail was mapped using a GPS unit. Trail conditions associated with visitor use were measured at sampling points along each mountain biking trail using a rapid assessment methodology. A range of site quality indicators were assessed, including amenities and design of the facilities, landscape/environmental attributes, biophysical impacts on trails, and trail maintenance features and condition. Trail condition data will be integrated with GPS data in a geographic information system (ArcGIS v.9.1).

Psychosocial data were collected from approximately 400 mountain bikers via a survey. The survey consisted of four sections: past trips, current mountain biking trail visit, mountain biking experience use history, and user demographics. Access information was garnered from the travel distance to the site. Descriptive statistics and travel cost model will be performed in STATA for Windows (ver. 9).

This presentation will report major findings from this study. Management and research implications as well as the utility of integrated methodological approach will be discussed. It will ultimately enhance current theoretical understandings of recreation ecology measures and their relevance to the future management of outdoor recreation and user modeling.
Communication and transformation: Using authentic arenas to build conservation partnerships

Information exchange among scientists, managers, and resource users can transform ‘intractable’ conflicts into productive partnerships for resource management. An example was Hawaii’s Kona/Kohala Natural Resources Roundtable, which occurred in response to a dispute between a state government agency and private landowners. The issues were landscape protection and watershed management on the island of Hawaii (the ‘Big Island’). The roundtable began as hostile and highly polarized, with little hope for dispute resolution. However, after several transformative steps including an unprecedented series of educational and scientific dialogues, the negotiation produced significant social and informational benefits. I used the Authentic Arena Theoretical Framework, a new interdisciplinary tool for building and diagnosing arenas for decision-making, to analyze how the roundtable members converted their original intractability into a constructive partnership for conflict management and resource management. I found the roundtable had acute disadvantages in political and legal support. However, it had sufficient Social Authenticity and Communicative Authenticity (two of the six conditions for an authentic arena) to empower the members and allow them to create a relationship with positive repercussions and permanent benefits. I suggest specific principles of negotiation enabled effective communication, the sharing of scientific and traditional knowledge, and the recognition of common values and priorities among the roundtable members.
Networks as mechanisms for community wildfire preparedness: Across scale relationship building for embedded plans

The Healthy Forests Restoration Act represents a major policy response to the fuels management problem in the United States. One initiative under its umbrella is a policy attempt to encourage collaboration on Community Wildfire Projection Plans (CWPPs). The question remains, whether mandates for collaboration result in improved mechanisms for work across scales. Do CWPPs enhance social network ‘weak ties’ that function for improved wildfire preparedness? In an evaluation of 13 CWPP case studies, selected from plans across the U.S., we conducted an average of 15 in-depth participant interviews per case. Interviews were taped, transcribed, and coded for relevant factors by multiple researchers. A cross-case comparison was done for emerging themes and then as a check, themes were discussed with an advisory board team composed of practitioners representing multiple scales and experiences. We analyzed changes in network attributes including shared goals, embedded scales, information and resource flows, and landscape-level plans for joint action, among others. We found changes in network formation, CWPP process characteristics that supported the creation of ‘weak ties’, and relational as well as knowledge outcomes of network functioning. Most cases provided examples of adding scales and network complexity. Embedded plans occurred in multiple ways, with no common pattern.
Distributing conservation incentives in Chitwan National Park, Nepal

Recently, biodiversity conservation efforts have expanded to incorporate delivering social and economic benefits to communities nearby or within protected areas. Benefits can generate incentives to encourage conservation support; however, such incentive-based programs (IBPs) have been criticised for failures in achieving both conservation and development goals. Many of the criticisms centre on deficiencies in benefit distribution.

This research highlights the limitations and successes of IBPs in the buffer zone of Nepal's Royal Chitwan National Park, recently renamed Chitwan National Park. A questionnaire survey was the primary tool used to provide quantitative and qualitative information on local perceptions. The livelihoods of buffer zone residents remain strained by conservation activities. The research finds that while benefit under IBPs are recognized by local residents, benefits continue to be unfairly and unequally distributed, particularly in villages away from the main tourist entry points to the park where costs associated with conservation are highest. An individual’s level of participation in tourism also leads to inequities in benefits received, with those directly employed in tourism receiving the most benefit. Despite the discrepancy in benefit distribution between villages and between levels of involvement in tourism, it is important to note that CNP is making progress in distributing benefits beyond villages where tourism is concentrated. The main flaw in IBPs in CNP is a limited ability to replicate benefits throughout the buffer zone, providing similar levels of benefit to all villages. The personal economic benefits available to all residents in the buffer zone of CNP can be maximized by preventing undercutting price wars among hoteliers and promoting locally available and produced goods and services.
Empowerment and Hope in Community-Based Conservation Projects

Participatory approaches to community-based conservation (CBCs) projects are widely promoted yet debated in the conservation field. However, it is not known if participatory processes empower or increase psychological hope of local community members as critical conservation actors. Empowerment and hope may be conceptualized as value orientations and as process antecedents to or outcomes of participation at the individual, organizational or community level. These constructs have not been investigated in the context of CBC projects. This paper explores these constructs in four participatory CBC projects implemented by intermediary non-governmental organizations (NGOs) with indigenous communities in the Meso-American Biological Corridor. A multi-site case study design using mixed methods was employed to explore the relationship of participation and participatory processes to empowerment and hope at the individual and collective level and identify factors of CBC project design that enhance or impede empowerment and hope. The results of this analysis show that empowerment and hope processes and outcomes differed across the CBC projects. Characteristics of the participatory process that appear to facilitate empowerment and hope included: involvement in substantive project decision-making, access to training and resources, sharing leadership and responsibilities, recognition of indigenous knowledge, involvement in participatory evaluations and recognition of accomplishments. The degree to which these characteristics were evident in CBC projects reflects NGOs’ commitment and capacity for facilitating hope and empowerment as well as the time progression necessary to fully integrate them in the design of participatory processes. Contrary to expectations, higher levels of CBC participation were not consistently related to higher empowerment and hope. Recommendations for designing more empowering and hopeful community conservation projects include increasing capacity of local partners, reflexive awareness of the temporal dimensions of empowerment and hope, and expanding the scope of participatory activities.
Nielsen-Pincus, Max, Department of Forest Resources, University of Idaho, USA

Mapping landscape values: using scale to understand geographical associations among values

One method of eliciting the relationship between people and place involves mapping spatial attributes in survey research. I use a typology of values – called the landscape values typology – to investigate how values are mapped on the landscape in three counties of Idaho and Oregon. Using geographically referenced survey data, I examine the scale at which participants map their values and the geographic associations between different values in the typology. The results demonstrate that a given area can offer a variety of values to communities. Furthermore, when geographically operationalized the landscape values typology can be divided primarily into two categories: material (social quality) and postmaterial (environmental quality) values. The findings reflect on the importance of understanding scale and the need for land use planners, natural resource managers, and local decision makers to facilitate both material and postmaterial needs in their decisions. Other methodological issues are also discussed.
The health and social benefits of woodlands: examples from Britain of community use and engagement

Woodlands and trees are widely appreciated and used in Britain and recent studies have shown that they provide a variety of benefits to a range of ages and sections of the British population. This presentation will draw on a number of studies that have been carried out by the author that highlight some of these benefits and how they are perceived by different groups. The presentation will also provide information about how the Forestry Commission, the government department responsible for forestry in Britain, engages with volunteers, and in what ways.

Examples of projects will include a study of a small woodland in Lincolnshire which showed how volunteers from the local community played a key role in running a successful social enterprise in which young people excluded from school and unemployed gained basic skills in the woodland. Further work was carried out in inner London and included a community tree planting day with local residents of two social housing estates. Finally work in Liverpool illustrates how members from a deprived housing estate worked closely with the local authority and the Mersey Forest (one of twelve Community Forests in England) to try and improve their local woodland resource and engage with young children.

Qualitative data collection methods were primarily used for the above studies and included focus groups, interviews and observations at events and activities. All of the work focused on gaining a better understanding of how people use woodlands and the ways in which they value them and benefit from them. The work has been published in journals and in formats suitable for those involved in forestry policy and practice. The overall results of the work suggest that community engagement can help to improve woodlands and green spaces for local people, bring communities together and provide enjoyment, improve skills and knowledge, and enhance the wellbeing and social networks of those who get involved.
Understanding Visitors’ Preferences for Public Beach Access Using a Stated Preference Choice Approach

Management decisions maximizing visitor satisfaction with limited financial resources require managers to obtain comprehensive knowledge of visitor preferences for management options over others. Providing management agencies with this information increases the likelihood of implementing programs leading to additional beach access and protection requirements for public beaches. A stated preference choice approach (SPCA) is used to identify the extent of visitors’ concerns about current beach management programs and support for prospective management actions. Assuming visitors make trip decisions on multi-attributes, SPCA is useful for understanding how visitors make trade-offs among different management attributes and provides implications in evaluating effectiveness of various management proposals. This study intends to determine the extent of visitor preferences for proposed management actions for better recreational use in beach access and facilities. Five attributes were included such as number of beach access points available, parking fees, and level of commercial development. For the model estimation, the conditional logit was used.

Results revealed visitors preferred additional provision and maintenance of beach access points, but were less favorable to higher parking fees. Additionally, visitors were unfavorable towards crowded and noisy beaches. However, “Moderately developed” beach sites were likely to attract more visitors. To evaluate utility gain or loss resulting from changes in the level of each attribute, five potential management scenarios were proposed resulting in a preference for management scenarios with certain degrees of site development and management interventions.

Results corresponded with expectations that visitors show a higher preference for more beach access points and less crowding and noise on the beach. Nevertheless, visitors were willing to support certain management actions such as the introduction of rules and regulations on beach use. Although visitors were not favorable towards certain management actions such as parking fees, they were willing to take into account trade-offs among the management attributes being considered. Thus, visitors were willing to accept certain unappealing attributes to acquire the options of favorable management attributes for their utility maximization. As beach management actions are considered, a better understanding of the multidimensional aspects of trip demand is critical and information provided using SPCA is beneficial for more effective management.
What Environmental Information Programs Can Learn from Health Communication: Social Science Theory, Research and Strategic Applications

Public health communication programs have for decades led environmental/natural resources programs in (1) Breadth and depth of theory-based programming; (2) Empirical examination of research questions and testing of hypotheses; (3) Application of social science research tools aimed at formative, process, and summative evaluation efforts; (4) Direct application of theory and research findings to programming policies and strategies; (5) Dissemination of program impacts and research findings to the academic and policy-making communities, and to the public; and (6) Demonstrated impact of programming on public knowledge, attitudes and behaviors.

The reasons for this are many: (1) The longer tradition of public health communication, particularly as promoted by federal, state and local governments, by relatively well-funded private foundations, e.g. the American Cancer Society, the American Heart Foundation, the March of Dimes, and not incidentally by the health industry in all of its forms; on (2) The arguably much higher public interest in health, and the resulting increased funding levels, particularly by the federal government, awarded to basic and applied health research, dissemination and promotion; (3) The relatively stronger organization, coherency, and collaboration among public health researchers and professionals, promoted by such institutions as strong schools of public health, the National Institutes of Health, and networks of interlocking state and local health departments.

Previously the authors delineated significant obstacles to environmental information/education programs, with potential applied routes to helping overcome those. This presentation reviews recent approaches to successful public health programs based upon such theoretical frameworks as social marketing, diffusion of information, community readiness, reasoned action/behavior, risk communication paradigms, precautionary behavior, and tailored messaging. Appropriate applications to environmental/natural resources information programs and policy will be recommended.
To Adopt or Not to Adopt? Policy Diffusion & the Role of Norms in Environmental Policy

What causes a state to adopt an environmental policy? This question is becoming an increasingly interesting one as devolution of power from the federal government to state level governments is occurring in the United States. Within the literature the primary explanations for policy diffusion are based on economic interests, state partisanship and geography. But these models leave gaps in our theoretical understanding of environmental policy diffusion. Therefore, the role of ideas in policy diffusion should now be seriously considered and empirically tested. This paper argues through a case study on the state adoption of a ban against two types of Brominated Flame Retardants (BFRs), that ideas, particularly scientific knowledge that invokes norms of precaution, greatly impacts whether or not a state will adopt a policy. California banned BFRs in 2003 and since then eight other states have adopted a ban and six others are proposing a ban in their state legislatures. Thus, this case is a current and important example that will help scholars understand why state entities adopt a policy. And at the same time, this paper also argues that variables long predicted to be important, such as typical measure of state ideology and economic interest, do not necessarily apply to environmental policy innovation. By using two complimentary methodologies, qualitative comparative analysis (QCA) and logistic regression, I illustrate the importance of policy networks and norms of precaution in the policy process.
Citizens’ perceptions of federal forest management planning and practices in post-fire communities

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 challenged with the ecological planning and public interactions that follow such events. In the context of post-fire management, this presentation explores citizens’ perceptions of federal forest management planning and practices, citizen-agency interactions, and trust in federal forest managers in post-fire communities. Results are presented from mail questionnaires administered to an attentive public in communities near three recent large wildfires: the Biscuit Fire in Oregon (2002), the Bear & Booth Fire Complex in Oregon (2003), and the Grand Prix and Old Fires in California (2003). Preliminary findings suggest attentive citizens are diverse in opinions, trust, knowledge, and experience with agency personnel. Potential relationships between citizen-agency interactions, citizen acceptance of management and planning practices, and citizen trust in the agencies are examined. Comparisons between the three sites suggest size of fire and corresponding level of national and political attention is also a potential influencing factor. Additional research is recommended.
Combining landscape histories, spatial policy forecasts, and landscape ecology metrics to compare alternative futures in developing rural areas

Rural communities in amenity rich areas continue to struggle in their efforts to manage growth and development in ways that protect key natural resources. Recent developments in GIS have made the development of alternative policy scenarios relatively easy to document and analyze. Parallel advances in landscape ecology have produced new metrics for estimating different dimensions of landscape fragmentation. Bringing these developments together, we compare the potential consequences of a variety of proposed regulation schemes to evaluate likely impacts on landscape fragmentation. We created a set of historic parcel and land use maps that allowed us to estimate baseline trends against which policy alternatives could be compared. We then modeled future development based on a number of policy proposals presently being discussed as part of a comprehensive planning effort in the study area. The different proposals are largely variations of a sliding-scale density zoning scheme. Our analysis shows that all the potential policy changes being considered could attenuate future landscape fragmentation, though not all to the same degree. We conclude by discussing the likelihood of policy adoption based on the potential consequences for actual landowners in the area.
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Adjusting Management Strategies for Fu-Yuan Forest Recreation Area

There are 18 national forest recreation areas in Taiwan. Each national forest recreation area is located in a different altitude level; therefore, the resource of each forest recreation area is quite different. From the marketing and management point of views, each forest recreation area should develop its own management strategies instead of adopting the universal guidelines from the Bureau of Forest. Fu-Yuan forest recreation area is specially selected to discuss the strategies for future development. The in depth interviews were conducted to propose the most suitable management strategies for future development. Three major managerial dimensions (e.g., resources and the environment; facilities and services; and tourists) were revealed after the in depth interviews in this study. Moreover, the on-site visitor survey (258 valid questionnaires) also provided the valuable information about visitors’ perceptions and the acceptances of future changes about the management. The major findings were: 1) Visitors thought the entrance fee, the number of visitors, the development, and the facilities were reasonable in this forest recreation area. They also agreed this forest recreation area should be suitable for the nature-experienced type of activities. 2) Visitors agreed the development of this area should be limited. They also agreed to maintain the natural landform and reduce the unnecessary facilities and development. Moreover, most visitors accepted the changes of management strategies in order to reduce the impacts of visitors to the environment. However, they disagreed with the higher entrance fee during the peak season.
Differences in behaviors and views of black bear hunters in North Carolina based on hunting method

Black bear hunters in North Carolina use either pursuit dogs (dog hunting) or hunt bear from elevated stands (still hunting). We hypothesized that views of bear hunters would differ based on bear hunting method. In order to identify North Carolina bear hunters, in February 2005, we mailed surveys to a simple random sample of 50,000 of the 299,703 sportsmen and women who had licenses which allow big game hunting. Survey recipients returned 17,821 surveys for an adjusted response rate of 41%. There was evidence that big game hunters who hunted one or more species during the past 3 years may have responded at a higher rate than those who did not hunt during the past 3 years. In June 2005, we mailed out 2,426 surveys to every hunter who returned a big game hunter survey who indicated they had hunted bear during the previous 3 years. Bear hunters returned 1,748 surveys for an adjusted response rate of 76%. A plurality of bear hunters (44%) exclusively still hunted, 28% only hunted with dogs, 28% used both still and dog hunting methods. Dog hunters were more likely than still hunters to have harvested a bear ($\chi^2=33.0, df=4, p=0.001$), to have hunted bear more years ($\chi^2=101.3, df=12, p=0.001$), and to have hunted with larger hunting bear hunting parties ($\chi^2=831.2, df=12, p=0.001$). Still hunters were more likely than dog hunters to approve of hunting bears from stands on food plots or crop fields ($\chi^2=220.4, df=16, p=0.001$). Dog hunters were more likely than still hunters to approve of hunting from state-maintained roads ($\chi^2=216.5, df=16, p=0.001$). Wildlife managers should be aware that still and dog hunters may have different views on bear management and bear hunting regulations.
National security is a prime concern of sovereign countries. Both the losing and the winning countries had experienced human, economic and environmental loss in war contexts. The presence of the UN did reduce the probability of waging a war. Many countries, however, have been acquiring and developing state-of-the-art arms and ammunitions. The perfect use of this infrastructure necessitates enhancement of personnel skills through training. Some of these activities are intensive and demand resources. In addition, such activities may generate irreversible environmental degradation. The UN conventions prevent signatories from hostile use of environmental modification techniques even in the case of external aggression. This may in turn raise the concern towards military activities and their implications for the environment in one’s own territory. This motivated us to study the intensive military training activities and their implications for the environment. The soil samples collected from elected army intensive training sites have been tested in the lab to find out the concentration of heavy metals.
The clash between limited environmental resources and various interest groups generates complex environmental problems and conflicts in modern society. In the process, various stakeholders concerned with natural resource management exchange information and opinions through communicative actions. In particular, the mass media contributes to extending the area of communication. By means of the mass media, the vast and enormously varied messages and meanings concerning the environment are transmitted to wide and heterogeneous populations, quickly and simultaneously. Media coverage has significant effects on commanding attention, claiming legitimacy and invoking action in environmental communication and management. The media also functions to frame or select definition, casual interpretation, moral evaluation, and/or treatment recommendation for particular problems. Therefore, media discourse reflects mediated natural resource management.

Grounded in the theory of communication and media, this research addresses three main questions focusing on the forest discourse in the national media: 1) which stakeholders speak on forest resource management in the media discourse? (discursive opportunity structure); 2) which concepts of forest resource management are described in the media discourse? (frames); and 3) how has the media discourse on forest resource management changed over time? (ecological modernization as an environmental sociological aspect).

In this manuscript, the media discourse is reconstructed by a quantitative-qualitative content analysis of articles on forest issues appearing in two major Korean newspapers having nationwide distribution, Choson Ilbo and Hankyore Shinmun. The articles are accessible through KINDS (Korean Integrated News Database System) which provides full texts of major dailies through an Internet service. The articles chosen were published in these two newspapers between January 1, 1990 and December 31, 2004.

In conclusion, results from the national media analysis demonstrate the existence of a discursive opportunity structure between state and non-state stakeholders and major frames (conflict, human interest, economic consequence, morality, responsibility) regarding forest resource management in the media. The changes in forest resource management discourse in the media are interpreted in compliance with ecological modernization. This research ultimately contributes to understanding forest communication, and designing and managing forest resource problems among various stakeholders.
In addition to its varied physical landscapes, northern Idaho’s human population continues to grow and diversify, including many seeking lifestyle amenities associated with open-country landscapes proximate to developed communities. With population increases in some northern Idaho counties as much as 55% during the last census cycle (1990-2000), and continued growth since, demographic change has dominated some areas of the northern Idaho region. In the same landscape, many existing dryland farmers in the region grow cereal grains, legumes, and Kentucky bluegrass (KBG). The wheat and bluegrass crops leave residue that is routinely burned after harvest producing local and regional smoke that contributes significantly to increases in particulate matter air pollution. This community and resource setting provide a unique context to analyze theoretical relationships between newcomer/oldtimers differences and resource management conflicts. These relationships relate to literatures in rural sociology, natural resources management, and land-use changes in the rural West. Faced with the potential demise of more farms if producers are not permitted to use the inexpensive tool of burning residue to manage crops, survey respondents in the region indicated whether they prefer more housing development (as a result of farm sales) rather than continued residue burning. In this paper, we examine the relationship between length of residence, air quality organization membership, and other factors affecting perceptions of impacts from KBG burning. Previous data analyses revealed that personal and familial health issues related to agricultural burning were a significant factor in attitudes towards burning. This paper shows that contrary to what may be hypothesized from the literature, shorter length of residency correlates to a preference for agricultural smoke over additional decreases in farmland for residential development. Instead of length of residence, however, the primary multivariate factor behind a desire to decrease KBG burning and smoke is the self-reported health of the respondent and his or her family. Overall, although recognizing the inconveniences and at times potential health hazards of agricultural smoke, the majority of current residents in the Idaho Panhandle tend to prefer occasional smoky skies to more new neighbors.
Residents’ Perceptions of Tourism Impacts in Deqin, China

Sustainable tourism has been increasingly promoted as a strategy to provide economic alternatives to natural resources extractive practices in the developing world. Such a form of tourism focuses on maximizing economic impacts while minimizing environmental and socio-cultural impacts within communities. However, developing a sustainable form of tourism requires identifying and incorporating social, economic, and environmental values and goals of local community members.

The Deqin region of China is located in the northwest within the larger Yunnan Province, a region designated as a World Heritage Site. The region contains one of the richest biodiversity in China with numerous plant and animal species. Additionally, these unique and significant resources are currently threatened due to rapid economic development. However, tourism is being promoted as an alternative to natural resources extraction and consumption. The Deqin region has recently been opened and promoted as a nature-based tourism destination after previously existing in practical isolation due to its remoteness. Given the gradual increase of tourists since 1999, there is a need to ensure tourism benefits local communities and is developed in a sustainable manner. The purpose of this study was to explore the current level of tourism activity, and assess the attitudes and perceptions of local residents towards tourism impacts (environmental, socio-cultural and economic) and conservation efforts.

A quantitative methodology was employed during the summer of 2005 among local residents, business owners, and the neighboring protected area reserve staff. The sample consisted of individuals who were directly, indirectly, and not involved in tourism. Some of the highlights of the findings indicated that while tourism in the region is in its infancy, local residents generally had a positive perception towards the effects associated with tourism development. Greater social benefits, cultural preservation and infrastructure improvements were noticeable by residents. Tourism development also led to increased local environmental awareness, and a willingness to learn and be able to participate in the industry. A key concern was businesses were all solely owned by outsiders and this trend had increased. Also, residents desired equal and democratic participation in the planning and management of tourism which were currently at a minimum.
Substance abuse and boomtowns: A case study of social and economic risk factors

Social pathologies and boomtowns are closely paired concepts in natural resource sociology, with numerous empirical accounts of social disruption such as alcohol and drug abuse in communities with rapidly growing populations. This case study offers an account of social disruption in an Alberta boomtown, with a focus on issues of substance abuse. In-depth interviews were conducted with 123 individuals from diverse backgrounds. After tapes were transcribed, a three-stage coding procedure was undertaken and key themes were developed. Results are consistent with previous research on the link between substance abuse and shift work, work environments, and the social conditions in boomtowns. But results also point to parallel cycles of addiction and loss of control within individuals dealing with substance abuse and individuals working within cyclical commodity based industries. Our work points to root causes and pre-boom conditions within natural resource-based communities that can increase the risks of social disruption during boom times.
Dene, Metis and Inuit peoples in the Northwest Territories, Canada have historically enjoyed few benefits from resource development and borne a disproportionate degree of the environmental costs of such projects. Although there have been many institutional advances over the last twenty years, local influence over decision-making is confounded by the: (a) unprecedented pace and scale of development; (b) absence of a settled land claims and land use planning in some regions; (c) “free-entry” system embedded in the Canadian Mining Regulations (C.R.C., c. 1516); (c) limited capacity for participation in environmental assessment under the Mackenzie Valley Resource Management Act [1998]; and (d) absence of a viable cumulative effects framework for assessing, monitoring and managing the impacts of multiple development projects. The paper argues that addressing these institutional gaps is key to achieving greater ‘environmental justice’ in northern Canada.
Socioeconomic well-being of boreal communities in Canada

The boreal forest region contains nearly 20% of the world’s forest resources. Canada contains about 30% of the world’s boreal forest and the future of Canada’s boreal region has been the subject of spirited debate, with some advocating higher levels of industrial forestry, while others argue for the expansion of protected areas. At the center of the debate is the need for sustaining human communities, for the boreal region lags behind Canada as a whole on several indicators of socioeconomic well-being. To provide context for these discussions, we use Census of Canada data to examine the relationship between forest dependence and socioeconomic well-being in the boreal region, and whether this relationship has changed over time. Controlling for other forms of economic development and place specific characteristics, we find mixed results of forest dependence on well-being. Socioeconomic well-being in boreal communities is lower than in non-boreal rural Canadian communities, and these differences appear to be increasing rather than decreasing. Although forestry and other resource sectors make a consistently positive contribution to family income in boreal communities (lumber, pulp, mining, and energy in particular), labor income derived from forestry is a small proportion of total labor income and forest sector employment is declining. A policy of triad landscape management allowing for intensive production, extensive areas, and protected areas, may improve socioeconomic well-being and simultaneously increase industrial efficiency and answer the calls for policies to increase protection of the boreal forest.
Contributions of Social Science to Natural Resource Management: Can Interpretive and Qualitative Science Withstand Judicial Scrutiny?

Science is often a highly contested issue in debates over management of natural resources. Two recent trends relevant to this issue are likely to further heighten managerial concerns about the viability of science conducted to support agency decision making. The first stems from the growth of “policy for science” mandates by Congressional and executive branches including: the Shelby amendment, the Data Quality Act, and the OMB Bulletin for Peer Review. Much like the passage of major natural resource legislation such as the NEPA, the NFMA, and the ESA, these policies heighten the opportunity for external parties to review and challenge the use of science in agency decision making. At the same time, there is an emerging trend within science toward a more pluralistic view of what science is. Among other changes, this more pluralistic view has led to an increase in critical, interpretive, and qualitative research approaches in the social sciences that require re-evaluation of traditional scientific norms within the natural resource profession. Faced with research that may require re-evaluation of traditional scientific norms on the one hand and the possibility of increased external scrutiny arising from recent policy for science initiatives on the other, managers are understandably concerned about whether qualitative and interpretive research satisfies NEPA’s “hard look” requirement and other legal standards. This paper analyzes several recent court rulings that indicate qualitative and interpretive research can withstand judicial scrutiny.
Is Smokey Obsolete? Symbolic Meanings of Wildland fire in the Minds of WUI Residents

This study uses symbolic interactionism as a basis for understanding the salience and fundamental meanings of wildland fire to wildland-urban interface residents. There is a well-documented tendency in the social-psychological and communication literature for communicators to assume that an audience shares the same basic assumptions and terms of reference about the subject being considered. The recent history of U.S. public land management, its relations with the public and its many discontents is rife with examples in which such assumptions turned out to be mistaken. This study contributes to an understanding of how residents of the WUI actually view wildland fire, its role in forests ecosystems and its attendant risks for human settlements. Specifically, we explore the extent to which participants buy into the old federal agency fire exclusion paradigm versus the extent to which they see wildfire as something to be expected, managed and prepared for at the community level. Three focus groups were conducted with residents of the wildland-urban interface near Spokane, Washington. Results indicate a high level of salience of wildland fire to participants’ daily lives and significant concern about the risk of fire events in their residential areas. Participants were generally quite aware of the additional fire risk in the WUI and recognized the added responsibility WUI residents face in terms of fire preparedness. Participants also displayed greater historical and ecological knowledge around fire than demonstrated in many previous studies, however few were able to identify the exact terminology or personal protective strategies widely used by fire professionals. Smokey Bear received resounding support as a continued symbol of federal fire management, but in participants’ view, the symbol itself needs to be given expanded meaning coincident with the new era of fire management and local resident responsibility. The paper concludes with suggestions on how this might be accomplished.
Beyond gridlock: A cross-disciplinary review of approaches to natural resource governance

Today’s natural resource problems grow increasingly complex and successful means of addressing them have been illusive. Humanity’s desire to manipulate and control natural systems is at the heart of many of these problems. The long-term effects of such manipulation have been detrimental in unforeseen ways, and it is often economically, physically, and/or politically difficult or impossible to “undo” changes we have made in natural systems. Other natural resource problems involve trade-offs between economic and environmental benefits, which affect the livelihoods of individuals and communities, as well as the sustainability of the global ecosystem. Decisions in these situations are rarely clear cut and intense conflicts often develop.

Given the dominance of private land ownership in the United States, addressing environmental problems associated with these lands, such as water pollution and soil erosion, needs to be a priority. These lands also provide many environmental benefits to society for which landowners are not compensated. Currently, few mechanisms exist by which landowners are offered incentives to actively manage land for environmental benefits or to work collaboratively across ownerships to manage at a landscape scale.

In response to these issues, innovative approaches to the governance of natural resources have emerged from a variety of disciplines. These approaches go by many different names but share some important commonalities. In this paper, five of these concepts, selected to provide an overview of the approaches from the perspectives of different disciplines, will be discussed and their commonalities highlighted. The following concepts will be discussed: collaborative learning, civic environmentalism, resilience-building management, collective action, and interactional community development. The potential application of these approaches to natural resource problems on private lands will also be discussed.
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A social science approach to forest management and wildfire prevention policies in Portugal

In Portugal 64% of the territory is covered by forest. The Portuguese forestry sector generates 3.2% of GDP and 12% of industrial GDP and contributes with 11% to exports (PNDFCI, 2005: 7). Thus, the forest is an essential asset to the sustainable development of the country. Nonetheless, over the last decades wildfires have had great repercussions at the economic, social and environmental level.

Over the last 25 years wildfires have destroyed over 2.7 million ha of forest areas, 1.1 million of which in the period 2000-2005 alone. Over the last three decades the annual rate of burned area has been increasing gradually and stands today at 2.7% per year, i.e., a rate four times greater than in other Southern European countries. Over 90% of wildfires are man-made, even though only a reduced percentage of them represent intentional criminal acts.

In 2006 the Portuguese government decided to include forest management and wildfire prevention as one of their main priorities, aiming at optimising the value of natural resources and minimising social losses. It is intended therefore, among other aspects, to optimise the efficiency of prevention, surveillance, detection and supervision, as well as to define new solutions for forest management.

Bearing in mind that these tasks should be shared by political, institutional agents and citizens alike, it is my objective with this paper, in a truly holistic perspective, to identify the characteristics of the local communities included in a protected area in Northern Portugal concerning the implementation of strategies to increase resilience and to assess the social impacts of wildfires, as well as forms of participation of these communities in the recovery of burned areas. Moreover, it is my intention to identify factors contributing to a more effective integration of the local communities in forest management and wildfire prevention, aiming at the later development of a model supporting the above-mentioned strategies.

The methodology employed in this study includes data collection from census 2001, from governmental databases and also the administration of surveys and interviews in the local communities, for a more detailed analysis of the topic under study.
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A new paradigm: Recuperating a natural balance

The experience of a rural high biodiversity region whose grassroots movement led to a priority natural protected area decreed a decade ago and today is the model for creating an inclusive conservation economy in Central Mexico. How can we create an environment where rural poverty landowners and communities gain wealth for the environmental services on their land: such as water, carbon, biodiversity and the human capital that sustainability depends upon? Why are other regions of Mexico seeking to copy this social conservation strategy?
Woody biomass inventories for biofuels use in Mississippi

Mississippi’s forests cover approximately 20 million acres distributed in hardwood, softwood, or combination of both forest types. This timberland acreage represents a source of woody biomass for potential bioenergy consumption derived from two processes: (1) residues associated with the harvesting and managing of conventional forest products such as sawlogs, pulpwood, and veneer logs, in which material is often left on-site or piled and burned at an additional cost, and (2) biomass generated from non-commercial thinning to improve forest health and reduce fire hazard risks. Although, there are many studies in the use of woody biomass for bioenergy consumption, few have demonstrated the economic feasibility of utilizing woody biomass as a feedstock to produce ethanol in the area. In this study, using the most recent forest inventory data, we estimate woody biomass supplies by species type, evaluate their availability for potential use in bioenergy facilities, and analyze the most important production costs. Preliminary results are presented for the Mississippi southwest district and conclusions are provided in the paper.
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Walkin’ a fine line along the Grand Staircase: Escalante Residents’ Perceptions of the BLM from 1996 to 2006

In September of 1996, without prior warning to Utah residents, the Clinton Administration announced the creation of the Grand Staircase-Escalante National Monument (GSENM) in southern Utah. Initial studies conducted after the GSENM designation suggests that it had substantial social and political impacts upon gateway communities like Escalante, Utah. Survey data collected in 2006, ten years after the designation, shows residents’ continued anger regarding the monument, which is managed by the Bureau of Land Management (BLM), was and is directed toward various issues, including the perception that both the designation process and on-going management processes regarding the monument do not include local residents’ voices in the decision making. Feelings of frustration and alienation with governmental bodies perceived as not considering citizens’ opinions in policy making have contributed to a decline in trust in public officials—an important aspect of representative democracy.

In this paper we provide a longitudinal study (from 1996 to 2006) of residents’ perceptions of the GSENM and the decision-making processes which surround it. What is the level of trust gateway community residents have of federal land use agencies to make good decisions about the management of natural resources on public lands? How much effort do residents feel these agencies make to include local residents’ input in public land and resource use decisions? Have perceptions of this level of trust and effort changed from 1996 (year of GSENM designation) to 2006 and if so, how? We address these questions by studying perceptions of the GSENM among residents of a key gateway community—Escalante, Utah.

We then turn to examining Escalante residents perceptions of the BLM more closely, and examine how the level of trust in the BLM and its efforts to include local residents’ voices differentiates among residents in regards to demographics. We also explore the role perception of the public participation process (both past and current) plays in influencing levels of trust in the federal agency. Our findings conclude with a discussion on public participation processes that may assist both scholars and policy makers to pursue public land management decisions in a more democratic, less exclusionary way.
The relationship between benefit importance and attainment: initial explorations

The benefits of recreation continue to be of interest to managers and researchers alike. Defined as “...a change that is viewed to be advantageous; an improvement in condition, or a gain to an individual, a group, to society or to another entity (Driver et al., 1991, p. 4), benefits of recreation are typically classified as: personal, social, economic, and environmental. The focused management framework that deals with benefits, the benefits-based management approach, incorporates personal benefit opportunities into measurable outputs (Driver, 1996; Anderson et al., 2000). A meta-analysis of nine benefit studies found that some benefits are more strongly associated with activity preferences while others are associated with experience preferences and/or the recreation setting (Pierskalla et al., 2004). No research to date, however, assesses the importance of benefits and their attainment. The purpose of this project was to assess the importance of benefits and the relationship of that importance to benefit attainment. Both onsite and mail questionnaires were used to collect data from lake visitors in one state. The two-page onsite visitor survey included questions pertaining to visitor demographics and visit characteristics while the eight-page visitor mail questionnaire consisted of several sections, including desired benefits. Twenty-six desired benefit items (Driver et al., 1991) were measured along a five-point scale ranging from very unimportant to very important. Summer visitors were systematically selected through an onsite contact during June to August 2004 at three locations: campgrounds, spillway areas, and boat ramps. Onsite questionnaires were administered 14 days across a variety of days and sampling times (proportionate to estimated visitation weekend vs. week day; 7 a.m. to 8 p.m.) to maximize user variability. Onsite visitors were asked to participate in a follow-up questionnaire to which about half agreed and surveys and reminders were mailed to those who agreed. Following a modified Dillman (2000) technique, a response rate of 60.7% (n=284) was achieved. Structural equation modeling software completed the confirmatory factor analysis of desired personal benefits and Cronbach’s alpha assessed internal reliability. The confirmatory factor analysis results favored the six-factor benefits model over the base model. Three benefit factors were rated as important: enjoy nature, mental and physical health, and social interaction. The important benefit factors (enjoy nature, mental and physical health, social interaction) are similar to past research (Stein and Lee, 1995; Stein et al., 1999; Fredrickson and Anderson, 1999; Stein and Anderson, 2002; Knopf et al., 2004). The strongest relationship between importance and attainment was for the social interaction factor. Weak importance-attainment relationships were obtained for factors labeled learning and solitude. The varying relationships between factor importance and attainment provide fodder for discussion and management implications.
Conflicts Over Nature in the City

With the rise in concern over the preservation of natural ecosystems even in urban areas, difficult questions face urban park planners. Should existing non-developed lands in parks remain natural, or should parks try to accommodate additional users by creating additional amenities? What are the trade-offs?

This question is often caught in a web of conflicting values and motivations, including keeping people out of parks to reduce traffic congestion and the potential of "undesirable" types coming into neighborhoods abutting park areas. At the same time, as our case studies will examine, some of these parks provide the last vestigial habitat opportunities for indigenous fauna and flora and could be negatively impacted by changes in park amenities.

More recently, to add to the complexity of decision-making, is the concern about retaining "natures services" in the urban fabric to help in reducing urban impacts. These include watershed functions, vegetative contributions to cleaning the air and so forth.

We shall explore these issues in two Los Angeles case studies involving very large urban parks: Griffith Park and its proposed new master plan, and the Baldwin Hill conservancy.
Métis Communities, Natural Resource Development, and Boreal Forest Management: Key Concerns from an Indigenous Perspective

Management and conservation of Canada’s northern boreal forests are constrained by continued exposure to large-scale, natural resource development projects such as forestry, oil and gas exploration, and mining. Biophysical changes, coupled with subsequent socioeconomic opportunities, are therefore presenting northern communities with new realities and challenges as resource development activities proceed within this ecological region. Canada’s culturally unique Métis have traditionally settled within Canada’s northern boreal forest in which a blending of Aboriginal and European social life have contributed to a distinct Métis identity and livelihood.

Qualitative interviews conducted in several Métis settlements located in the northwest region of the province of Saskatchewan posed community members with questions concerning access to natural resources, economic opportunities available to local communities, and participation and influence in natural resource management and related decision-making processes. Reconnaissance field research in summer 2005 and a second phase of interviews conducted in summer 2006 have been transcribed and coded using NVIVO software in which key themes have emerged from this analysis. Empirically it has been recognised by Métis respondents of rising concerns about the impacts of major resource developments on the environment, economic concerns such as accessing jobs and small business entrepreneurship, and decreased reliance upon culturally traditional livelihoods such as hunting, trapping, and other forest-related activities. Constraints within these communities include power structures and limited capacity in influencing how natural resources are managed in the region.
Determinants of Land Use Change in the Northern Cumberland

Land use models have been applied to both broad and fine units, based on the spatial scale of land use. Models of broad units examine patterns of land use from a macro viewpoint. These models generally use counties or county groupings as units to highlight how socioeconomic factors and physical landscape features influence land use allocations. Models of fine units, on the other hand, provide analyses of spatially explicit land use decisions. These models estimate the direct influence of site-specific factors measured at a fine resolution. This paper attempts to bridge the broad and fine scales of land use analysis by examining the socioeconomic information at the census-block group level in conjunction with site-specific information of forest conversion at the pixel level. The study focuses on the determinants of forestland conversion to other two major non-forest use types of urban and agriculture on the northern Cumberland Plateau in Tennessee. The land use study in Plateau is important because it contains remaining few big tracts of forests in North America, while the issue of forest fragmentation is being an issue of ecological concern. A multinomial logistic regression was used to assess forestland conversion to urban and agriculture uses in response to changes in variables associated with land characteristics and population demographics. Results show that the low-density residential development, probably due to retiree growth in the area and regional market forces are likely to alter the land use pattern of northern plateau significantly. The findings from this study can be useful for local policy makers to design proper land use management options. It also provides a meaningful implication of extending existing land use models with spatial attributes.
Clifford Krauss of the New York Times analyzed the Canadian economy and noted that power is shifting from the East to the West with ‘petrodollars’. (Krauss: March 28, 2006) Alberta’s economy is ‘heated’ and the economic ‘boom’ is pulling Canada. Paradise is high salaries and more jobs than workers. Paradise is also the unspoiled beauty of Alberta’s under populated rural areas. The ‘boom’ means a bust for environmental resources, especially water.

Alberta Government multi faceted research, “Water for Life, Strategy for Sustainability”, (2003, revised 2005) discovered that limits for water allocation have been reached or exceeded in some Alberta watersheds. The Canadian Geological Society announced in October, 2006; that the City of Calgary will be on water rationing by 2015. Why? The answer is because of a combination of factors including; population growth, glacier recession, climate changes and agricultural use. The primary reason is the over licensing by the Alberta government for agricultural removal of water from the river system. In an unprecedented announcement, Alberta Environment announced in 2005 that no more licenses will be permitted from the South Saskatchewan River basin watershed. Counter intuitively, the Water for Life strategy maintains the “first in time, first in kind right” for existing licenses.

The oil sands are a world renowned trap of petroleum which requires from three to nine gallons of heated water to extract one gallon of crude oil for refining. This need for water has stressed the Athabasca River and natural gas supplies.

Resource allocation is a primary responsibility for government which balances the needs of society, business and the environment. This paper will explore the structures of power within Alberta which influence policy decisions. The seminal classic, Power, A Radical View, (2005) by Steven Lukes will be used to analyze historical documentation of resource allocation within Alberta. The three dimensions of power; one-dimensional – decision making, win-lose; two-dimensional – agenda setting, overt and covert; and three-dimensional – invisible force; are all apparent in Alberta. Most frequently, agenda setting, ‘mobilization of bias’, invisible power and power elite structures are observed.

Water will be the main focus, but political and economic decisions surrounding the mining of petroleum and harvesting of forests will be also be discussed.
Climate Change in Wintersport Destination – A new Approach to Transdisciplinary Research and Implementation

The Austrian Government recognises the changing conditions of the global environment and the uncertainty associated with it as an important issue and therefore established the research program proVision. Its aim is to support research projects which are investigating complex questions and attempt to find strategies for a sustainable spatial development. The projects will be addressed in an interdisciplinary and transdisciplinary manner by integrating non-scientific and scientific advisors from a diverse range of disciplines, e.g. sciences, planners, local decision makers and community.

Climate change and its possible consequences for winter vacation destinations constitute a new and complex challenge to several natural and social sciences, and in particular tourism research. The actual affects of climate change, as well as its perception and presentation by the media, by politics and society at large influences entrepreneurial decisions and the development of a region. So far, literature on the topic of winter sport and global warming is scarce, and occasionally contains ill-defined or even rather unlikely projections.

For that reason, a transdisciplinary inventory and analyses provides the foundation for the ultimate goal of STRATEGE, which is one of the proVision projects, to develop strategies focusing on the sustainable spatial development of tourism regions under the influence of global warming. This research question will be investigated in close cooperation with the winter sport destination Schladming in Austria. In the first phase, we evaluated the effects of climate change by investigating spatial differences on a local scale and adapting the already existing larger scale climate change models to this local level. At the same time, we also examine the attitudes and preferences of winter sport tourists including the possible effects of the media on public opinion. Furthermore, an analysis of regional statistics documents the strengths, weaknesses, opportunities and threats of the study area. In addition, we will consider the opinions of local representatives of the economy, politics, and administration, as well as stakeholders, interest groups and associations.

These results provide the background information for the second phase, which will use all this information for the first implementation of the Tourism Optimisation Management Model (TOMM) in Europe (see abstract by Prutsch and Pröbstl). In this visitor process, local people are formulating strategic regional decisions considering climate change and other trends in tourism.
Adapting Tourism Optimisation Management Model for managing a European Winter sport destination considering Climate Change

Tourism management frameworks in the United States and Australia have been used for a long time to identify, mitigate and monitor negative impacts on a destination. The challenge of designing such a management tool is even more daunting when concerns about climate change ought to be included. The "Limits of Acceptable Change" arguably is the most widely used visitor management framework in the US and globally, The “Tourism Optimisation Management Model” (TOMM) is an adaptation of the LAC to specific tourism destination concerns and is internationally regarded as the framework that accomplishes the goals of sustainable tourism development in the most sophisticated manner. It has been designed with a positive and constructive focus and pays less attention to setting limits to manage impacts. Furthermore, it intends to incorporate the community in determining optimum conditions for sustainable tourism development, and sets acceptable ranges within which they should occur. This is accomplished in open workshops, so that all regional stakeholders and interest groups continually have the opportunity to participate in the design of the future of regional tourism development.

The ski region Schladming in Austria was selected to implement the Tourism Optimisation Management Model for the first time in Europe. Adaptations are necessary to meet the needs of the study area and to take the different conditions into account. One needs to consider that this region is highly dependent on the economic benefits of winter tourism; therefore changing snow conditions as caused by climate change could lead to a break down of this tourism sector and accordingly to a dramatic decrease of the region’s economic prosperity. The framework integrates local knowledge, results of climate change modelling, market research, local and regional quantitative data, and several investigations of tourists’ preferences. The aim is to implement TOMM in the region as a “pool of knowledge”, and as an action oriented tourism management concept which serves as the basis for any future strategic regional decisions.

We are reporting on ‘work in progress’, but it is clear that our work needs to focus on the following research questions: Which role can tourism frameworks play towards integrating the concept of sustainability in an intensively used ski area? What framework-modifications are necessary to meet the requirements of an Austrian ski region considering climate change? What are the crucial instruments for a successful implementation of the tourism management model?

In recent decades migration has become particularly important in the field of population and environment. Research often focuses on the environmental causes and determinants of migration or examines the environmental impacts of migration. Few efforts have been made to theoretically synthesize this productive literature, and there is an increasing demand for more empirical evidence to refine our understanding of the complex relationship between migration and the environment. With the largest rural-to-urban migration flow in world history, and growing concerns about the environmental problems accompanying its fast economic development, China provides an exceptionally important and interesting case for the migration and environment research. The purpose of this paper is to review major theories and approaches to the dynamic relationship between migration and the environment, with specific attention to rural-to-urban migration and the rural environment in China. The paper will conclude with a comprehensive conceptual framework on migration and the environment, from which hypotheses are derived about the effects of environmental factors (such as landscape pattern, land productivity, and land use) on migration, and the reciprocal impacts of migration on surrounding natural landscapes and natural resource management in rural origin areas of China.
Factors influencing forest management on small tracts of land

Natural resource managers and social scientists have long been interested in how people view and respond to natural resource management. Landowner perspectives on forestland management are increasingly important to sustainable forest management as forest parcelization and fragmentation occur throughout the eastern United States. In Maryland, privately-owned forestland divided into small parcels less than 10 acres dominate. Thus, forest managers face challenges developing management techniques that support private forest landowners’ needs and perspectives. In this paper, we explore how sociocultural and sociodemographic factors affect small-acreage landowner forest management perspectives in Maryland. This paper’s conceptual framework draws from Walter Firey’s multidisciplinary resource management approach, which emphasizes sociocultural and ecological factors interdependency in framing the resource management regime. We examine general topics related to social forestry such as social construction and social acceptability, which explain how private forest landowners’ social and cultural systems frame their beliefs about forest management.
Land use change and circular migration in southern Mexico

Circular migration has emerged as a new and important element in increasingly diversified sets of livelihood strategies in the southern Yucatán peninsular region of Mexico. This paper describes the findings to date of case study work carried out in farming communities surrounding the Calakmul Biosphere Reserve, examining linkages between a new migration pattern of men traveling to the U.S. for wages and land-use and landscape transformations in rural Mexico. In the first phase of research, researchers surveyed a stratified random sample of twenty-six households in one community, engaging respondents in qualitative semi-structured interviews. Migrant and non-migrant households were compared in the areas of agricultural investment and cultivation of maize and chili. This community well illustrates the linkages between migration and land-use at an early stage in a community’s migration experience. The commercial cultivation of chili, leading to the accumulation of relative wealth for certain households, has allowed the initiation of migration from the community. Migration, in turn, currently is associated with increased capital inputs into agriculture (pasture expansion, field mechanization, or tree-planting), as well as a decrease in the rate of chili cultivation during the absence of male heads-of-households. The cultivation of the staple crop, maize, is unaffected. Forest recovery is currently underway in community-controlled lands and in the region, and the emergence of migration as a component in a household mixture of livelihood strategies will either amplify or alter this recovery. A new second phase of research is expanding household survey work to 150 households in three case study communities and exploring the relationship in the region between community circular migration rates and land-use change.
Indigenous and traditional knowledge of fire use and management in the US

Research in the southwestern and interior western United States is gathering information from personal interviews and questionnaires concerning fire and fuels use and management from Native Americans and Hispanic groups, as well as from other rural farmers and ranchers. Tribal resource managers, land grant members, and national forest and grassland users are providing information for the project. We are collecting data on attitudes of these groups concerning fuel reduction and vegetation management techniques such as prescribed burning, mechanical thinning, and herbicide use. Do respondents favor these management practices individually or in combination? What techniques, if any, were used by these groups in the past that continue in use today?

We also query participants concerning their perceptions of wildfire risk to themselves and their properties and any risk mitigation measures that they have implemented or are considering implementing. Finally, we gather information on the interviewees perceptions of the work of land management agencies with respect to fire and fuels management and their recommendations and suggestions for improving programs and relationships. Preliminary information indicates that in general indigenous, traditional, and rural groups favor active fire management programs, especially if the group has a history of past fire management. They also have some very specific concerns and suggestions for land management agencies as they implement fire and fuels management programs.
Randall, Martin E, School of Environmental Science, Murdoch University, Australia
Jim Macbeth, School of Social Sciences and Humanities, Murdoch University
David Newsome, Environmental Science, Murdoch University

Investigating Off-road Vehicle use in the dry-wet tropics, Northern Australia: User Perceptions of Environmental Impacts and Management Actions.

Natural coastal areas in the Broome region of north-western Australia represent a significant recreational resource. The area of interest in this study, 90km of coastal land, mainly unallocated crown land under native title claim and including an area recently granted native title to the Yawuru people of Broome, has seen an increase in unregulated off-road vehicle use and recreational impact pressure since the mid 80’s. Camping, fishing and beach use by off-road vehicle users, both locals and visitors, has lead to degradation and changes to these coastal resources which remain largely unmanaged. Increased use of the area has lead to seasonal overcrowding at camping areas which can stimulate a source of resentment from local residents. There have been few baseline studies of wet-dry tropical Australia, partly due to the remoteness and restrictions of climatic conditions imposed by an oppressive wet season or cyclone risk period. The majority of recreational tourist activity in the study area takes place in the dry season.

The main focus of this project undertaken in the dry season has been a multidimensional study of the impacts and attitudes of off-road vehicle users in the study area. A total of 388 user surveys were collected, the results of which summarise user perceptions of environmental impacts, acceptable levels of impacts and user responses to potential management actions. A comparison within the survey between number visualization and photographic series visualization methods is also presented in the analysis of user perception of acceptable impact levels in the study area. In addition, five management interviews with responsible government authorities and Traditional Custodians have also been carried out to add another layer to the analysis of the data that have been collected.

The results presented in this paper are social findings from the user survey representing part of a much wider multidimensional study. Data includes an assessment of roads, beach access points and erosion, changes to vegetation and an assessment of campsite impacts. A GIS system will be used to combine and present the information in a way that is beneficial to local land managers and contribute to the development of policies for the sustainable management of coastal areas north of Broome.
The Relationship between Place Attachment and Landscape Values: Toward Mapping Place Attachment

This presentation examines the relationships between place attachment and landscape values using two measures of place attachment—a psychometric, scale-based measure (Williams & Vaske, 2003) and a map-based measure derived from mapped special places (Brown, 2005). We first examine the external validity of a two-dimensional, psychometric place attachment scale in Australia and its relationship with place-based landscape values. The place attachment scale and landscape value measures were included in a mail survey of residents and visitors to the Otways region (Victoria, Australia). Exploratory factor analysis of resident subgroups and visitors demonstrate the place attachment scale consists of two dimensions with high reliability. We use regression analysis to show that landscape importance values, especially spiritual and wilderness values, are significant predictors of the scale-based measure of place attachment. We then examine the relationship between a map-based measure of place attachment and landscape values. We use spatial cross-correlation and regression analyses to show that aesthetic, recreation, economic, spiritual, and therapeutic values spatially co-locate with special places and thus likely contribute to place attachment. We argue that survey mapping of landscape values and special places provides a reasonable proxy for scale-based measures of place attachment while providing richer, place-based information for land use planning. We conclude by introducing the concept of a map-based place attachment index and suggest that survey-based measures of landscape values and special places can be used to assess the risk associated with landscape modification. We provide a map showing one possible place attachment index for the Otways region and discuss its potential application.
Grassroots Efforts to Enhance Community Resilience to Natural Disasters: Wildfire Risk Reduction Programs in the U.S. and Indigenous Flood Protection Strategies in the Sudan

Some social systems seem to have a greater ability than others to mitigate the risks posed by natural hazards and to adapt more easily to adverse natural circumstances. Such ability may be termed resilience and it is useful to examine how social-ecological resilience may be enhanced through sound public policies. The authors develop an operational definition of social-ecological resilience and identify key criteria that may be used to identify public efforts that may be more likely to enhance resilience. Then, they apply these criteria to two types of natural-hazard risk-reduction efforts. First, they examine wildfire risk mitigation efforts among Wildland-Urban Interface (WUI) communities throughout the U.S. – ranging from regulatory, incentives-based, and education-based local programs. Second, the authors present the case of Tuti Island in Sudan, home to 15,000 residents who have coped successfully for many years with significant annual floods. The authors examine the extent to which the wildfire risk reduction programs and the Sudanese flood mitigation efforts may be effective in enhancing the long-term social-ecological resilience of their communities.
Dollars for Hoodoos: Spending Characteristics and Personal Benefits Obtained for Visitors to the Grand Staircase-Escalante National Monument

A study was conducted in 2004 by the Institute for Outdoor Recreation and Tourism (IORT), Utah State University, for the purpose of obtaining baseline date concerning front country recreation use by visitors to the Grand Staircase-Escalante National Monument (GSENM) located in southern Utah, USA. This presentation focuses on results from that study regarding visitors’ expenditures in portal communities as well as the psychological and social benefits derived from recreating in GSENM.

Between March and October, 2004, intercept surveys were administered at 24 locations in the Front Country and Passage Zones of the GSENM. Of the 2,062 visitors interviewed, around 56% (1,148) indicated they were interested in filling out a mail-back questionnaire that contained questions regarding their expenditures in nearby communities and personal benefits they received while visiting the Monument. The response rate for the mail survey was around 68% with 766 mailing the completed survey instrument.

Results from the expenditure questions indicate that visitors to the Monument spend, on average, about $500 per group in the surrounding communities with Utah residents spending about $140 less and international visitors about $100 more than average. Using an input-output economic model (IMPLAN), the economic impact on the local counties where GSENM is located can be estimated and will be presented. Besides reporting results from the expenditure information, data regarding personal benefits derived from those expenditures will also be presented. Those benefits do not include the obvious goods and services derived from traditional tourist purchases (i.e., clean motel room, food, curios, etc.), but rather those psychological and social values that cannot be traded in the traditional marketplace. Analysis will likely include comparisons and contrasts between visitors with different characteristics (e.g., location of residency, age, etc.), length of stay, experience visiting GSENM, visitors who indicated the Monument was their main destination compared to those who were visiting other areas, etc. Results from a content analysis of responses to open ended questions will also be presented.
Complexity of information at public forums is a well-known barrier to effective public involvement in public forest lands planning and decision making. This barrier is important as sustainable governance of natural resources partially depends on effective public involvement. This study identifies and evaluates dimensions of information complexity for interested publics involved in forest management planning in Ontario, Canada. The study contributes to research that identifies relationships between information complexity and involvement and identifies appropriate means to present complex information to involved publics. Our data was collected using five approaches: a) in-depth interviews with 13 current and former members of 3 forest stakeholder advisory committees; b) brief conversations with 7 people who attended an information session; c) telephone interviews with 31 individuals who were suspected or were known to have an interest in forest management planning; d) review and content analysis of self evaluated reports of effectiveness written by 35 of the 40 forest stakeholder advisory committees operating across the province; and e) review and content analysis of the Public Consultation sections of Independent Forest Audits from 57 of Ontario’s 58 public forest units. Our results indicated two key findings. First, while information complexity was frequently cited as a concern within the forest audits, in advisory committee reports, in interviews with advisory committee members, and in conversations with open house attendees, only one member of the public who was known to have an interest in forest management planning agreed with this position. Second, comprehension of complex information by advisory committee members was linked to level of experience on an advisory committee. We discuss these findings, present participants’ solutions, and provide recommendations for presenting complex information to the various publics who are most engaged in forest management planning.
Development of a park and recreation master plan process with rural communities in mind

To assist individuals and agencies managing park and recreation facilities, programs, and services, comprehensive recommendations which take into account the recreation needs of community members, the political atmosphere of the community, and the resources available are needed. These comprehensive recommendations often come in the form of a community wide park and recreation master plan. Whether the task is the acquisition of an open area for future recreation opportunities or implementing a new youth development program, a master plan can provide a community the tools needed to confidently make critical decisions. Despite the importance of such a tool, master plans are often not developed in rural communities.

Barriers faced by rural communities in their efforts to develop master plans are numerous, but some of the more critical are lack of human and fiscal resources. Lack of human resources may include, among other things, not having enough individuals to carry out the master planning process. Lack of fiscal resources may prevent a community from even contemplating a master plan or from contacting help, such as a professional consultant, if needed. Although models exist to assist communities with the master planning process, there is a lack of master planning process models which are sensitive to the needs of rural communities. Therefore, the purpose of this presentation is to introduce a model that has been implemented and has been successful in enhancing buy-in and support from community members in several rural/suburban communities throughout Michigan to assist with the development of park and recreation master plans, the Michigan Park and Recreation Master Plan Process (MPRMP) model. Moreover, an explanation of each element in the process will be provided. This will be followed by our experience with implementing the process in a rural community in Michigan, Clare County.
Biodiversity conservation and poverty reduction: unravelling a diversity of perspectives, relationships and assumptions

It is now taken for granted that poverty reduction is an international societal imperative. The Millennium Ecosystem Assessment (MA), however, highlights that poverty reduction is linked with, and dependent on, biodiversity conservation. The Millennium Development Goals (MDGs) provide the overarching framework for poverty reduction efforts and the Convention on Biological Diversity (CBD) fulfils the same function for biodiversity conservation efforts. Both recognise the need for linking the two issues. The CBD adopted a target in 2002 “to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth.” In 2006 this target was incorporated by the United Nations as a new target within the seventh MDG on environmental sustainability.

The conservation-poverty debate is often presented as an issue of two polarised camps – the conservation community on the one side, the development community on the other - with disregard for each other’s objectives. Part of the reason for this is the tendency to talk in generalities about the link between biodiversity and poverty, rather than disaggregating this into the different types of relationship that can occur in different contexts or under different conditions. The other part is the lack of clarity as to the true nature and extent of the linkage: there are a number of assumptions about biodiversity-poverty relationships but a surprising lack of firm evidence on which these assumptions are based.

In fact there exists a wide range of perspectives, informed by different assumptions and by evidence from different contexts. This paper presents a typology of perspectives that may be held by different organisations and the underlying assumptions that inform these perspectives with a view to promoting better understanding between organisations that often have overlapping interests, or mutually supportive objective but may be blind to the potential for synergies.
On the trail of maíze: tracking a vanishing seed through a maze of globalization and the struggle from below

The purpose of this project is to track the history of maíze (corn) in Mexico, with an eye to recent effects of globalization, in order to answer the following question: What is the role of gender within the Mexican environmental rights movement to preserve the biodiversity of maíze and resist the negative effects of NAFTA? The right to preserve seeds, farm their own land, and maintain/gain access to water, land, food, and money are all material grassroots struggles for rural women. The genetic modification of seeds threatens biodiversity by reducing traditional varieties through cross-pollination and the patenting of hybrid seeds. In a highly publicized study by Quist and Chapala in 2001, transgenic corn was discovered in southern Oaxaca in areas were corn was first domesticated (Fitting 2004; Cummings 2002; and Soleri et al. 2006).

There are three phases to this research project. The preliminary stage took place during two separate trips to Chiapas and Oaxaca. The second phase will take place from February through March 2006 in Oaxaca. The final phase will take place for approximately four months beginning this summer in Oaxaca and Chiapas. I conduct interviews with farmers in rural communities through the help of the following organizations that I met in my preliminary trip to Oaxaca: INSO, Puente a la Salud Comunitaria, ECOSOL, Chapingo University, and Tierra del Sol. The recent indigenous movement in Oaxaca, organized by the Popular Association of the People of Oaxaca (APPO), has offered a unique opportunity for study of a grassroots mobilization that incorporates the issues of indigenous farmers with environmental issues. I use data collected from observations at the State Forum of the Indigenous Pueblos of Oaxaca and the Constituent Congress of APPO and upcoming events to develop an analysis of grassroots organizing in Oaxaca. I found, through attending their large meetings and observing numerous marches and rallies that the Oaxacan people’s movement includes a diverse number of issues that reflect the needs of indigenous people, which are intricately linked to land rights and natural resources.
Rollins, Kimberly S, Department of Resource Economics, University of Nevada, Reno, USA
Lucrecia Rodriguez-Barahona, Department of Resource Economics, University of Nevada, Reno

Using Bid Design and Anchoring Effects to Measure the Boundaries of WTP

Measurement of values associated with environmental amenities and natural resource-based recreation is conducted for a variety of purposes. These include evaluation of policy and management options and estimation of the impacts of potential changes in the quality and quantity of those amenities on society. It is widely recognized that economic values associated with environmental amenities extend far beyond traditional economic impacts that are measured as jobs supported, money visitors spend in local communities and similar indicators. A large part of the values of these amenities to society are external to the market. Mistaken conclusions and non-optimal decisions can result by omitting estimates of these non-market values in economic decision-making. Thus, non-market valuation methods have become increasingly significant in assessing social impacts of proposed changes in the state of environmental amenities.

This paper describes a method to better understand individual uncertainty about the value that one might receive from a resource-based recreational experience, and how that uncertainty can affect measurement of willingness to pay. We focus on stated preference models that use dollar valued bids to elicit responses about individual preferences.

We propose a behavioral model and measure how bid design anchoring effects systematically vary with respondents' levels of uncertainty about preferences in a repeated question contingent valuation format. We use four measures of bid design anchoring, (1) the mean, (2) the spread (the absolute value of the difference between two bids), (3) the ratio of mean to spread, and (4) an interaction term between the ratio of mean to spread and past respondent experience with the good in question. We use past experience as a proxy for uncertainty over preferences. We hypothesize that people with more uncertainty about their preferences are more likely to use the bids they are given as signals for the value of the good. The four bid design anchoring measures provide a rich information set that allows exploration of behavioral responses to the bids. We find that bid design anchoring effects are not independent of experience. In particular, these differences are opposite in sign for narrower ranges of bid values, when controlling for the means. We conclude that concern over anchoring bias in welfare estimates may be mitigated by using such a model to more completely define the probabilistic boundaries for WTP.
Local and regional decision makers and climate change scientists: exploring the communication interface

Local and regional decision makers play a significant role in how climate change information is transformed into policy directives and climate change mitigation and adaptation strategies. Local and regional decision makers for this study include government officials and interest group representatives in the areas of environmental quality, planning, public health, economic development, agriculture, and emergency management. Climate change scientists and decision makers each have their own views about the type and format of climate change information relevant for decision makers who address climate change issues. This paper compares the views of climate change scientists and local and regional decision makers in the U.S. and explores the communication interface between these two groups.

Surveys were conducted with climate change scientists (N = 514) and local and regional decision-makers (N = 706). Study findings highlight the type of information that climate change scientists believe decision makers need, the type and format that decision makers prefer, and how decision makers use climate change information. This research will provide valuable insights into how to improve communications between climate change scientists and local and regional decision makers.
The challenges and outcomes of collaborative behavior in the NE Tilefish fishery

The Tilefish Fishery Management Plan allocates a fixed percentage of the annually determined commercial total allowable catch (TAC) amongst three different vessel categories (A, tier1 fulltime; B, tier2 fulltime; and C, part time). Under this process, each of the vessel groups has experienced different economic and social outcomes from their individual and/or collective efforts to manage their allocation. This presentation identifies the basis for these different outcomes, and discusses some of the implications of policies that strive to strengthen the sustainability of marine fisheries.

Interviews with members of category A revealed the conditions that led to cooperation and success in managing their quota. Through proactive participation in the management council process (along with additional measures they implemented outside the council process), the Montauk Tilefish Association halted the race to fish and is now focused on husbanding the resource. We explore how social networks and trust helped this group create a management regime capable of achieving these goals, as well as enhancing safety at sea and fostering a more stable supply of fresh fish to the market.

Interviews with fishermen in groups B and C revealed different outcomes for these fishery participants, despite similar regulatory and market conditions. We examine the underlying social and economic factors that led to these outcomes, and illuminate the contrasts among all three vessel categories to serve as a guide for other groups interested in self-governance and collaborative management.
Ruiz Corzo, M, Sierra Gorda Biosphere Reserve, Mexico

Raising the bar on valuing natural and social capital

Sierra Gorda Biosphere Reserve in Mexico has gained unique experience from a rural and high biodiversity perspective. In order to enter the environmental service market, rural areas have to avoid high transaction costs, seek regional certification and community monitoring and to have the scientific criteria in determining the baseline information that will give confidence to the buyer who seeks added value to premium packaged products and services: hydrological, carbon storage and capture, biodiversity and fighting poverty. These mechanisms respond to the compensation and incentives required by the landowners of forests and jungles, where the habitat itself acquires value and can strengthen the regional economy on the services of protecting these fragile and endangered ecosystems and watersheds from growing threats due to the lack of conservation management.
Rycewicz-Borecki, Malgorzata, Landscape Architecture, Utah State University, USA

Analysis of on-site storm water BMP use and the resulting trends in social perception of water quality concerns

Water quality, which directly affects public health and environmental integrity, is directly affected by non-point source pollution. However, the trend in social behavior to include on-site storm water Best Management Practices (BMP) is slow to adapt. Piping water off-site through underground sewer systems continues to be viewed as the most economic and efficient way to deal with storm water. As a direct response to rapidly decreasing water quality, the Environmental Protection Agency (EPA) federally mandated the inclusion of storm water BMPs on newly developed sites, resulting in a perceivable change in the design of developed landscapes across the country.

The EPA’s National Pollutant Discharge Elimination System (NPDES) developed Phase I in 1990 to reduce polluted runoff from large and medium municipal storm sewer systems, counties with populations of 100,000 or more, and construction activity disturbing five or more acres of land. Phase II of the NPDES, published on December 8, 1999, broadened the scope of the regulations to include small municipal storm sewer systems and any construction activity disturbing more than one acre of land (EPA NPDES 2006). In northern Utah, Phase I of the NPDES directly affected only Salt Lake City and County. However, Phase II required numerous northern Utah municipalities to comply to the regulation, resulting in distinguishable changes to frequency and type of BMP use throughout the region.

Environmental sociologists have found links between governmental regulatory activity, industrial receptivity, and ecological modernization (Spaargaren & Mol 1992). Additionally, a general principle of social learning theory states that learning is accomplished by observing the behavior of others and the outcomes of that behavior (Ormrod 1999). The NPDES Phase I (1990) mandated change in the behavior of large municipalities by requiring on-site storm water BMPs into the design of new developments. Municipalities affected by the Phase II implementation (1999) observed the benefits and results of the various BMP types used throughout the nation, and integrated those they deemed most effective. Using data gathered in a USU research study (Abstract Author 2006), this paper presents the resulting trend of the amount and the type of on-site storm water BMPs used in northern Utah. It also stimulates discussion regarding how regulations influence trends in social perception and behavior in regards to water quality.
Understanding elements contributing to collaboration in community-based wildfire and forest restoration planning

The Healthy Forest Restoration Act (2003) authorizes the development of Community Wildfire Protection Plans (CWPPs) which are intended to be collaborative efforts between representatives from state forestry, local government, and local fire authorities in consultation with federal partners and local stakeholders to address wildfire risk mitigation and forest restoration in and around fire-prone communities. However, collaboration requires specific capacities that are not addressed in HFRA or any other policy mandates. What elements contribute to collaboration to develop CWPPs? We present the results of a qualitative comparative case study analysis of four different CWPP processes in Colorado. The results suggest that collaborative capacity in CWPP efforts is a function of the following: 1) The availability of internal community and external organizational and social network resources, which include, but are not limited to: planning experience, local leadership, facilitation skills, money, scientific expertise, and technology; 2) The relative effectiveness of individuals and organizations to play intermediary roles among CWPP participants, and between CWPP participants and external organizations and networks to access those resources; 3) The organizational affiliation of participants and the extent to which community members are involved; and 4) The degree of “nestedness” of a CWPP process within broader-scale regional efforts which, in turn, influences the availability of and access to organizational and network resources. Effective collaboration is primarily about accessing and mobilizing resources located in different organizations or networks operating at different scales, from local rural fire districts to multi-county regional planning processes. The ability of participants to play intermediary roles contributes to this resource access and mobilization.
Tourism struggling as the Icelandic wilderness is developed

Lately major land users in Iceland have published plans for their land use. These include electric power production, nature conservation, forestry and transport. The tourist industry in Iceland has not put forward a comparable plan, although nature tourism is a major user of land. This puts the tourist industry at a disadvantage as land use will seriously affect the development of tourism.

Nature in the southern part of the Icelandic Highlands is very varied, with volcanoes, lava fields, geothermal areas, sand and glaciers. It is largely wilderness and is a very important area for various types of nature tourism. Landmannalaugar, the most frequented tourist destination in the Highlands is there, Laugavegurinn, the most popular long distance hike in Iceland, many remote walking trails, easy and difficult 4x4 tracks, horse trails, and rafting on wild glacial rivers.

In the same area there are rich possibilities for electrical production, both from hydro and geothermal sources, and the power industry plans to use them.

The aim of this study is to analyze tourist’s experiences in this wilderness area and come to a conclusion whether power production can coexist with the nature tourism practiced there. The research is based on 660 questionnaires, forty diaries and twelve in-depth interviews gathered in the area. The data is used to describe the conflicts that will occur between tourism and the energy industry if energy production starts in the area.

The main conclusion is that the basis of the tourist industry will be totally transformed if the plans for power production are realized. Many of the natural attractions will be literally destroyed by the power plants and the quietness and experience of unspoiled nature and wilderness will cease to exist.

It is still unclear how this will be solved politically in Iceland as the land use plans of the various industries have not been integrated and an holistic land use plan for the whole Highlands has not yet been made.
Managing Water to Support Salmon Recovery: Institutional Designs or Access to Scientific Data?

As the number of salmon has declined in the Pacific Northwest, millions of dollars have been spent identifying the key habitat features needed to support salmon recovery. Nonetheless, managers have struggled to implement recovery plans that meet the habitat needs identified through this research. This shortcoming has resulted in part because the political, institutional, and social landscapes in this region have proved to be as complex as the salmon themselves. It has become apparent that research highlighting the laws, policies, and organizational structures necessary to implement these science-based salmon restoration plans could play an important role in the recovery effort. This project seeks to fill this gap by investigating the institutional setting in which management of one of the key salmon habitat elements – access to sufficient flows of water – takes place.

The research team assessed on-going water management and salmon recovery activities in eighteen watersheds across Puget Sound. The objective of the project was to identify the institutional and organizational features associated with the successful implementation of integrated water and salmon management efforts. The team conducted content analysis of planning and project documents to characterize salmon recovery and water management activities and to identify factors affecting their integration. These institutional characteristics were then compared with the actual implementation of flow control measures to isolate institutional arrangements associated with the successful execution of these types of programs to support salmon recovery.

Initial results illustrate that water and fisheries are managed by separate county and local agencies that have distinct priorities and approaches. Water managers are also under-represented within multi-party salmon recovery organizations, thereby limiting the integration of water and fisheries programs. However, the ESA listing of Puget Sound Chinook was a significant factor in generating new in-stream flow rules in a number of basins, breaking the institutional inertia previously impeding these programs. On-going analyses will further model these relationships and attempt to identify links between other social and institutional variables and the effective implementation of water management and salmon recovery programs. This project offers an expanded application of institutional analysis to integrated water and fisheries management scenarios.
Social or Spatial: Neighborhood Influence on Land Use in the Amazon Frontier

Land use choices of farmers on the Amazon frontier have important repercussions on household income and deforestation. Well-functioning local markets for farm output are likely to affect farmers’ decisions about land use. However, similar to evidence found in other developing regions, these markets in the Amazon frontier are highly imperfect due to high transaction costs and information asymmetries. In this context, social interaction among neighbors can also be an important mechanism of information dissemination that shape farmers’ preferences for available land use alternatives. This paper defines farmer’s neighborhoods by (1) physical proximity, and (2) common membership in farmer associations to compare if ‘spatial’ neighborhoods exert greater influence on farmers’ land use choices than ‘social’ neighborhoods in the Western Brazilian Amazon.

The data for the paper is drawn from a panel of a random sample of colonist farmers surveyed in 1996, 2000 and 2005 in the settlement of Ouro Preto do Oeste in Rondônia, Brazil. A profit-maximizing farmer decides on allocating deforested land between pasture and agriculture based on expected profits from available alternatives. The rapid expansion of the local markets for milk and beef provides incentives to create more pastures. At the same time, non-market institutions like farmer associations promote sustainable agriculture by providing information on technology, access to credit and facilitating marketing of annual and perennial crops. Besides being conditioned by demographic characteristics and market opportunities, farmer’s expected profit is also a function of information on land use gathered from observation and exchange of past experience through interaction among neighbors.

Network autocorrelation models are used to compare the influence of different neighborhoods on farmer’s observed land allocation choices. Information on association membership permits construction of a matrix of social influence where members of the same association are hypothesized to have similar patterns of land use choices, which is compared with the more commonly used spatial proximity-based weight matrices utilizing geographic location of farmers. There is high spatial correlation in area allocated to pastures among farmers across the three periods. Over time, there is also increasing influence of association membership on area devoted to agriculture.
Sanders, Lucinda R, Olin Partnership, USA

Shifting Paradigms of Design in the Urban Realm: Intersections Revealed

An Overview:
As our globe becomes smaller and as natural resources are threatened, our mandate as landscape architects should be to push the boundaries of traditional design of open space within the urban realm. In the process, a greater potential at the intersection of socially, ecologically, and financially sustainable landscapes will be uncovered. Establishing this as a goal of any design challenge does not undermine great design; in today’s world this must be a foundation of great design. One of our missions should be to enhance client awareness and to help formulate agendas for the successful integration of design with sustainable landscapes in urban environments.

A Context:
Open space within the urban realm has not remained static either in form, placement or purpose throughout the centuries. It will and must evolve in direct response to needs and values of a society. The ideas inherent in the design of urban landscapes have significantly evolved over the last several hundred years, from Central Park, the swath of green for all to use in the burgeoning industrial city, to Promenade Plantee, a reinterpretation of a former industrial use. Landscape architects have recently come through a paradigm shift in understanding social sustainability of open space, for which Bryant Park is held as the model within the U.S. Although ecology has floated in the minds of landscape architects, it is only now that city governments such as Chicago are adopting an environmentally sustainable position and developers are finding the notion attractive and saleable. This is only a beginning.

The Challenge:
As landscape architects, we can and must do more. Our designs in urban environments need to be multivalent and realize the potential at the intersection of people and natural resources. This is an interesting moment in the United States and the world. There are cities growing at rates that are unsustainable (Tucson). There are economically challenged cities where population is declining and poverty is rampant (Detroit). As designers answering these pressures, we can no longer design to solve one aspect of a problem, but must integrate other disciplines to help produce informed and magnificent solutions that recognize and respond to global and local consequences of action.

The Process:
We will briefly explore the evolution of open space in the urban realm, then look more deeply into the last quarter century, and spend time speculating on a fuller potential of landscape in urban environments.
Using segmentation to develop an off-highway vehicle route system in the Colville National Forest

Off-highway vehicle (OHV) recreation is one of today’s fastest growing recreational activities, and public land managers need to know more about OHV recreationists to adequately provide OHV recreation opportunities. The U.S. Forest Service, the leading provider of OHV recreation facilities in the U.S., is currently grappling with how best to manage for OHV recreation on its forests and grasslands. However, little information exists to characterize OHV recreationists.

The need for improvements to the OHV route system in the Colville National Forest became apparent in 2004 when a series of collaborative public meetings was initiated to create a Recreation Travel Strategy. The purpose of this strategy was to enhance recreational opportunities in the Forest, and the top priority that resulted from the process was the need to add more routes for all-terrain vehicles (ATV’s) to ride on.

The purpose of this study was to better understand OHV recreationists’ motivations and determine if unique types exist, based on motivations, demographic information, and riding characteristics. This study focused on OHV recreationists who ride in the Colville National Forest in Northeast Washington. Information was gathered through 186 surveys administered at local OHV shops. Recreationists were segmented using the Recreation Experience Preference scales, and four distinct clusters resulted: Cautious Highly Involved Enthusiasts, Family-Oriented Nature Enthusiasts, Thrill-Seeking Nature Enthusiasts, and Highly Involved Enthusiasts. These clusters varied in terms of preferences for route system characteristics, type of OHV usage, age, and gender. Recreation managers will be able to use this information to plan for each of the four types of recreationists when developing OHV route systems and considering OHV management actions.
Values Mapping – A Collaboration Tool for Public Land Planning

In January 2005, the US Forest Service published new planning regulations (2005 Rule) for completing the Forest Planning process. The 2005 Rule requires each Forest to develop a Forest Plan that will guide resource management and monitoring at the project level for the next 10 to 15 years. The Rule also requires that the development of the plan be done collaboratively, all phases of the plan are to be open to people to be involved and provide input. Collaboration at this scale is a fairly recent movement within the Forest Service and examples of successful efforts are limited.

As part of initial resource assessments, several Forests have contracted for a random sample survey of resident resource values and specific place based values. The results of the values survey provide a GIS display of values distributed across the landscape that can be used in issue based and place based collaboration discussions. The collaborative dialogue is informed by the results of the survey, as well as by the Forest resource data in real time with GIS database. Point of conflict, agreement, and the need for trade offs or compromise can be displayed and discussed.

This approach to collaboration is being used for the Pike and San Isabel National Forests’ revision effort currently in progress. Initial results, lessons learned, and future research ideas will be highlighted.
Rural communities across America are experiencing rapid and unprecedented social and demographic change. Few rural communities today maintain their traditional dependence upon extraction-based industries such as agriculture, mining, and timber. Instead they exhibit a variety of different development trajectories. For amenity-rich rural areas, one of the most prevalent development paths has been a shift towards tourism and recreation based economies founded upon the abundance of local natural resources (Beale and Johnson, 1998; Halfacree and Boyle, 1998; Shumway and Otterstrum, 2001; Smutny, 2002). An important aspect of this new recreation and amenity-based development is the extensive development of the seasonal housing market. As the number and concentration of seasonal homes in rural America has increased over the past several decades, concern over the protection of the environment, economic costs and benefits, and issues of social inequality and division have become a major concern for planners, local governments, and residents. The role of seasonal residents in their host communities is still being defined: are they primarily tourists or do they engage with their neighbors in meaningful ways important to general community well-being?

This study uses survey data collected in Washburn and Burnett Counties of Northern Wisconsin to analyze the affectual community attachment of seasonal and permanent residents. Building upon the growing literature concerning place attachment (see Stedman, 2002), this study expands the concepts to explore attachment to the human community of an area and interpersonal relationships. It uses hierarchical modeling and conventional OLS regressions to examine the impact of community-level measures of seasonal housing development as well as individual social and demographic characteristics on levels of community attachment. Are seasonal homeowners socially disengaged from their host communities, and if so is this disenfranchisement inherent in seasonal homeownership or reflexive of individual differences? Does the number and/or concentration of seasonal housing in a community discourage community engagement? Findings suggest that individual social characteristics exhibit the largest impact on the health of communities and that seasonal home development has a fixed, deteriorative effect on host communities.
Schively, Carissa, Humphrey Institute of Public Affairs, University of Minnesota, USA

Scoping Processes in Environmental Review: Assessing Application in Transportation Agencies

This presentation will address the use of scoping efforts in environmental review for transportation projects. Scoping is a required aspect of environmental review under the National Environmental Policy Act (NEPA). The scoping process involves coordinating with internal agency stakeholders and interested parties outside of the agency responsible for review (Jain et al. 2002). Scoping is used to identify alternatives, issues, and information relevant to the environmental review (Jain et al. 2002). Another important aspect of scoping is the identification of key parties who will be involved in the environmental review process (Randolph 2004). Effectiveness in determining the scope of the environmental review effort is very important to good decision-making about environmental impacts (Eccleston 1999).

While scoping is required under NEPA, there is significant variation in state and federal agency approaches to scoping. While there are variations in how it is conducted, scoping typically involves some identification of stakeholders and relevant sources of information. The success of scoping efforts can be very important to gathering public and agency input about potential environmental impacts and in providing information to inform later steps in the environmental review process (e.g. selection of alternatives, level of analysis of key impacts).

The presentation will focus on approaches to scoping used by state transportation agencies and will feature information drawn from case studies of recent scoping processes in environmental review for transportation projects. The presentation also will draw on the results of a survey of staff in U.S. state departments of transportation related to agency implementation of environmental review. The survey results will address the timing and organization of scoping process, the influence of scoping efforts on environmental review outcomes, the relationship of scoping to other steps in the environmental review process, and techniques for public and agency involvement in scoping processes. In addition to highlighting these research findings, the presentation will identify recommendations related to scoping processes, applicable in transportation and wide range of resource and planning contexts.
Describing and Differentiating Recreational ATV Rider Preferences

Participation in off-highway vehicle (OHV) recreation is experiencing phenomenal growth at both state and national levels, presenting a host of challenges and opportunities for resource managers. Nationally, participation in OHV recreation increased 42% in the period 2001 through 2004, totaling an estimated 51 million Americans aged 16 and older. Fully 70% of OHVs in use are all-terrain vehicles (ATVs), sales of which have increased over 280% since 1994. Although limited descriptive studies exist on ATV riders, recreation management and planning can be enlightened by understanding ATV recreation preferences through specialization. Given the rapid growth of recreational ATV riding across the United States, examining recreational riding preferences is both timely and important. The purpose of this project was to discern 1) important recreation preferences among systematically selected registered recreational ATV riders in one state, and 2) preference differences by recreation specialization. A mail questionnaire to recreational ATV riders (n= 800) was launched spring 2005. A response rate of 40.2% was realized, but a non response check revealed only a minor difference in the variables of interest. Descriptive and comparative analysis examined the data and results shed light on the preferences of recreational ATV riders and suggest that a ‘one-size-fits-all’ approach may not satisfy the range of participation styles. Management implications for ATV trail design and ATV tourism are discussed as well as ideas for future research.
Ecosystem values and their relationship to ecosystem services

Ecosystems give rise to value in diverse ways for different people and groups. Various systems and models have been proposed for identifying, cataloging, and considering these values in environmental decisions. Recently, increasing attention has been focused on the idea of ecosystem services as a way to provide a fuller accounting of ecosystem functions that are important to human well-being but that have historically been neglected because they have not been priced or traded in markets. Some proponents of this approach have adopted a broad definition of ecosystem services that encompasses virtually all forms of values associated with ecosystems -- including spiritual and religious values, sense of place, and cultural heritage.

In this paper, I argue that viewing all environmental values as ecosystem services may lead us to draw inappropriate conclusions about some of the values that arise from human interactions with ecosystems. I present a conceptual scheme for thinking about how different kinds of value (defined as a feeling or sense of importance, worth, or significance that something has for someone) may arise from an ecosystem. I identify five general types of value stemming from ecosystems, ranging from tangible products to intangible meanings. I examine some ways in which these different types of ecosystem value are related to each other, and explore some issues concerning the relationship between ecosystem values and ecosystem services.

When we speak of ecosystem services, we look at ecosystems in terms of how they serve our desires and needs. Our focus of concern is not the ecosystem itself, but what it does for us. But people do not only value ecosystems as a source of goods and services. They also value and care about natural environments, organisms, and places for their own sake, for what they are in and of themselves. Ecosystem services are one important way in which value can arise in the relationship between people and ecosystems, but attempting to understand all forms of value that humans associate with ecosystems as services may lead us to misunderstand or overlook other important aspects of how people value environments and places.
Schroeder, Robert , USDA Forest Service R10, USA

Subsistence Deer Hunting on Prince of Wales Island: From Conflict toward Resolution

Field studies, conducted at intervals since the passage of the Alaska National Interest Lands Conservation Act in 1980, have provided information relevant to the Act’s goal of protecting subsistence uses of fish and wildlife: evaluating the effects of resource development on Federal lands that might restrict subsistence uses and, secondly, insuring a priority for subsistence hunting and fishing in times of scarcity or when urban competition infringes on rural residents ability to get the fish and wildlife they need. Prince of Wales Island (POW) in southeast Alaska has had extensive clearcut logging on Federal and private lands, seen creation of a road network and of new timber oriented communities, and gone through a population boom and decline. Its once remote hunting areas have become easy to reach for urban hunters. Not surprisingly, these changes have resulted in alterations in hunting patterns. In recent years, rural Prince of Wales residents wanted regulatory changes to limit when and where urban hunters can hunt to allow rural subsistence hunters a better opportunity to get the deer they need for food. Making these changes proved to be extremely contentious and controversial, with rural hunters at odds with urban hunters and the State of Alaska, the Federal Subsistence Board, and its Southeast Subsistence Regional Advisory Council caught up in the conflict.

To work through this resource use conflict the Regional Advisory Council and the Federal Subsistence Management Program established a working group of persons concerned with POW deer to see if the group could arrive at consensus recommendations. This group ended up addressing not only the hunting issues but also the very real habitat and environmental results of decades of unbridled logging. This paper analyzes the social and cultural changes that have taken place on the island in the logging years, outlines the process used by the working group in reaching consensus, and examines the factors that allowed progress to be made on complicated resource management issues on the island.
Politic action and philanthropy for lake protection: Do outdoor recreation participation and place attachment predict intention to conserve Minnesota lakes?

After 3 decades of study, research still needs to clarify how people connect to places through outdoor recreation, and how that may lead people to conserve special places. This study examined the relationships among recreation participation, place attachment, and intention to conserve a favorite lake. Results were derived from a 2004 survey of Minnesota residents.

Four clusters of respondents were identified based on their recreation participation: (a) all-around recreationists (n=187), (b) appreciative recreationists (n=182), (c) consumptive recreationists (n=45), and (d) low-level recreationists (n=171). The groups differed in age, years living in Minnesota, income, gender, and ownership of lake property. Low-level recreationists reported the lowest levels of place attachment and likelihood of taking action to protect lakes. All-around and consumptive recreationists reported higher levels of attitudinal place attachment, normative place attachment, and intention to take philanthropic action to protect a favorite lake. Appreciative recreationists reported a higher likelihood of taking political action.

Multiple-sample structural equation modeling suggested that the relationship between (a) attitudinal and normative place attachment and (b) political and philanthropic action to conserve a favorite lake differed among the four clusters of respondents. Models for all groups had reasonable fits to the data and explained 2% to 41% of the variance in political action and 9% to 49% of the variance in philanthropy. Attitudinal place attachment positively predicted philanthropic action among all four groups of recreationists, and was positively related to political action among consumptive and less-engaged recreationists. Normative place attachment was negatively related to both philanthropy and political action for consumptive recreationists.

Because of differences in property ownership and demographics among groups, multiple regression analysis was used to clarify the relative effects of place attachment, recreation participation, property ownership, and demographic characteristics on conservation intentions. Attitudinal place attachment and ownership of lakeshore property were positively related to intention to take philanthropic action, while being part of the less-involved recreationist cluster had a negative relationship. Attitudinal place attachment and appreciative recreation participation were positively related to taking political action. Results suggest that attitudinal place attachment and recreation participation may be important predictors of intention to protect lakes.
Wildfire risk perception and climate change: The influence on homeowner mitigation behavior in the wildland-urban interface

This research investigates homeowner understanding about increasing wildfire risk due to climate change and how this knowledge affects mitigation behavior. Wildfire is a destructive and costly force in the American west and growing scientific evidence links climate change with more severe and frequent fires. The risk is greatest at the wildland-urban interface, where the federal government spends over half of its fire protection resources. As the federal government is calling for landowners and communities to bear more of this cost, local governments are increasingly concerned with encouraging homeowner responsibility for mitigation.

This paper explores the following question: How does knowledge of climate change influence homeowner perceptions of wildfire risk, level of concern, and mitigation behavior? A frequent topic in the risk literature is the disconnection between risk perception and mitigation behavior. We use this comparison as a framework to examine the influence of climate change. Furthermore, we investigate the current state of homeowner mitigations and how information about wildfire and climate change is best presented to homeowners. We use data from a mail survey of homeowners in medium and high wildfire risk areas of the wildland-urban interface in Colorado.

Results indicate that concern and risk perception are related to environmental factors like climate change, whereas mitigation behavior is related to personal values. While homeowners have a fairly accurate understanding of the impact of climate change and other environmental risk factors, these alone are not enough to promote mitigation. Mitigation investment is primarily related to the value homeowners place on various amenities associated with their house, including privacy and aesthetics. Results also show that climate change impact information is best received when it is short-term, and site-specific.

Research results are revealing as they relate to wildfire research and policy and also inform the broader debate over climate change information and human behavior.
Methods for conducting cumulative effects analysis for terrestrial species and habitats

Under the National Environmental Policy Act of 1969 (NEPA) federal agencies are required to assess the cumulative effects of their proposed actions. Cumulative effects analysis (CEA) must take into account both public and private lands and include "past, present, and reasonably foreseeable future actions" (40 CFR § 1508.7). This is an enormous responsibility for many reasons: time and budget constraints, lack of availability of scientific information, the scope of the analysis, and the complexities and uncertainties associated with ecosystems, all make CEA challenging.

This paper begins by considering the regulatory history and intent of the CEA requirement. A legal case history is also provided to explore how courts have interpreted the agencies' responsibility to perform CEA. Next the paper outlines several scientific methodologies available for performing CEA for terrestrial species and habitats. CEA methodologies were identified through a scientific literature review and include: the use of ecological modeling, expert opinion-based modeling, the use of indicator species and response guilds, and GIS-mapping. In order to understand how scientific methodologies are incorporated into CEA by federal agencies, the next section considers the CEA in a small sample of environmental impact statements (EISs). For example, the paper provides a qualitative analysis of the CEA in the Northern Rockies Lynx Amendment and finds that the CEA in the Lynx Amendment is highly general, qualitative, and vague. The CEA does very little to distinguish between cumulative effects under different alternatives or for different species, and it avoids any consideration of activities on private lands.

Findings of this research include that there is a significant discrepancy between CEA methods in the scientific literature and in the sample EISs. This forces us to consider why such a discrepancy exists, whether the CEA requirement under NEPA is unachievable as it is written, and whether it could be modified to achieve higher quality CEA. This topic is relevant to the broader discussion of how to manage lands at the ecosystem scale and how to incorporate scientific information and standards into statutory requirements for public land planning.
Seekamp, Erin L, Conservation Social Sciences, University of Idaho, USA
Charles C Harris, Conservation Social Sciences, University of Idaho

Challenges facing water resources management in Idaho: A representative survey of stakeholders.

Water management is complicated by its need to meet multiple and competing interests, including domestic, agricultural, industrial, and recreational use, as well as ecosystem services and hydropower generation. Associated with the multiple demands for water resources are multiple challenges that could be addressed with future research. A survey process for identifying and prioritizing water resources research needs was conducted during fall of 2006 that clarified experts’ perceptions of these challenges. In-depth interviews were conducted with a representative range of diverse stakeholders across Idaho to assess the commonalities and nuances of these challenges. Sampling was dimensional, with stakeholders identified based on key agencies, organizations, and Tribes, as well as by means of chain referral sampling. Representativeness was ensured by sampling stakeholders based on their affiliations, job titles, and locations (i.e., ecoregion). Face-to-face and phone interviews were conducted in both single and group interview formats between August and November, 2006. Participants were asked to identify the three greatest challenges or issues for water resource management that they faced in their work, as well as to elaborate on each issue. Findings revealed a variety of challenges facing water managers, some of which were mentioned by multiple respondents and others that were unique; some were reported to be lessening in magnitude and seriousness, while others are worsening.
Seidl, Andrew F, Colorado State University, USA
Elizabeth Myrick, Agricultural and Resource Economics, Colorado State University

The community economics of community forestry: Two case studies in the Intermountain West

Community based forestry organizations (CFO) may assume a great variety of potential roles in a community. These roles may have direct, indirect and/or induced economic impacts on a community. We employ commonly used regional economic development techniques to highlight the local economic impact of CFO programs by tracing the recent activities of two community forestry operations through their local economies; Wallowa Resources (WR), a CFO located in NE Oregon and Public Lands Partnership (PLP) in SW Colorado. This approach is at variance with the more common application of the same regional economic tools, as it turns the analysis upside down. Typically, regional economic approaches take a snap shot of an entire economy and then attempt to discern the impact of an individual industry or sector on the entire economy, or from the top down. Here we begin with Community Based Forestry (CBF) programs and derive the impact on the economy from the programs upward.

WR and PLP are two very different community based forestry organizations. WR focuses on restorative and educational programs for the community as well as aids in developing value added forest products. WR takes a very direct, hands-on approach to community forestry. This can easily be seen in the analysis by examining the types of sectors which are most greatly impacted by WR. Similar to PLP, Wallowa Resources has a large impact on the Administrative Support Services sector, but the organization also impacts the Wood Products, Educational Services, and Agriculture and Forestry Support Services sectors. WR programs have a local annual economic impact of close to $2 million.

PLP also takes a very active role in the community, but instead of creating several different programs, PLP focuses on forming relationships and coordinating the various groups within the community. These relationships form the foundation for several of the environmental education programs within the region. PLP acts as a facilitator and convener among groups that may not otherwise communicate with one another. PLP provides leadership and coordination for forest stewardship within the region valued in the hundreds of thousands of dollars.
Social Learning and Building Trust through a Participatory Design for National Forest Trail Planning

Collaborative approaches to the planning and management of natural resource systems have grown in popularity over the past two decades. However, our understanding of how collaboration forms and how to build the capacity of collaborative management efforts lags behind developments in the field.

This practice and research-based presentation reports on a deliberative planning approach used in developing a comprehensive trail management plan for the Monongahela National Forest in West Virginia, USA. A research team from West Virginia University convened a two day trails workshop that engaged a diverse mix of recreational trails stakeholders including planning staff of the United States Forest Service, the managing authority of the Monongahela National Forest. The two day workshop brought together twenty-four participants, including business owners, environmentalists, equestrian club members, mountain bike enthusiasts, state tourism authority staff, wilderness advocates, state transportation officials, and a representative of the National Park Service.

The conference presentation will describe the search conference model used to facilitate the workshop including a unique peer reference system used to select participants for the trails workshop. Results from both participant observations conducted during the workshop and an exit survey will report on the level of social learning and trust-building that occurred during the workshop.

Implications of the study project for regional planning and future research will be discussed. Collaborative management approaches have potential to promote social learning and reduce the level of conflict associated with regional development. This potential will only be realized through thoughtful assessment of deliberative planning techniques.
The Mediating and Moderating Effects of Attitudes and Knowledge of Bats: An Application of the Cognitive Hierarchy

This paper examines the mediating effects within each link of the cognitive hierarchy, from value orientations through behavioral intentions, using a case study evaluation of bats. Also examined are the moderating effects of knowledge on the cognitive hierarchy. Two measures each of basic belief, attitude, behavioral intention, and knowledge were developed and measured via a survey of a random sample of Fort Collins, Colorado residents (n = 718). A series of mediation models representing each level of the hierarchy and moderation models to measure the effects of knowledge were tested using ordinary least squares regression. Results support the hypothesis that wildlife value orientations and beliefs predict attitudes and attitudes mediate the relationship between basic beliefs and behavioral intentions. In addition, results support specificity of measurement theory, with general beliefs about bats having greater effect on general attitude than wildlife value orientation in general, and specific attitudes having greater effect on specific behavioral intentions toward bat conservation and mitigation than general attitudes. Finally, knowledge about bats is explored as a potential moderator of the relationships described above.
Shandas, Vivek, Urban Studies and Planning, Portland State University, USA

Linking Land Use Planning with Water Resource Management: Empirical evidence from the Portland metropolitan region

Understanding and managing the human and physical factors contributing to water consumption is an increasing concern. While, uncertainty about the impact of future climate patterns and population growth exacerbate demand on water resources, few studies have explicitly linked urban planning with water resource management. In this paper we examine the relationship between human and physical factors affected by urban planning policies and their impact on water use. Specifically, we address two research questions: (1) what physical features of the landscape help explain water use? and (2) How does land use zoning affect the use of water in an urban area? Using a multi-region model we analyze the relationship between water use for the years between 1996 and 2005, and the human and physical conditions in the Portland (OR) metropolitan region. Our results suggest that the amount of vegetation, specific socio-demographic characteristics, and land use help explain the majority of water consumption for our study region. Because the findings provide some of the first evidence for linking land use planning and water resource management, these results allow urban and regional planners to incorporate water demand in long range plans.
National Payment for Environmental Service Programs in Mexico: Social and Environmental Sustainability at the Community Level

Payment for environmental service programs, which attempt to create markets for the products of ecosystem function such as greenhouse gas sequestration, biodiversity, and water quality and quantity, are currently being promoted and implemented worldwide. This paper examines two national-level payment for environmental service programs instituted by the Mexican federal government and explores the ways in which institutional design, civil society capacity and the ability of rural communities to act collectively affect the long term social and environmental impact of community-based payment for environmental service programs. The first of these programs, PSA-H, was first implemented in 2003 and provides payments for the production of hydrological services through forest conservation. The second, PSA-CABSA, was implemented in 2004 and provides payments for carbon sequestration, biodiversity conservation and the improvement of agroforestry systems. Approximately 80% of forestland in Mexico is communally owned and managed by either peasant ejidos or indigenous communities, and the majority of program contracts have therefore been signed with communities as opposed to private property owners. Analysis is based on case studies completed in twenty-one participating rural communities in the southwestern states of Oaxaca and Guerrero, and on interviews conducted in Mexico and the United States with the primary actors involved in design of the two programs. Results indicate that, with existing levels of funding and institutional capacity, these payment for environmental service programs will only have long term positive social and environmental impacts when implemented in communities that meet the following criteria: 1) a pre-existing forest management regime; 2) links with civil society organizations capable of training them in the necessary management, monitoring and marketing skills; 3) a solid and democratic internal governance structure. Suggestions are made for ways and means of fortifying community-based payment for environmental service project design in order to account for and address these issues.
Agricultural change at the rural-urban interface: policy, social infrastructure and adaptation in 7 U.S. counties

Population growth and development at the rural-urban interface has created a host of challenges and opportunities for farmers/growers in managing their business. The longstanding policy focus has been on growth management and farmland preservation, which has a direct impact on the landscape but a less well known impact on the dominant landscape manager. This research seeks to assess the impact of local land-use policy, agricultural development policy and social infrastructure on farm management decisions at the rural-urban interface. Results from field research in seven U.S. counties in five states (MD, GA, MI, OR, and KY). The qualitative analysis focuses on understanding how agriculture is changing in each of the sites and how local policy and social conditions are influencing farm changes in the counties. The analytical approach is informed by models from geography and planning. Findings include acknowledgement of diverse local policy environments across all study sites, important commodity specific challenges and opportunities that transcend urban context, important cultural and social influences on local commitment to agriculture, and diverse local policy contexts that shape local decision-making. These results are informing a survey of landowners in each site and have important implications for local, state, and national policy development.
Shelby, Lori B, Economics, Colorado State University, USA
Deborah J Shields, USDA Forest Service, Rocky Mountain Research Station

Public Values, Objectives, Beliefs, and Attitudes towards Forests and Forest Management

The Government Performance and Results Act (GPRA) requires that each Federal agency submit to Congress a Strategic Plan. As an essential part of the strategic planning process, GPRA requires an agency to ask for the views and suggestions of anyone “potentially affected by or interested in” its strategic plan. The National Survey of Values, Objectives, Beliefs, and Attitudes (VOBA) is one source of information on the public’s views and beliefs that are used to develop the USDA Forest Service’s strategic plan. The purpose of the VOBA survey is to collect data about the preferences and goals of the American public regarding the management of forests and grasslands. As a result, this recurring survey is designed to reflect the changing goals and interests of the American public over time. The original VOBA survey was implemented in 1999/2000 as a module of the National Survey on Recreation and the Environment (NSRE). Randomly selected members of the American public were asked about their: values with respect to public lands; objectives for the management, use, and conservation of forest and grasslands; beliefs about the role the USDA Forest Service should play in fulfilling those objectives; and attitudes about the job the USDA Forest Service has been doing in fulfilling their objectives. Version 2 of the VOBA survey (administered in 2003/2004) contained objectives and beliefs questions. The purpose of this presentation is to present the results from Version 2 of the VOBA survey, and to compare these results with the original VOBA survey. Major findings include, but are not limited to the following: (a) The public sees the protection of ecosystems and habitats as an important objective and role for the agency; (b) There is a lack of support for developing new paved roads; (c) Managing motorized recreation is a high priority objective; (d) There is support for allowing diverse uses; (e) On average, the public is neutral with respect to expanding energy and mineral production; (f) Reducing the spread of invasive species is supported; and (g) Using management tools to reduce wildfires is an important objective and an appropriate role for the agency.
Has the designation of a World Heritage site led to environmental improvement or environmental destruction? A Case study of Yakushima Island, Japan

Yakushima Island spans an area of 505 km2 and is situated 1,000 km to the south of Tokyo. In 1993, a part of this mountainous region was designated as Japan’s first world natural heritage site. One of the most famous sights for tourists who visit this region is the Jomon Cedar, which is at least 2,500 years old. Today, 14,000 people live in the lowland region of the island, and these locals have nurtured a long relationship with their natural resources, both spiritually and physically. On the basis of two surveys, this study aims to clarify the chronological changes (before and after the designation as a world heritage site) that occurred in the natural resources management system in Yakushima. The survey spanned three years and included over 60 employees who worked in departments for the promotion of tourism and conservation in Yakushima Island. A questionnaire survey on 368 local people was carried out in 2006. The designation of Yakushima Island as a world heritage site prompted the public authorities—the forest agency and Kagoshima Prefecture—to construct facilities promoting tourism, such as boardwalks and toilets in the mountainous region. Authorities at the town offices also constructed public parks and toilets in the lowland region. As a result, the cost of maintenance of the entire island increased from 21 million yen in 1992 to 138 million yen in 2002. The construction of these facilities led to an increase in the number of visitors to the mountainous region, and ironically, the environmental conditions of Yakushima Island deteriorated; these conditions are now worse than they was before Yakushima’s designation as a world heritage site. In order to mitigate this issue of overuse, the public authorities established coordination institutions after 1995. These institutions partly enhanced the functional capacities of communication among the authorities; however, local participation in these institution. Over 60% of the local people realized that Yakushima’s environment was deteriorating, and they lodged complaints against the public authorities’ efforts, saying that they were disrespectful of the opinions of the local residents. Furthermore, 90% of the locals supported a bottom-up decision-making system for constructing a management plan for Yakushima. In conclusion, a top-down approach, which was highly inclined towards public works, did not serve to resolve the issue of the overuse of the mountainous region in Yakushima. In order to improve this situation, it is necessary for the public authorities to seek more local opinions and involve the members of the local community in the planning of the management system.
Making plans as if the environment really mattered

There is a growing body of opinion in statutory land use planning circles that the maintenance of natural capital which includes ecological systems should be the primary goal of ecologically sustainable development.

To accommodate this approach in land use planning questions have to be asked concerning the amount of natural capital, its condition, and the thresholds beyond which natural capital cannot be degraded by or lost to development without compromising its integrity.

The paper then examines how each of these issues can be addressed in statutory land use planning by reference to examining approaches to natural resource use planning. Examples are taken from water resource planning (riparian zone planning, riverine planning, catchment and sub catchment planning) and land resource planning (vegetation management and land suitability studies).

The paper then sets out the specific implications for strategic land use planning and for development assessment approaches and practices which arise from using the natural resource model of planning.
Japanese Case study on the Management of Rural Tourism in Farm Village

Rural tourism efforts for farm village endogenous development are getting to vary widely from 1990's in Japan. Three important conditions to manage and promote rural tourism from the viewpoint of endogenous development are discussed in previous reviewed survey. (1) The connection between rural tourism and other local industries is needed to induce local intermediate demands on local industries and increase local economic revenue. (2) Management for rural tourism should be conducted by local residents. Particularly, participation of such local residents in making decision stage of rural tourism seems to be important point to empower local residents. (3) Rural tourism management needs to be conducted within relation to environmental conservation. In addition, it is suggested that multi-functional resources use in rural tourism bring farm management diversification.

We conducted the case study analysis of rural tourism in three communities in west part of Japan. These three communities are recognized as the region conducting typical rural tourism for endogenous development such as farmers' market, conservation activities of historical heritage, farmhouse inns, farmer's restaurants, community farming and so on. In the paper, the difference between the actual condition, which drowned by the case community analysis, and above ideal condition for endogenous development was identified.

The findings from the paper are as following. In order to manage rural tourism to contribute to endogenous development, three conditions must be met. Firstly, there needs to be a strong connection between rural tourism and regional agriculture to strengthen agricultural policy such as promoting new farmers, improving agricultural income, and supporting farmland conservation effort. Secondly, a wide range of roles and functions need to put on urban residents engaging rural tourism. And thirdly, rural tourism should take more active effort to promote local environmental resource use. In this study, none of the three communities met each of these. It is needed to conduct tourism activities in context of all of above three conditions.
The Influence of Forest Experience on Depression

Depression is a common disorder in the general adult population. The prevalence of depression is estimated to be between 5% to 30%, with as much as 20% of the adult population experiencing at least some depressive symptom at any given time (Danton and DeNelsky, 1995).

The power of forest experience to influence human mental condition is well established. Kaplan's 'attention restoration theory' (Kaplan, 1995) proposes that exposure to nature/forest reduces mental fatigue, and provides restorative experience. If so, contact with forest, which appears to mitigate mental fatigue and provide mental restoration, may reduce depression. A concept relevant to coping with depression during forest experience is that of "temporary escape" (Driver and Knopf, 1976).

This study investigated the efficacy of forest experience for mildly and moderately depressed adults. Using pretest-posttest group design, thirty participants in 3-day forest camp were assessed. The forest camp was designed for this study composing of dynamic and passive activities (eg. mountain climbing, meditation, etc.) in Kwangneung forest, Korea. The Hamilton Rating Scale for Depression, Beck Depression Inventory, and questions relating to participants' perception of the program were administered. Results indicated that participants' depression levels were significantly decreased after forest experience.
The disconnect between hypothetical and observed values for green energy in Tennessee

Historically contingent valuation methods have performed rather poorly at predicting consumers’ actual behavior in regards to green power programs. Previous studies have found stated willingness to pay for green power ranging from $5 to $13 and stated participation for such programs ranging from 30 to 80 percent. However, actual premiums charged for green power by utility companies are generally less than this and generally participation in green power programs remains steady at around 1 percent. Several explanations have been given as to why contingent valuation predictions are so flawed in regards to observed willingness to pay and participation for green power programs. The most popular of these explanations include hypothetical bias, presence of free-riding behavior, and lack of knowledge concerning green power programs. This study compares contingent valuation survey data of Tennessee residents with actual participation rates of the local green power provider while examining two less acknowledged reasons for the traditionally observed lack of criterion validity: unfamiliarity with the proposed, hypothetical market structure and uncertainty of the benefits from participation. In previous studies, participants are asked to value a portion or mix of their total energy consumption being produced from green power. While this is a realistic market for green power, this market setting is unfamiliar to most consumers. By asking survey participants to value a 100% mix, or all of their electricity consumption coming from green power, consumers are placed in a more familiar market setting. When willingness to pay values of a 100% mix are compared to the average cost of supplying 100% green power, stated values are more closely aligned to green premiums currently charged. In addition, many consumers are not convinced that electricity production is a major source of air pollution and thus are unsure of the benefits of green power. Opinions on the impact of coal-fired power plants, automobile emissions, and manufacturing plants on regional air quality are regressed on stated participation in green power programs in order to determine how attitudes on air pollution affect stated participation rates. Results show that attitudes on the sources of air pollution can impact participation in green power programs.
Dislocation and Depression: Social Consequences of Hurricane Katrina

Hurricane Katrina has been the worst natural disaster in the history of the United States. Its effect on New Orleans has been especially severe. Never before has a city of that size experienced so much destruction. Overall, Katrina rendered 205,000 houses uninhabitable; 180,000 of those homes were in New Orleans, representing 60% of the pre-Katrina housing stock. The lack of available and affordable housing that resulted from this destruction has prevented most evacuees from returning to New Orleans, although many openings for well-paid jobs exist. Previous research on (natural and man-made) disasters has shown that the psychological consequences for the population affected by disasters did not always show up immediately but manifested themselves 1-2 years after tragedy struck, as was most recently noted in the context of the events of 11 September 2001. This paper will present results from 2007 survey of Katrina evacuees that examines the prevalence of depressive symptoms among this population. Using a standard scale widely used to assess mental health in social surveys, the paper estimates a model to identify the factors that contribute most to the existence of depressive symptoms as well as those factors that tend to reduce them. To place our results in a larger context, we will also compare them with previous results that we obtained from a panel study of welfare recipients in Louisiana. We expect to find greatly elevated levels of depressive symptoms, even when compared to other vulnerable population groups. We further expect length of residence in New Orleans, attachment to the community, and the level of social support to be among the most important factors explaining the level of depressive symptoms.
Skar, Margrete, Norwegian Institute for Nature Research, Norway

Changes in children’s use of their natural surroundings through three generations – challenges for management

A study in progress investigates the use and experience of nature in a local everyday context, through a qualitative study based on life history interviews with adults in different life phases. This paper focuses on the use of nature in childhood. Studies of children may capture present trends, and thus also indicate what the future will be like. The paper asks how and why children’s use of nature in the neighbourhood has changed throughout three generations, and how land management and spatial planning should adapt.

The informants’ childhood in the 1950s and 1960s was dominated by play and outdoor gatherings. Today, outdoor life in the everyday surroundings is characterized by less extensive spontaneous activities, but more activities are organised and planned, and mostly take place together with adults. Organized leisure is developing at the expense of activities outside of adult control. Up until quite recently children’s range of activities and radius of action expanded with their age and skills. The study indicates that this natural progress is now less pronounced. There are two main reasons for this, to some extent applying to different social groups: Firstly, many children today grow up in a culture characterized by ‘over-activity’. Frequent participation in organised activities indicates social status, but leaves little free leisure time. Secondly, many children also grow up in a culture characterized by ‘inactivity’ and with strong preferences for indoor activities. The study indicates that this difference to a large extent follows social/economic demarcations in the population.

Children’s use of nature in the neighbourhood decreases due to attractive (often organized) activities further away and seductive indoor activities, but also because of physical changes in the neighbourhood, such as development and overgrown playgrounds. Attractive meeting places for children are necessary to counteract this trend. A comprehensive spatial planning process is necessary, where representatives for parents, kindergartens, schools and children themselves participate in the framing of overarching municipal goals as well as appropriate building regulations.
This study examines changes taking place related to agrobiodiversity in five communities in Cotacachi County in the Northern Ecuadorian Andes.

One of agriculture’s cradles, the Andes was site of a number of crops’ domestication, within which a wide variety of landraces developed. This center of diversity received early attention as a rich source for seed collectors. During the latter decades of the past century, however, scientists started observing the disappearance of these plant genetic resources from fields. With the simultaneous realization that frozen gene bank collections might not prove as viable as presumed, genetic erosion from farmer’s fields was identified as a threat to future food supplies. This erosion has most often been tied to agricultural modernization – the green revolution’s modern varieties taking the place of landraces. The current research examines the validity of the above genetic erosion narrative in the case of Cotacachi, asking the following research question: How have patterns of seed choice changed in Cotacachi during the last decades, and what are the reasons behind the changes?

Results emerging from four months of field work in 2003/2004, including workshops and interviews with 45 farmers show that aggregate diversity displayed is high, both at inter- and intraspecies levels. Still, people in all communities point to a reduction in diversity at crop and variety levels, in comparison with preceding generations. Farmers’ explanations for their choices of planting material reveal a complex net of influencing factors. To a certain extent these relate to agricultural modernization and the entry of foreign planting material. But - especially among subsistence farmers - the factors most commonly cited involve changed environmental conditions, land and labour constraints, changes in people’s knowledge base, their perceptions of and commitment to agriculture, and their interests and preferences in relation to food. Changes in agrobiodiversity are connected with processes in society at large, and the future of diversity in the study area will depend on the development within these. While some factors are largely irreversible, others provide room for countertexts.
Environmental Advocacy Among Birdwatchers: Strategies for Increasing Participation

Birdwatching has become one of the fastest growing outdoor pasttimes in North America, an activity that involves 46 million (or about one in five) adults in the United States (LaRouche, 2003). In spite of their large numbers, little is known about this group.

In an ISSRM 2006 presentation, I described results from an analysis of environmental material on birdwatching websites that suggested a high level of environmental concern by birdwatchers on both local and global levels. Reasons for the concern include both the nature of the birdwatching activity and the habitat needs and migration patterns of birds. To date, birdwatchers have not been nearly the force for environmental conservation that their numbers and concern would suggest. More information about them is needed for effective mobilization.

This paper builds upon the initial website analysis and examines all material — environmental and nonenvironmental — on birdwatching websites to provide a more complete picture of this group. While much of the limited data about birdwatchers is based on survey research, website analysis provides a qualitative dimension. The educational and socioeconomic level of birdwatchers (LaRouche, 2003) makes reasonable the assumption that these sites are designed for use by birdwatchers and reflect their interests. The paper concludes with implications of this data for reaching birdwatchers in an effort to increase their participation in both local and global environmental conservation.
The Recreational Motivations of Wisconsin All Terrain Vehicle Users

Over the last two decades, All Terrain Vehicle (ATV) ownership in Wisconsin has increased from 25,000 vehicles to over 300,000. The addition of these new stakeholders has complicated an already contentious process of outdoor recreation management and dramatically changed the dynamic of public land policy development. While many other recreational users have been extensively studied, there is very little information regarding the environmental values and recreational motivations of ATV users. In the fall of 2006, a mail survey (n=519, response rate 56%) was administered to ATV owners who had registered their vehicle for use on Wisconsin’s public lands. This survey queried demographics, riding habits, use preferences, place attachment and willingness to pay. In addition, the survey measured the motivations and environmental values of ATV users. While respondents indicated a clear divergence in recreational motivations, they were surprisingly biocentric and overwhelmingly supported an intrinsic value of nature. These results highlight the diverse goals of ATV users while raising questions about their place among other outdoor recreationists.
Smargon, Adam J, The University of New Hampshire, USA

Beer, Soda, and Climate Change: Carbon Dioxide Mitigation Strategies for the Beverage Industries

All the major anthropogenic sources of carbon dioxide have been identified; I posit that this is one of the largest minor anthropogenic sources of carbon dioxide.

The chemical reaction in the brewing process yields beer (the desired product) and carbon dioxide (a waste product). Brewing beer leads to a net creation of carbon dioxide in the atmosphere.

For soda, carbon dioxide is injected into syrup solutions to create bubbles. No soda company is extracting carbon dioxide from the atmosphere for this process; they are purchasing it from private suppliers, in pressurized metal tanks.

Because the net creation of carbon dioxide by these two industries is solely from their primary manufacturing process, one can see the carbon dioxide additions from these companies’ industrial activities (specifically, their use of electricity, gasoline, oil, and natural gas) will raise the total amount of carbon dioxide contributed by a brewery or soda company.

By using carbon auditing software and other methods, I arrive at a total amount of carbon dioxide that the company emits in one year. (These methods would include an estimate of the amount of carbon dioxide taken in by hops and barley, which is the only element of subtraction.) The audit results would be presented to the company alongside multiple options for offsetting that carbon dioxide. If they offset all the carbon dioxide they create, the company can call itself a carbon-neutral company.

Once this carbon-neutral moniker is properly given (perhaps by an environmental [labeling] non-profit that I would either work with or create), the company could use that label in their advertising, marketing, and promotions; this may lead to an increase in sales. This can be a win-win situation for all stakeholders: beer and soda manufacturers, the beverage-consuming public, and the tenuous atmosphere on which we rely.

The significance of this project is potentially gigantic; the best possible scenario will lead to the offset of extraordinarily large amounts of carbon dioxide by some of the largest companies in the world. To give an example for beer, I postulate that carbon dioxide atmospheric contributions from the brewing activities at five of the ten largest breweries on the planet (not yet factoring in industrial activities) comes to 5.6 billion kg. By comparison, according to Environmental Defense, cars made by DaimlerChrysler in 2004 contributed 51 billion kg of carbon dioxide in that year. The figure listed above is over 11% of DaimlerChrysler's output... and that’s only from five of the ten largest breweries... in only one year.
While much is known about factors that influence visitor satisfaction in parks and protected areas, scientific inquiries have yet to investigate unique factors influencing visitor satisfaction during overnight stays. Specifically, the role of starscape visibility in a visitor’s expected experience has remained unexplored, leaving age-old anecdotal evidence unsupported.

The ever-increasing loss of visible starscape throughout the world, due to the modern phenomenon of light pollution (misdirected, obtrusive, or unwanted man-made outdoor lighting), makes it necessary to now address the value of starscape visibility in the overnight recreation experience if the ability to view the starscape is to continue. Concrete establishment of starscape visibility value to overnight recreationists is a major step toward national and international policy to protect the night sky over wilderness and recreation areas, and in regulating the lighting of communities close enough to park borders to interfere with viewing conditions.

The present study examines overnight recreationist value of starscape visibility during recreational outings. It supplies a ranking of starscape visibility versus other factors that influence recreational site choices and gives a measure of willingness-to-pay for a recreation site with “good” starscape visibility. Recreationist opinions on lighting in parks and protected areas and lighting controls in surrounding communities are also measured. Implications for park, local, and regional management plans are discussed.
Influences on coastal zone eco-tourism within the U.S. Gulf of Mexico Region

The U.S. Gulf of Mexico Region coastal zone is a resource rich area with a wide variety of landscapes offering ample opportunities for a full range of tourism activities. Various studies have been conducted on the economic benefits of tourism at the state and county levels for the states of the Gulf of Mexico Region. However, a broad analysis focusing on the various influences and factors that determine the type and significance of the tourism industry in a particular region is lacking. Eco-tourism is a particular type of tourism that has grown in significance and visibility in recent years and is often referred to as the fastest growing sector of the tourism industry. Eco-tourism involves traveling to destinations to enjoy unique natural surroundings. The idea is to preserve and protect an area in a near natural state with the purpose of attracting tourists. This study sets out to conduct an analysis of the importance and types of tourism found throughout the Gulf of Mexico Region. Further, it is important to identify the factors, whether demographic, geographic, environmental or socio-economic, that influence the dominant types of tourism and the significance of each type in an area. Various levels of each type of tourism are found in different areas in the Gulf of Mexico Region. Factors will also be identified to better determine why some areas maintain a strong emphasis on the activities associated with eco-tourism as opposed to other, more destructive forms of tourism.
A practical approach to integrating watershed, land use, and social data in rural community planning

This project introduces a process for collecting and combining available watershed and social data with the goal of improving land use decisionmaking in rural regions. The Strategy for the Lindsay Creek Watershed & Community is the result of applying a process that integrates watershed assessment, public participation, and land use planning concepts in an effort to provide tools to maintain rural community quality of life while conserving the water, the land, and other resource values. The Strategy includes characteristics of a community plan, a watershed plan, and a community ‘visioning’ document. This demonstration process was carried out in the Lindsay Creek watershed, a tributary of the Mad River watershed in northwestern California between the Cities of Arcata and Blue Lake and the town of McKinleyville. The project was funded by the California State Water Resources Control Board.

The methods presented in this research are a practical approach to integrating watershed, social and land use information. Watershed-based planning is not a new concept in the Western U.S. Using watershed boundaries for resource management purposes is the norm for many state and federal government agencies, particularly those related to water quality and fisheries. However, it is rarely combined directly with a land use planning process.

Of course any planning process would benefit from the inclusion of both watershed and social data. Land use planners are commonly faced with a challenging mix of resource management, residential, habitat and aesthetic values, and issues. The focus of this effort on rural landscapes is motivated by the observation that most people would like to think that the natural attributes in and around their rural community will remain relatively constant – even when examples around them are to the contrary. In addition, rural regions contain the most ‘intact' native landscapes and, therefore, have the most to lose from growth that does not maintain the health of natural systems.

Rather than focus on how to conduct a watershed assessment, a public participation campaign or land use analysis, all of which are relatively standard procedures in themselves, this project addresses adaptation and integration of these efforts. The result is information that will serve rural communities, local governments and state and federal governments in their efforts to more proactively address conservation of rural landscapes.
ATV Riders’ Willingness to Pay for Recreation User Fees

The number of people owning and riding ATVs has grown sharply over the past two decades. This growth is presenting challenges for public land managers who need to balance a host of recreation needs with limited budgets. To date, little research has explored ATV riders’ willingness to pay for different recreation user fee structures and mechanisms. In the fall of 2006, a mail survey was administered to ATV owners who had registered their vehicles for use on Wisconsin’s public lands. This survey queried demographics, riding habits and preferences, place attachment and willingness to pay for recreation user fees. Referendum-style contingent valuation questions were asked in the survey. Specifically, respondents were asked about their willingness to pay for annual vehicle fees to ride their ATVs on public lands if the funds were utilized for maintenance, management, and improvements of the ATV trails and facilities at the site were they were collected. Empirical results are reported.
Climate change mitigation from renewable fuels: assessing the regional economic and population effects of biomass ethanol refineries

As the United States and many other nations continue the quest to develop alternatives to supply-limited and carbon-based petroleum to mitigate global climate change, “cellulosic ethanol” (ethanol derived from biomass materials such as agricultural wastes, grasses, wood residues, solid wastes, etc.) has emerged as the most promising near-term option. The development of this fuel will be accelerated by the Renewable Fuels Standard of the Energy Policy Act of 2005, as well as by bans of MTBE (methyl tert-butyl ether) as an automotive fuel additive in the majority of U.S. states. This renewable fuel holds the promise of a broad and extensive resource base, the potential to substantially reduce carbon emissions from the transportation sector, greater energetic and economic efficiency, and environmental sustainability. As a result, cellulosic ethanol is being rapidly commercialized. Barriers to its development include its novelty, much higher capital cost as compared to ethanol derived from corn or sugarcane, and uncertain socioeconomic and land use effects.

In this paper, I will review the methods available to assess the regional economic and population effects of different scales of cellulosic ethanol refineries, using the Upper Midwest U.S. as a case study. The primary research question was to determine the total net economic and demographic effects when cellulosic ethanol plants are built and operated within a designated region. Whether or not these effects are considered sufficiently beneficial in a particular case is, however, beyond the scope of this study. The expected findings are that the economic and population effects will be largest during the expected two-year construction phase for commercial facilities, followed by a more modest level of socioeconomic effects during the operational phase. Since the estimated effects are for single commercial facilities, the actual effects could be much larger if there is a concentration of cellulosic ethanol facilities built in a specific region.
A comparison of managers’ and users’ preferences for management actions on lakes and reservoirs in Utah

The Utah Division of Parks and Recreation (State Parks) is considering integrative recreation management of reservoirs and lakes throughout the state. The population of Utah, along with most of the western US, is rapidly increasing. In addition, the amount of available area for boating is staying relatively constant – and in some cases decreasing as demands for municipal and irrigation water increase. A multi-stage research project was conducted to identify local, regional, and statewide management issues while determining appropriate management actions to address these challenges.

A unique aspect of this project was the inclusion of on-site managers in the data collection process. Managers were interviewed early in the process and later completed a survey regarding management priorities and the appropriateness of various management actions at their water-based state park. In addition, a random sample survey of registered boat owners in Utah was conducted to determine user preference for management actions and perception of problems at Utah lakes and reservoirs.

For this presentation, a comparison of State Park managers’ and registered boaters’ attitudes towards potential management actions will be presented. The results will assist State Park managers and planners by identifying management actions that may or may not be accepted by managers or users. The implications for integrative recreation management will be provided.
Oil rich Alberta is enjoying an economic growth unprecedented in Canadian history. The boom is fueled by oilsands activity in the north but is also backed by strong agricultural and industrial sectors throughout the province. The resulting prosperity and increased demand for natural resources have heightened public concerns about how the province’s watersheds are managed. In 2003, the Government of Alberta released their Water for Life strategy which aims to ensure that Albertans will have safe drinking water and healthy watersheds. An integral component of this initiative is the establishment of watershed public advisory committees (WPACs) to develop management plans that will guide future decisions on water allocations and protection of instream flows.

One of the first challenges facing the WPACs is to determine the extent to which Alberta’s water resources have already been committed to human, economic and environmental activities as well as how much of this water is actually being. Understanding the answers to these questions is critical for natural flow calculations and assessments of healthy ecosystems. In some basins where detailed water use studies have been completed, WPACs were surprised to learn that activities with the highest allocations are not necessarily the largest net consumers of water and that existing estimates of natural flows, which are based on allocations, may have significantly exaggerated natural flows.

Alberta Environment recently contracted AMEC Earth and Environmental to determine the current water allocation, the actual water use, and the future water demand for each of the six major water use sectors (municipal, agriculture, commercial, industrial, petroleum, and other) in each of the 13 major basins. The work challenges a number of preconceived ideas about which water users are placing the highest demands on available resources and provides a better starting point for the WPACs to develop their watershed management plans. The comprehensive study is a meaningful example of cross-disciplinary research where the social sciences and the natural sciences can calibrate to provide communities with the information they need for sustainable resource management.
Stamm, Leah H, Tourism Research Unit, Department of Management, Monash University, Australia

Exploring links between cultural heritage values, interpretation and community engagement in the Castlemaine Diggings National Heritage Park, Australia

Within Australia we are fortunate to have a vast array of protected areas, and many of us are privileged to live in a neighboring community. There are many reasons why people choose to live nearby a protected area, but for most, it has something to do with the ‘values’ that the protected area provides for them, their ancestors or their future generations.

The potential scope for these values is incredibly broad, and they can be considered both tangible (material) and intangible (non-material) in nature. One subset of these values is intangible cultural heritage values, which refer to the stories, reminiscences and connections that people associate with protected areas.

This paper presents the results of a case study which explored links between intangible cultural heritage values, community engagement processes and cultural heritage interpretation opportunities in the Castlemaine Diggings National Heritage Park, Victoria, Australia. Fifteen local community members with demonstrated connections to the park were interviewed to identify a range of intangible cultural heritage values, to assess their level of involvement in the community engagement processes facilitated by the park management agency, and to discuss their views on interpretive opportunities.

The results are discussed highlighting issues, opportunities and constraints. Interviewees shared numerous cultural heritage values which were not recognized by the park management agency, probably a result of both their lack of inclusion in the community engagement processes, and the issues-based planning approach utilized. During the interviews, various ideas regarding interpretive opportunities were also voiced.

This research raises numerous issues to be explored further. These include evaluating the role of protected area management agencies in identifying and assessing community cultural heritage values, and whether community engagement processes are an effective vehicle for this. Also worthy of exploration is the potential for greater links to be made between the identification of these values, and the interpretation content and facilitation tools selected for protected areas.
“Range effect” as a methodological issue in normative research

Normative theory and related empirical techniques are widely used in measuring social standards for parks, outdoor recreation, and natural resources more broadly. Moreover, visual research methods are often used to help apply normative research by portraying a range of social/environmental impacts and/or desired future conditions. A methodological issue associated with this research concerns “range effect” or the potential influence of the range of impacts/desired conditions portrayed in the study images on resulting social norms. This study examines this issue through a survey of park visitors at Acadia National Park, Maine. The survey was administered to representative samples of visitors to Sand Beach, a heavily used site, and included computer-edited photographs showing a range of visitors on the beach. One sample of visitors saw all six study photographs that showed 0, 172, 344, 516, 688, and 860 people on the beach. A second sample of visitors saw only the first five study photographs, and a third sample of visitors saw only the last five study photographs. Respondents were asked to rate the acceptability of each study photograph, and report the photograph that showed 1) the level of use they would prefer to see, 2) the level of use that is so unacceptable that they would no longer visit Sand Beach, and 3) the maximum level of use the National Park Service should allow. Social norms were calculated and compared for each of the samples to determine the potential effect of the range of use levels presented in the study on social norms for visitor use levels.
Working together? Neighboring behaviors among Pennsylvania’s forest landowners

Questions of forest management are usually conceived in one of several ways: defining one end of the continuum are analyses of the management of public land. At the opposite end of the spectrum are highly individualistic accounts of the decisions of private forest landowners, devoid of social context. Recent work has addressed community-based management of forest resources, which may entail a mosaic of public and/or private forest lands managed in such a way to produce private or quasi- ‘public’ benefits. Still lacking, however, is an assessment of how groups of neighboring private forest land owners may engage in cooperative behavior to achieve common goals. What kinds of issues do they perceive in common? What sorts of barriers exist that may prevent them from engaging in cooperative behavior?

We explored these questions via a 2006 survey of over 6,000 private forest landowners in Pennsylvania, followed by in-depth interviews with a sub sample of survey respondents. Although there was relatively strong general support for the idea of working with neighbors to manage cooperatively, the on-the-ground reality appears quite different: respondents were on a first-name basis with less than half of their neighbors with property adjoining theirs, and relatively few reported regular interaction with them. The proportion of respondents reporting actual cooperative behavior with their neighbors was fairly low, but varied strongly by activity type, region, size of holdings, and distance of holdings from one’s primary residence (absentee owners versus landowners that reside on their forest parcels). Implications of these findings, especially in the context of increased parcelization of land, for forest management capacity are discussed.
Steed, Brian C, Indiana University, USA

Local Robustness, Regional Fragility: A historical analysis of robustness tradeoffs within water policy in Los Angeles County, California

Over the past century, the Los Angeles area has experienced tremendous economic and population change. Challenges have developed in delivering quality water in sufficient quantity to meet the needs of the burgeoning population. Water policies have been created and altered over time in response to newly perceived threats. This paper utilizes the concept of robustness—referring the ability of a system to meet design objectives despite external shocks and internal disturbance—to analyze the tradeoffs which have occurred in meeting the water needs in the Los Angeles Metropolitan Area. The paper illustrates that through a reliance on imported water, local populations have become substantially robust to local droughts, groundwater overdrafts, and other water shortfalls. Despite this, the system has remained fragile to regional disturbances due to environmental, legal, and political factors. The paper argues that the tradeoffs between local and regional fragility must be better understood in future water decisions affecting not only Southern California, but also other areas throughout the Southwestern United States and other arid regions of the world.
Does Planning Matter in the Protection of Open Space?

High quality plans are often considered a crucial part of good land use planning and used as a proxy measure for success in plan implementation and attainment of goals. However, little empirical work relates plan quality, plan implementation, and the accomplishment of plan goals. We explored the relationship of open space plan quality to the implementation of open space plans and open space protection in Research Triangle, North Carolina. Using a standard plan evaluation matrix modified to focus on open space plans, we evaluated the quality of all 20 open space plans in the Triangle’s six-county region. We administered a web-based survey to the open space planners in the region to gauge perceived success in plan implementation and open space protection. Our empirical results indicate that success in implementation and attaining goals might not be related to plan quality: we found no relationship between our measure of plan quality and the planners’ perceptions of success in implementation and open space planning. Our findings highlight the importance of when and how stakeholders are involved in the process. The number of stakeholders involved during planning and implementation was consistently, positively correlated with plan implementation and open space protection. Although none of the correlations were very strong, their consistency supports other empirical research demonstrating the importance of stakeholder involvement during the planning process. The diversity of stakeholders involved during initial planning was also positively correlated with perceived plan implementation. We saw no significant correlation between public support and plan implementation or open space protection. Perhaps success depends more on a segment of the public – those interested enough to join stakeholder groups – than on the public at large. In summary, our findings raise questions about the relationship of planning to implementation. A technically excellent plan does guarantee the long-term relationships among local landowners, political and appointed officials, and other organizations that are crucial to meeting land protection goals. A greater balance of attention to the entire decision process and building relationships might lead to more success in protecting open space.
Re-viewing the landscape: working across disciplines to link local and global knowledges.

As its contribution to an international program focusing on sustainability and conservation, a research group at Curtin University of Technology in Perth, Western Australia, has adopted a unique model to enable and support trans-disciplinary research.

The program – Sustaining Gondwana – was launched in November 2005 and now has four Research Fellows with programs of research involving the following disciplines: social work; cultural theory; science, technology and society and computer spatial modelling; sociology; regional economic development; novel energy sourcing and biology.

The research program is located in the south coast of Western Australia – a particularly fragile eco-system currently under pressure from demographic growth and industrial development. It is linked internationally to programs underway in UK; USA; China and Brazil.

An innovative ‘sustainability cabinet’ has been established to manage the program and enable the trans-disciplinary science to be supported and nurtured. This paper describes the research model adopted; the challenges to working across the ‘disciplinary landscape’ and the joys and satisfactions associated with scholarly activity ‘over the borders’.

The authors (a sociologist and a biologist) are both members of the Cabinet. This joint paper models the collaboration underway.
A Theory of Public Opposition and Conflict Resolution for Protected Areas Management

Widespread conflicts between national parks and the people that live within their immediate vicinities suggest shortcomings in the strategies employed by parks for interacting with their neighbors. These strategies are most commonly based within a paradigm of economic rationalism, focusing either upon providing benefits to supplant local desires for illegal resource extraction from protected areas or upon strict enforcement – the latter assuming that local desires to maximize their take of public resources cannot be substituted by auxiliary benefits alone. A common competing paradigm advocates for more inclusive management strategies that empower local residents in park-related decision-making. This empirical study tested the relative explanatory power of these paradigms against each other and against other theories of human behavior in local populations surrounding three national parks. Four hundred and twenty scripted interviews were carried out in the settlements closest to Great Smoky Mountains National Park, NC and TN, USA, Virgin Islands National Park, St. John, U.S. Virgin Islands, and Podocarpus National Park, Ecuador. The researcher also lived in these settlements for a total of ten months and employed participant observation to ground truth self-reported actions. Logistic regression revealed that local perceptions of the trustworthiness of park managers overpowered all other explanations as the most consistent predictors of active opposition (illegal resource extraction, vandalism, protest, and other forms of resistance) toward the neighboring parks. A theoretical framework is put forth for additional testing in other contexts.
Stevenson, Susan P, Art, University of Central Missouri, USA

Leisure place advocacy behavior: The relationship of winter recreation enthusiasts and a destination ski resort

Leisure place advocacy emerged from this qualitative study as a hypothesis that describes the phenomenon of human behavior and the human/environment relationship at a popular regional ski resort. The resort environment gave the participants an atmosphere of peace and beauty where they could rest, recreate and restore relationships. In response, the participants indicated feelings of place attachment, restoration and a desire to act on behalf of the environment. The relationships that developed between the participants and the resort, as well as their subsequent actions led to the formulation of the hypothesis of leisure place advocacy.

Due to the privacy agreement between the research site and its clientele, this research utilized an adaptation of grounded theory analysis. While interviews were not possible, the simultaneous analysis of the survey responses coupled with the personal experiences of the researcher with the site was triangulated by multiple site visits and the use of the research site’s presence on the internet. Secondary data collected by the resort management was later made available for this research. Of particular interest in this study was an open ended question that allowed the participants to relate, without limitation, what they thought defined the image of the resort.

The leisure place advocacy hypothesis also draws on literature in the areas of sense of place and place attachment, Kaplans’ (1998) theory of restorative environments, and Crandall’s (1980) motivations for leisure involvement. Some of the motivations for engaging in leisure behavior are based on the individual’s physical and emotional need for a restorative experience. Individuals may develop feelings of attachment for places that are ideally located and supportive of their leisure motivations and restoration needs. It is this relationship that predicates the behaviors that are indicative of leisure place advocacy.

The data analysis illuminated four behaviors that are indicators of leisure place advocacy. These behaviors are: emotional investment, longer or more frequent visits, expressions of concern and ownership, and sharing with others through referrals and invitations. Through a greater understanding of both the positive and the negative effects of leisure place advocacy, it may become desirable to understand how to measure, predict and influence leisure place advocacy behaviors.
Converting woody biomass to energy in Oregon: social perspectives on a growing movement

Within Oregon there is considerable interest in the possibility of wide-scale conversion of woody biomass to energy. This interest is driven by three primary factors: the desire to restore forest health across the landscape and reduce the threat of wildfire, the possibility of stimulating rural economies that have traditionally been dependent on forest products, and generation of renewable energy from a local source. Since much of the projected supply for biomass facilities is expected to come from public lands, developing an understanding of the social landscape is an important component to assessing the feasibility of this land management strategy.

This study explores the social context of converting forest biomass to energy, through use of semi-structured interviews. Forty interviewees were purposively selected from nine stakeholder groups in Oregon. Interviews covered six thematic areas: current forest conditions; definitions of commonly used terms such as biomass, forest health and renewable energy; opinions on barriers to and opportunities for converting biomass to energy; public trust and support; management strategies needed to implement biomass projects; and predictions on the future of a biomass industry. Information gained through the interviews will be used to meet four research objectives: 1) to understand stakeholders’ views on converting forest biomass to energy in Oregon; 2) to identify, from the perspectives of stakeholders, the challenges to and opportunities for converting forest biomass to energy, potential strategies that could be employed to overcome the barriers, and guidelines that should be in place if this policy direction continues to move forward; 3) to ascertain areas of common ground and conflict between and within stakeholder groups; and 4) to identify policy components that would be necessary for a seamless integration of the forestry and energy industries in Oregon. This work will provide insight to policymakers, natural resource managers, community organizations, and advocacy groups on their constituents’ opinions, which will be valuable in the creation of strong, useful policies and in facilitating conversations between stakeholder groups.
Local newspapers often play significant roles in rural community tourism development campaigns, introducing key spokespersons, serving as a forum for public debate, and even advocating for particular positions on issues. Rural newspapers give an idea of the vitality of a community, and its well-being, both to people who live there, and to outsiders. As such, they provide a rich (though often untapped) source of data for researchers studying rural community change. The study reported here uses data from a weekly newspaper, the Gilpin County Weekly Register-Call in Colorado, to evaluate the community impacts of a major tourism development. A sample of newspapers from before, during, and after initiation of the tourism project was reviewed; only the results of the content analysis of the front-page newspaper photographs is discussed here. Though review is on-going, the analysis of newspaper photographs seems to show a pattern of increasing "seriousness" during contentious phases of the tourism development. I suggest that this pattern may be hypothesized as a "smile index" reflecting the well-being of the community at different stages of a major development. Such an index would have utility in analyses of the social impacts of other types of natural resource and tourism developments in rural communities.
Diffusing innovation to involve communities in wildfire management: Fire Safe, Firewise and FireFree

Employing diffusion of innovation theory, this paper discusses three fire education programs—Fire Safe Councils, Firewise Communities/USA, and FireFree—to compare their effectiveness at involving communities in wildfire planning. In addition to exploring the effectiveness of diffusion theory for this application, the paper offers key lessons for managers and community leaders working with homeowners to create defensible space, reduce hazardous fuels across ownership boundaries, and enhance understanding of fire-dependent forest ecosystems.
Second home owner profiles and implications for future second home development in Finland

The aim of this presentation is to demonstrate the existing types of Finland's second home owners and to draw future lines in the development of second housing in Finland. This has implications for remote areas who struggle with declining population and may consider second housing as a means to retain some of the service base.

The study of second home owner types was based on a questionnaire that was sent to 2553 capital area households who own a second home in the eastern lake area of Finland. The survey produced 1096 answers (45%). The sample represented the average population of Finland's second home owners; the average age of the respondents was 57 (whole population 59) and 2/3 of them were over 50.

Cluster analysis revealed five types of second home owners: vacationers (29%), second home hobbyists (26%), country souls (18%), part time dwellers (17%) and habitual cottagers (10%). Vacationers are primarily working people who have inherited their cottages and have got used to cottage life as children. They spend their annual few weeks summer vacation on their cottage. Second home hobbyists typically approach retirement who appreciate the accessibility of the second home. These people try to find free time for their hobby also in the wintertime. Country souls are working people who use their second home around the year to escape city life. Part time dwellers are retirees who use their second home as a quite literal second home; long periods of time around the year. Habitual cottagers are retirees who use their cottage primarily and irregularly during summer time.

Most potential for increased second home use was found among country souls. Of all the groups they were the most dedicated to their second home locality, that was often also their childhood landscape. These people were also likely to adopt distance working at their second home. Vacationers and second home hobbyists also bear the potential to increase their second home use. Once freed from their working life commitments, some of them may become increasingly dedicated to their second home locality.
Ecological Planning: A New Paradigm

This paper explores the current state of environmental planning as it relates to current notions of the sustainable, livable and just city. The main argument is that environmental planning, within the dominant frame of technocratic expertise, is ill-equipped as a sub-discipline of urban planning to implement and balance issues of social equity, economic viability and environmental quality. It is argued that environmental planning remains driven by isolated and often incompatible strategies to preserve environmental resources and to minimize resource impact through outdated modes of regulation, engineering and urban design. This paper explores the importance of considering a post-empiricist view of environmental planning where knowledge and truth emerges through ideas. It is argued that the new ‘urban ecosystem planner,’ must embrace heterogeneity, complexity, succession, power and promote the integration of knowledge through social innovation as a critical step toward achieving unified action and effective urban natural resource stewardship.
Who will log? occupational choice and prestige in New England’s north woods

In response to concern about the recruitment of workers in the logging industry in northern New England, a multiple methods study of the logging workforce in the region was conducted in 2000, and, in order to detect trends, repeated in 2006. Analyzing information from a study that combined logger focus groups and a comprehensive mail survey, this paper describes the logging community in northern New England and explores challenges related to both the retention of current loggers and the recruitment of new workers into the logging workforce, particularly as these challenges may be elucidated by variables related to occupational choice and prestige, and familial attachment to logging. In addition, survey responses from loggers in each of the three northern New England states, as well as from those loggers who live in eastern Quebec but who work in Maine, are compared.

Despite considerable familial attachment to logging, our study found that most loggers in the region would not encourage their sons/daughters to be loggers and only half of the loggers surveyed expected to be employed in logging in five years. Although most loggers identified positive attributes of their work as reasons for becoming loggers (e.g., they liked working outdoors), some said that they logged because there were few alternatives or because they lacked the education for other employment. In addition, most loggers in the region felt that the general public held logging in low esteem. These results have implications for logging labor supply and labor recruitment efforts in a region heavily dependent on the forest products industry.
Humankind is an integral part of the natural ecosystems. However these considerations depend on the resilience and adaptability of the societies in which we live. An implication then is that solutions must be tailor-made to fit the circumstance. The paper provides case studies that reveal the policy and institutional hurdles in implementing local and participatory natural resource management (NRM) programmes; the lessons and experiences amongst Local Government Units (LGU’s) in linking good governance with NRM; the research and development activities on local and participatory NRM; and the key institutional and policy issues communicated at the national level. The Philippine Local Government Code which was enacted into law in 1991 provides the basis for local natural resources management (NRM). The Philippine Decentralization Law however, is not necessarily the driving force for many Local Government Units (LGU’s) who have made breakthroughs in local NRM. Through the development of the Natural Resources Management and Development Plan (NRMDP) employing public-private partnerships and capitalising the presence of research and non-governmental organizations, agri-business and other community sectors, the Municipality of Lantapan, a local government unit, succeeded in overcoming constraints such as: lack of budget, manpower, technical skills, and poor community involvement. A key feature of the NRMDP is the Landcare Program which centers on formation of community landcare groups that mobilise resources for wider adoption of conservation practices. The Landcare Program is a grassroots approach for rapid and inexpensive dissemination of available, simple, and lower-cost technologies of agroforestry and conservation practices. It was also found out that communities have important roles to play but LGU’s have greater responsibility to provide the policy and institutional basis for supporting community-based initiatives. Case studies reveal that the responsibility for producing environmental goods goes beyond the normal practices of governance and is entwined with the need for long-term education and managing the political culture through a pragmatic approach that directly links NRM with good governance.
Legitimacy and the use of natural resources in Kruger National Park, South Africa

Around the globe, protected area managers are responding to an increasingly complex web of demands that are often competing or conflicting. For instance, in Kruger National Park, South Africa, Park managers are currently attempting to reconcile demands for subsistence-based resource utilization (expressed by local residents) with a traditionally protectionist management paradigm. While such demands have always been placed on protected areas, increasing levels of public participation in decision-making processes heighten both the awareness of these demands and managers' responsibility to respond to (but not necessarily satisfy) them.

Perhaps too often, the demands met through protected areas are those that are either expressed the loudest, carry the most significant threat if not met (e.g., litigation), or serve other unrelated interests. As a consequence, the governance of protected areas may often be based on factors other than procedural and/or substantive legitimacy. As scholars and practitioners recently have begun to argue, the perception of illegitimacy may often be a significant factor in the failure of protected area governance (see, e.g., “Beyond the Square Wheel,” Brechin, Wilshusen, Fortwangler, and West, 2002). While legitimacy is, indeed, recognized as an important concept in protected area governance, it has been understudied.

In this presentation, I explore the concept of legitimacy within the context of subsistence-based resource utilization in Kruger National Park. In doing so, I argue that there is much to be learned about legitimacy in conservation from a broad array of epistemological traditions including communication studies, democratic and deliberative theory, human rights theory, law, political science and philosophy, social psychology, and sociology. After articulating an initial framework for understanding legitimacy, I discuss the ways in which managers of Kruger National Park, local residents, and Park visitors perceive and construct the legitimacy of resource utilization in the Park. I conclude by arguing that while perceptions and constructions of legitimacy - just like demands - may often be conflicting or competing, responsiveness to the legitimacy of decision-making processes, management actions, and policies is a necessary element of successful protected area governance.
A Comprehensive needs assessment of wildlife services personnel and wildlife professionals to identify education and training opportunities

The increasing human population coupled with wildlife habitat fragmentation and development, multiply the risk and potential for human-wildlife conflicts. Successful co-existence of humans and wildlife depend on many criteria being fulfilled. Among the most important of those is the ability of trained wildlife professionals to communicate effectively with concerned and involved stakeholders. An understanding of the local culture and their attitudes are equal in importance to understanding the physiogeographic location where potential conflicts arise.

Customarily, wildlife biologists do not enter their discipline with the desire to interpose managerial and public conflicts, nor is adequate training provided to do so. This lack of preparation can often be disastrous when wildlife agencies propose management plans that contradict the opinions of the community. Worldwide, the need for education and training tools is being recognized. The problem remains, however, in understanding exactly what those needs are, and how to best deliver the tools to fill those gaps.

This needs assessment is a first of its kind for wildlife professionals across the United States. Research has never been conducted to assess where educational gaps lie, where the limits on both knowledge and equipment reside, or where compromise can be sought to resolve conflict. This comprehensive study will examine these issues from both beaurocratic and private wildlife management agencies. It will assess how to better understand what wildlife employees need to reach maximum job performance potential, and where political, social, and even cultural barriers can begin to subside to make way for sound, successful wildlife management plans that can benefit future generations.
Using Secondary Data to Estimate Community-Forest Linkages in Alaska and the Pacific Northwest

Forests are important sources of social capital for many rural communities. Yet when it comes to public land management, agencies have historically focused on biophysical data and analyses, with relatively little effort made to understand the social impacts of resource management actions on community lifestyles and well-being. Moreover, most social assessments focus on the economic aspects of forest use at regional or county levels, thus providing limited information about the social importance of local forest use at the community level. In response, this paper evaluates the ability of readily-available secondary data to describe sub-county linkages between communities and nearby national forests. We develop a conceptual framework, methods, and analysis techniques that use agency permit data, local volunteerism, and other secondary data to develop typologies of community dependency for several national forests in Alaska and the Pacific Northwest.

We express these community-forest linkages via cumulative measures of resources use, dependency, vulnerability and reciprocity. Potential management applications include: (1) documenting current use, trends, and differential social impacts of management policies and decisions; (2) organizing public involvement and collaboration activities that reflect these differential impacts; and (3) designing impact mitigation practices.
Local Community Perceptions of Wildlife and Protected Areas in Ethiopia

Understanding community perceptions of wildlife and protected areas (PAs) is central to the design, implementation and management of efforts to conserve biodiversity. In many African countries, conflicts between local communities and adjacent PAs stem from a lack of understanding of community interests, and policies that deprive or limit the use of wildlife and other resources. To better understand community-PA dynamics, we assessed local community perceptions of wildlife and PA management at four Ethiopian sites: Bale Mountains National Park, Awash National Park, Abijata Shalla Lakes National Park, and Senkelle Swayne’s Hartebeest Sanctuary. Two focus group discussions of 8-15 people each were held at each site, after which questionnaires were administered to 384 residents from the four study sites. Questionnaire data showed that most (78.1%) respondents have positive attitudes toward PA management, while 73.7% perceived wildlife positively. Chi-square tests and logistic regression found that, of all the factors analysed, benefits and services from PAs, relationships with PA staff, levels of education, age, family size, household source of income, number of livestock owned, and frequency of animal predation were important factors influencing community attitudes. However, some differences were found in community perceptions between the four PAs. Managers can improve community relationships with PAs by ensuring a wide range of benefits to local communities, by actively involving communities in the design and implementation of PA management, by honoring community tenure and resource user rights, and by implementing conservation education programs to promote an awareness of the problems and values of wildlife and PAs.
In November of 2005, the USDA Forest Service (USFS) updated their travel management rule. Under the new rule, each National Forest is required to develop a travel plan that designates roads, trails, and other areas as open to motor vehicle use; this rule includes off-highway vehicle (OHV) use. The purpose of this study is to examine the perceptions of USFS District Rangers in the Appalachian region regarding OHV users, OHV-related issues, and management strategies for OHV trails. The information gathered will assist managers with information sharing about commonly used management tactics relative to the amount of OHV opportunities their Forests choose to provide. A survey instrument was developed with input from USFS researchers, university researchers with expertise in OHV recreation issues, USFS District Rangers, and USFS Recreation Staff Officers. The questionnaire included questions about District Rangers’ perceptions of OHV user preferences, OHV-related physical and social impacts on the District, and management tactics used to deal with OHV-related issues. In the fall of 2006, a census of District Rangers on 14 National Forests was performed. Mail-back surveys were sent to all District offices in National Forests within the Appalachian Mountains following a prenotification email sent by the USFS Travel Management and Off-Highway Vehicle Program; the response rate was 67.44%. There was a small positive correlation ($\tau^2 = .373$) between the ratio of open to closed trails and the number of management tactics employed on each District ($p < .01$). The top three OHV-related issues experienced by District Rangers in Appalachia were soil erosion and compaction, user-created trails, and users going cross-country. The majority of District Rangers (78.6%) had not spoken to other Districts or Forests about issues related to OHV use or management and 68% had not done surveys about use patterns or user feelings about OHV use, nor had they documented impacts. Despite the consensus on the top three OHV-related issues among District Rangers, there are still differences in management techniques used. It is recommended that managers seek out opportunities to communicate with their fellows in order to develop a greater understanding of the management tactics available to them.
Wildland fire and fuel management: A framework for effective communication

Recent federal initiatives such as the National Fire Plan and Healthy Forests Restoration Act encourage, and in some cases require, local partnerships to identify and accomplish fuel management objectives. Accordingly, many management units have focused their outreach efforts on increasing citizen involvement in fire planning. A variety of outreach methods, ranging from traditional activities (e.g., brochures and exhibits) to more innovative approaches (e.g., demonstration areas, guided field tours) have been used to communicate the rationale behind fuel reduction techniques and enlist participation in home protection activities. However, limited resources are available to help resource managers organize their communication approach. In this presentation we report findings from a project designed to create a public outreach framework for fire management agencies. The framework draws upon prior research in communication, social psychology, diffusion of innovations, and learning theory as well as primary research from forest communities to develop a step-wise approach to plan, implement, and monitor outreach activities. By targeting message content and delivery methods to local needs and objectives, the framework offers an audience-centered, outcomes-based approach to public communication for fire management. Steps include: 1) Pre-planning: identify internal resources, outreach objectives, and local communication needs, 2) Define message content: evaluate current attitudes and understanding, identify necessary content to achieve objectives, 3) Design message delivery: develop outreach methods, tailor communication to audience characteristics, 4) Develop and implement activities: pre-test outreach activities, develop appropriate implementation plan based on audience needs and available resources, 5) Program evaluation: monitor and evaluate success in achieving objectives. Each step includes guiding principles and organizing questions to encourage thoughtful deliberation among resource personnel. Examples of successful outreach programs are discussed. We conclude by considering consequences and expected outcomes of this approach to outreach development.
Capitalizing on management of natural environments: evidence from Australian studies of health and social benefits associated with engagement in conservation group activities

Awareness of the ecological importance of their activities is the driving force for most (if not all) organizations involved in natural resource management. However, many such organizations are facing increasing pressures as a result of resource constraints, the encroachment of urban development, and a lack of broad community understanding of the importance of sustaining local ecosystems.

In this context, the importance of volunteer activity in sustainable management of natural resources at the local level cannot be underestimated. Nevertheless, the benefits that flow to individuals, groups, communities and (indirectly) to governments from such activities are often overlooked. Lack of awareness of these benefits can limit the capacity of natural resource management organizations to recruit volunteers and to attract government funding, but may also mean that organizations concerned with individual and community health and wellbeing miss out on opportunities to gain benefits for those with whom they work.

Several recent Australian studies have highlighted the benefits of volunteering in the natural environment and, in particular, have illustrated the positive benefits of voluntary involvement in natural resource management for individual and community health. One study involved a comparison of individuals involved in management of land owned by the Trust for Nature (a not-for-profit organisation which purchases and manages private land of high conservation value) with a group of ‘controls’ matched by age, gender and location. The second was an intervention in which people experiencing depression, anxiety and/or social isolation were linked into the activities of a conservation group in a public nature reserve.

The evidence from these studies presented in this paper indicates that voluntary engagement in conservation activities produces spin-off benefits in terms of individual health/wellbeing and social capital. Rather than being simply a one-way flow of benefits in either direction, there are synergies between conservation activities, health promotion and community development. This paper highlights some of the potential benefits of this synergistic relationship for organisations involved in natural resource management, health promotion and community development, and presents some strategies for maximizing the positive outcomes for each sector.
The relationship between landowner demographics and attitudes and their willingness to participate in a quail habitat restoration cooperative in Missouri, USA.

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 habitat restoration efforts in Missouri. Much of the potential success of northern bobwhite restoration is dependent on management of habitat on private land. Efficacious selection of restoration areas requires a foundation of ecological and sociological information. Although we know much about bobwhite ecology, we have little information concerning the profile of landowners willing to consider habitat restoration. Our objective was to develop an approach for using sociological data to identify characteristics of landowners willing to consider bobwhite habitat restoration on their lands using a cooperative approach. We used a mail-back questionnaire (735 responses from 1,659 landowners) and a follow-up telephone survey of non-respondents to assess landowner willingness, motivations, land management practices, and socio-demographics. Although 82% of respondents indicated they were ‘somewhat’ or ‘very’ interested in quail, when asked if they would participate in a habitat restoration cooperative, only 15% chose ‘yes,’ 24% chose ‘maybe,’ and 61% chose ‘no.’ Of ‘maybe’ and ‘no’ respondents, 72% chose ‘might attract unwanted hunters’ as the chief reason for their dislike of a habitat restoration cooperative. For respondents that chose ‘yes’ to participation in a cooperative, chief desire was to know how quail numbers change on their property. We developed 11 a priori models to explain landowner interest in joining a bobwhite habitat cooperative. We used 509 responses for selecting among our models those that best represented landowners who were most willing to join habitat cooperatives. Our global model of 29 variables fit these data well (Chi-square = 946.16, DF=985, P=0.8083). Of the a priori models that were considered, the global model was the most appropriate. Further examination of the global model resulted in 2 submodels with 9 and 10 variables that more appropriately explained who would be more willing to consider cooperating in habitat restoration programs. Decisions by landowners about general land management were effected primarily by quality of life (enjoying land ownership with their family), and by economic considerations. As expected, farmers were less interested in wildlife than were recreational landowners.
Full cost pricing: How much did that lead cost?

Full cost pricing is an economic tool used to determine the true or marginal cost pricing of a commodity. This study applies that approach in retrospect to the lead and zinc mined in the tri-state area of Kansas, Missouri and Oklahoma, the largest superfund site in the United States. Actual costs, including deferred cost, are used to determine the full cost pricing value for these minerals. Could we have afforded it? Would we have paid it?
Understanding resource substitution using recreation specialization and place attachment

Previous work suggests recreation specialization reflects a developmental process expressed through a progression in behavior, skill and knowledge, and commitment. Moreover, empirical evidence has shown that highly specialized anglers possess more specific setting preferences than less specialized counterparts and, hence, are less willing to substitute another water body for setting they fish most often. To further explore this relationship, we tested a model where specialization was a hypothesized predictor of place attachment among two groups of anglers; i.e., those willing to substitute settings and those not. The model tested hypothesized that the two dimensions of place attachment (i.e. place identity and place dependence) would be predicted by three dimensions of specialization (i.e. behavior, skill/knowledge, and commitment). Our analyses were conducted using covariance structure analysis provided through LISREL (version 8.7).

Results indicated that place dependence and place identity dimensions of place attachment were moderately predicted by the commitment dimension of recreation specialization. Invariance tests showed statistically significant differences between the two groups concerning the pattern of factor loadings (Chi-square differences=19.033; d.f. differences=9, p<.05). Tests revealed that there was variation in the degree to which the latent construct accounted for variation in freshwater total fishing days and self-reported skill between substituting and non-substituting groups. The effect of recreation specialization on the dimensions of place attachment, however, was consistent between the two groups. Place identity was more strongly predicted by the dimensions of recreation specialization (R square ranged from .21 to .22) than was place dependence (R square ranged from .074 to .079).

This suggests that anglers with a higher level of commitment also have stronger feelings (i.e., emotional attachment and identification) concerning the places where they fish most often. Based on these findings, the link between place attachment and specialization appears to lie in recreationists’ identification with both the activity and the setting. That is, the self expressive elements associate with activity involvement is also imbedded in the settings in which people enjoy these activities.
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Building a sustainable high-tech park through public participation: A case study of local initiative citizen conference at Ilan, Taiwan

Rual areas often wage high-profile campaigns to strive for science-based industrial parks in their jurisdiction, expecting that high-tech electronic development would contribute to local prosperity. However, in Ilan, an agricultural county in Taiwan, local people do not unconditionally accept the science-based industrial park (SIP) plan. Instead, the local civic leaders introduce the citizen conference, a form of deliberative democracy, to encourage local people to be involved in discussions of the SIP development and its possible environmental and social impacts. Different from most citizen conferences in Taiwan led or supported by the public sector, the citizen conference of Hsinchu Science-based Industrial Park at Ilan (HSIP, Ilan) was held independently by the civic groups, led by Ilan Community College. Using this case study, the research paper focuses on the formation and processes of the citizen conference and examine the role of civic groups in the deliberative meetings. Particularly, the study aims to understand how civic groups would run citizen conference differently (compare to the public sector) and in return, how the characteristics of citizen conference would influence social mobilization within civic groups. This study adopts qualitative research methods, including field observation and in-depth interviews. Through analyzing the characteristics, processes, and elements of citizen conference, the research seeks to enrich a theoretical dialogue between deliberative democracy and social movement. Instead of arguing the constraints on social environmental mobilization, I would like to stress the opportunities for public participation in the neighborhood of the high-tech park. My research paper demonstrates that citizen conference could be a useful tool for environmental movement with its requirement for assistance of professional knowledge and strict format of participation. Through running a citizen conference, the civic groups may strengthen their mobilization network and accumulate their local knowledge to further their preparation for future environmental social movement.
Many concerns have been voiced about the impacts of wild-plant harvesting on forest ecosystems. This has provoked development of frameworks for assessing the sustainability of such harvesting. Because many conservation decisions need to be made rapidly (and thus cannot wait for long-term ecological data), an approach called the “rapid vulnerability assessment” has been suggested. The approach predicts the vulnerability of plant species to over-harvesting, based on a wide variety of life-history, population, ecosystem, and harvesting characteristics. One benefit of rapid vulnerability assessment is that it draws information from both social research (e.g., local ecological knowledge) as well as scientific sources (e.g., field sampling, literature) to present a well-rounded picture of the situation of each species under analysis.

The primary objective of this research is to use the rapid vulnerability assessment approach to analyze the vulnerability of seven wild plant species commonly harvested by community people in Huitzilac, which is located in a protected corridor in Morelos, Mexico. Huitzilac has a reputation for unsustainable forest use, but the conservation status of useful wild plants has been unexplored. Information for the rapid vulnerability assessment was drawn from (a) semi-structured interviews with local harvesters and “experts” (teachers, biologists), (b) a review of literature about life history and population traits of the species, (c) a plant survey using a stratified random sampling design to measure density and organism size of the selected species in 16 km² surrounding the town, and (d) a survey of randomly selected homes in the town (all conducted between May and December, 2006). Preliminary analysis shows that most of the selected species are not vulnerable to over-harvesting in Huitzilac, primarily due to large population size, low harvest pressure, and life-history characteristics of early successional species. After a discussion about the implications of these findings for the community, I will revisit the rapid vulnerability assessment approach and make recommendations for its modification and use.
Vagias, Wade M, Clemson University, Bob Powell, Clemson University

Is the message getting through? A proposed method for examining backcountry visitor compliance with recommended “Leave-No-Trace” practices in U.S. National Parks

Providing for outstanding visitor experiences while protecting the integrity of the resource is an oft-cited goal for public land managers. Unfortunately, it is now apparent that some of our wilderness areas are in fact suffering from visitor-induced degradation, and these impacts are directly correlated to the burgeoning popularity of resource based outdoor recreation. In addition, the problem has been further highlighted by recreation ecologists who have revealed that even nominal use may cause significant impact to the environment.

To manage backcountry visitation, land managers frequently employ “light handed” strategies considered to be more in line with the spirit of the Wilderness Act. Such approaches are frequently persuasive messages intended to encourage stewardship behaviors with the end goal of lessening negative impacts. The most prevalent minimum-impact education program is “Leave-No-Trace” which has been utilized by federal land management agencies since its adoption 1994. However, despite the significance of minimum-impact visitor education for mitigating visitor-induced degradation, we have little understanding of whether the program is effectively promoting recommended minimum-impact backcountry behaviors.

This presentation proposes a method for evaluating the effectiveness of the “Leave-No-Trace” visitor education program within a selection of U.S. National Park Service administered lands. To accomplish this goal, the researcher integrated Ajzen’s Theory of Planned Behavior (1991) and Roger’s Diffusion of Innovations Theory (2003) to construct a conceptual model that will be used to investigate backcountry visitors compliance with the seven recommended Leave-No-Trace Principles. In addition, two scales were developed for employment within the present study: attitudinal compliance and self-reported behavioral compliance consistent with the seven recommended LNT Principles.

Data will be collected during the summer of 2007 from a sample of overnight backcountry users in three National Park Service Units: Glacier, Olympic, and Cumberland Island using mail back surveys following a modified Dillman approach (2007).
Multiple Manifestations of Crowding in Outdoor Recreation: A Study of the Relative Importance of Crowding-related Indicators Using Indifference Curve Analysis

A large and growing body of research suggests that crowding can be important in defining the quality of the outdoor recreation experience. Given the importance of crowding in outdoor recreation, more attention is warranted on the specific ways in which crowding can be manifested and the relative importance of these multiple manifestations. What are the most important indicators of crowding? This study addresses this question through application of the theory of indifference curves and related empirical methods. Developed in economics, indifference curve analysis maps the tradeoffs that individuals choose to make among competing “goods” (Nicholson, 1995). Though it usually focuses on the financial costs of competing consumer goods, the qualities of a recreation experience can be substituted for such goods within the theoretical model. This method is applied to four potential indicators of crowding on the Colorado River in Grand Canyon National Park through a survey of boaters. Based on review of the literature on crowding in outdoor recreation, on river-based recreation in general, and on the Colorado River more specifically, the following four potential indicators of crowding were identified: 1) the number of groups of boaters encountered per day while on the river, 2) the percentage of time in sight of other groups/boats per day, 3) the number of campsites “passed up” per day (because they were occupied), and 4) the percentage of nights camped with other groups. Indifference curves were constructed for all respondents for each of the four crowding-related indicators. Each of the resulting indifference curves were categorized into one of three groups: access oriented, tradeoff oriented, or solitude oriented, based on the slope and form of the curves. The distribution of indifference curves for each of the four crowding-related indicators offers important insights into the relative importance of these indicators to the quality of the visitor experience. Study findings suggest that encounters with other groups of boaters on the river and the number of campsites passed up each day because they are occupied are the most important of the four potential crowding-related indicators included in this study.
Van Den Berg, Heather A, Natural Resources, Cornell University, USA
Shari L Dann, Michigan State University
Shawn J Riley, Fisheries and Wildlife Michigan State University

Impacts of an adult conservation education and volunteerism program on wildlife management: an evaluation of the Michigan Conservation Stewards Program

Master Naturalist™ programs are becoming increasingly popular among wildlife management agencies, Cooperative Extension Services, local municipalities, and conservation organizations. These programs typically provide adults with ~40 hours of conservation education in exchange for ~40 hours annual conservation volunteerism. In 2004-2006, the Michigan Department of Natural Resources and Michigan State University Extension developed the Michigan Conservation Stewards Program (CSP) following the Master Naturalist™ concept. This study investigated the CSP participant characteristics and impacts of program participation on participants’ knowledge of ecology, attitudes toward the state wildlife agency and natural resources management techniques, connection to land-based resources, and interest in post-program volunteer service. Study methods included quantitative measures and qualitative feedback using pre- and immediate post-program questionnaires. The pilot Michigan CSP had 65 participants, with 85% (n=55) responding to this study. Using Wilcoxon signed-ranks test, a statistically significant (p<0.05) and positive shift in CSP respondents’ post- vs. pre-program knowledge of ecology, attitudes toward the state wildlife agency, attitudes toward specific resource management techniques, and connection to the land-based resources occurred. CSP respondents indicated high interest in long-term, complex, volunteer opportunities such as habitat restoration, native seed collection, removal of invasive species, and wildlife monitoring. The CSP achieved its goal of improving knowledge, attitudes, and conservation skills among participants. Results from this study demonstrated adult conservation education and volunteerism programs may increase the number of knowledgeable volunteers wishing to engage in complex ecosystem management activities.
Land use planning is an exercise in complex problem solving in order to balance multiple, often conflicting objectives. Despite technological advances, land use planning still has the potential to evolve by considering three aspects: 1) the ways in which planning goals and challenges are interconnected; 2) the extent to which certain land uses take advantage of those interconnections and address multiple goals (i.e., efficiency); and 3) the possibility of new uses or new configurations of existing uses that would accomplish the latter. This kind of innovation in comprehensive land use planning is the result of a unique synergy within a community. Therefore, communities that exhibit an integrated perspective on issues at any level and/or a creative approach to addressing them are a special find in general, and an exemplar case study for land use planners and resource managers.

Chatham County, a rapidly growing community located near Research Triangle Park, North Carolina, is a place with this type of potential for land use planning, particularly with regard to sustainable agriculture. The case study in this paper will focus on The Chatham Plan- - a set of guidelines that seeks to protect natural resources, preserve rural character, and strengthen the community-- and the role of people, local politics, and sustainable agriculture in fostering an environmental agenda in county land use planning. Archival data and in-depth interviews with stakeholders were the dominant forms of data collected during 2006, incorporating GIS to determine potential conflicts and opportunities in land uses. The paper highlights recommendations for practitioners working in metropolitan regions experiencing extreme growth rates.
Determinants of Visitor Perceptions of Recreation Impacts at Molalla River Recreation Area, Oregon

This paper examines the relations between motivation, place attachment, crowding, experience-use-history, and socio-demographics on visitors’ perceptions of recreation impacts in the Molalla River Recreation Area, Oregon. The recreation area is located in the western foothills of the Cascade Mountains in close proximity to Oregon’s three largest population centers, Salem, Eugene, and Portland. The 12-mile river corridor is accessible by road and provides unique opportunities for water-based recreation in a scenic setting. The 5,750 acre Table Rock Wilderness, the largest block of undeveloped land in the Molalla River drainage, is located at the headwaters of the river. The Bureau of Land Management oversees the area and is increasingly concerned about recreation impacts and requires visitor input to inform future management.

To address this need, data were collected summer 2006 from a random sample of adult visitors to the Molalla River recreation corridor and Table Rock Wilderness via self-administered on-site questionnaire. Primary visitor motives included nature enjoyment, being with similar people, being with family, and escape. Visitors identified strongly with site but were less dependent by comparison. Overall, visitors were “slightly crowded” at the river. Despite management concerns, visitors did not perceive most impacts to be a problem; however litter, trash dumping, vandalism, human body waste, and inconsiderate people were considered slight to moderate problems.

We employed multiple linear regression to examine the relative influence of the independent variables hypothesized to explain visitors’ perceptions of social and ecological impacts. Results highlight the importance of certain domains of motivation, crowding, and experience-use-history. Findings about the influence of the place identity and place dependence dimensions of place attachment were less clear and contradict some previous studies. Visitor characteristics were unrelated to the dependent variable. We discuss the implications of the findings for research and management in natural areas, with a focus on heavily impacted sites. Specifically, we address measurements issues in studying visitor perceptions of recreation impacts.
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From Enthusiasm to Apathy: Local Perspectives and the Environmental Assessment Process in Nova Scotia

Despite the vast literature on human health and well being, little is known about the short- and long-term affect of public participation on participants. Fragmentary evidence suggests that participation in public meetings has an important and appreciable influence on participant beliefs. This study recovers some of the local perspective, for an international audience, through qualitative interviews with 50 residents living in Nova Scotia after participating in an environmental assessment process. An analysis of these interviews yields the residents own explanations that complicate and sometimes challenge three participatory democracy assertions that high-quality public participation can affect participants’ beliefs in desirable ways: 1) can create trust in democratic procedures as reliable ways to achieve their goals; 2) can create bonds of friendship and solidarity; and 3) can create enthusiasm for taking part in future pragmatic political processes beyond voting. The stories add nuance to our understanding of the history of the residents and the affect of the environmental assessment process on their future. This study is part of a growing body of research on the influence of public engagement through the environmental assessment process. In using a largely untapped source of participant experiences and beliefs regarding the specific environmental assessment process, this project will contribute to future research on how to help people live sustainably in a rapidly changing world.
Principles for participatory projects: learnings from community engagement practice in museum settings

There is much exhortation on all agencies (resource management and others) to be more participatory. But what does this really mean? Many agencies attempt a degree of participatory practice but are confused by what to do, and often face problems as a result of their inexperience and lack of preparedness for effective community engagement. This paper provides a set of principles for effective participatory projects useful for resource management agencies. They were devised from extensive evaluation of a series of outreach projects undertaken by two Australian agencies interested in enhancing community interest in environmental management. The key learnings from this project are that: (1) There are considerable advantages in using a range of indirect approaches to promote natural resource management; (2) There are considerable advantages in integrating the principles of community engagement into the development and delivery of collaborative and participatory projects within outreach programs; (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.
Vandeman, Mike J, World Without Cars, USA

The Science of Mountain Biking Impacts – A Review of Recent Research

To know how to properly manage mountain biking, land managers seek information on the relative impacts of mountain biking and hiking. The best tool for answering this question is the experimental study, where these two modes of use can be compared while all other impinging factors are controlled. (I reviewed such studies in a previous paper.) The latest research on this issue has instead used the survey method. In these studies, two different sets of trails are compared (hiking trails vs. mountain biking trails). But in such a study there is no way to know whether the similarities and differences found are due to differences in the type of use, or differences in terrain, soil composition, weather, amount of use, length of use, hikers using the mountain biking trail, mountain bikers using the hiking trail, or other factors. Thus, some of the conclusions drawn by these studies (e.g. that mountain biking and hiking impacts are equal) are not justified by the data.
Crowding in National Parks: Results from 30 years of research

Perceived crowding research has expanded from single descriptive studies to comparative analyses of data aggregated across multiple studies. By contrasting the identical measure across studies, aggregated data reveal patterns in findings. Heberlein and Vaske’s (1977) 9-point crowding scale, for example, has been used in over 180 studies resulting in crowding ratings for approximately 615 different settings and activities. In this paper we examine perceived crowding in 35 studies of National Parks in the United States and Canada. In total, 21,524 national park visitors were surveyed. The unit of analysis (n = 143) for this investigation was an evaluation context (e.g., hikers’ crowding evaluations at a trailhead, on the trail). For this analysis, the 9-point scale was collapsed into not at all crowded (scale points 1 & 2) versus any degree of crowding (scale points 3 through 9). Across all U.S. National Park evaluation contexts, 50% of respondents reported some level of crowding. The comparable percentage for Canadian National Parks was 35%. Within the U.S. regional differences were evident with the highest crowding averages in the Rocky Mountain region (57%) and the lowest in the Atlantic region (40%). As expected, crowding was higher in frontcountry (53%) compared to backcountry (28%) locations. Shelby, Vaske, and Heberlein (1989) advanced five categories of carrying capacity standards based on the 9-point scale: suppressed crowding (<35% reporting any level of crowding), low normal (36 – 50%), high normal (51 – 60%), over capacity (66 – 80%), and greatly over capacity (81 – 100%). Using these standards, 54% of the evaluation contexts were in the suppressed / low normal crowding categories; only 4% were greatly over capacity. Over half (54%) of the evaluation contexts for Canadian National Parks were in the suppressed crowding category compared to 28% of the U.S. National Park evaluation contexts. Less than 20% of the Canadian National Park evaluation contexts were in the over capacity / greatly over capacity category, whereas 30% of the evaluation contexts for U.S. National Parks were in this category. Research and management implications for these descriptive findings and evaluative standards are discussed.
Virden, Randy J, School of Community Resources & Development, Arizona State University, USA
Sarah R Ackerman, School of Community Resources & Development, Arizona State University

Metropolitan attitudes and behavior toward parks and open space in the Southwest

Over the past 20 years the West has emerged as the fastest growing and urbanizing region in the United States (U.S. Census Bureau, 2006). The Las Vegas and Phoenix metropolitan areas have consistently been among the top three fastest growing urban areas during this same time period. This study is a 2006 countywide general population telephone survey that assessed Maricopa County (Phoenix Metropolitan area) general residents’ attitudes toward park and open space, participation behavior, and future parkland development preferences. The study also presents results from the 2000 Parks and Recreation General Population Survey to identify relevant trends or changes. The telephone survey of 1035 randomly chosen households was completed by the Maricopa County Office of Research and Reporting and resulted in a 70 percent response rate. The study examines park and open space attitudes, recreation visitation to local, state and federal park lands, preferences for future park facility and services, and desired beneficial outcomes sought from park and trail use. These variables are examined across time and compared between newer and older residents. Examining the data across length of residence allows for the segmenting of newer residents so that their attitudes and behavior can be better understood as part of the change in park related social and environmental values that are occurring in western metropolitan populations. The results indicate that the demand for parks and outdoor recreation opportunities is increasing and that newer residents do exhibit some different attitudes and behaviors when compared with long term metropolitan residents.
Factors influencing satisfaction of hunters on private hunting preserves

Increasingly Americans seek hunting experiences in areas where opportunities for recreational hunting are rapidly dwindling. Traditional hunting lands are now being developed at a rapid rate. In addition, restricted access to open land is enforced by many private landowners. Public land agencies struggle to provide adequate recreational hunting areas that meet the needs of the hunting constituency. Therefore, creating safe productive hunting environments has become important to the long-term viability of recreational hunting. Privately owned hunting preserves on farms or wilderness land, may achieve this goal. Although the number of hunting preserves continues to increase, there has been little research on hunter preferences and satisfaction. If a goal for preserve owners is to continually increase sales of their products and services, owners must satisfy the needs of their customers.

The purpose of this study was to determine how well hunting preserves are satisfying their customers, identify those attributes that contribute to customer satisfaction, and examine differences between groups of hunters in relation to importance of attributes.

130 hunters from three preserves responded to a survey asking them to describe and rate several aspects of their latest experience with the reserve. Importance/Performance analysis was used to determine which attributes were most important to hunters as well as which attributes contributed to or failed to contribute to a satisfying hunting experience.

Results indicate that hunters perceived natural flying birds and friendly staff as the most important factors at preserves. Items with the least importance were those related to lodging. The attributes with the room for most improvement were natural flying birds, well trained hunting dogs, and hunting scenarios.

The sample was reportedly highly satisfied, indicating preserves were meeting the needs of customers. However, significant gaps in preferences and satisfaction were found in several variables, indicating room for improvement in some attributes. On the other hand, friendly and courteous service was rated as the most important attribute to hunters, and was rated high on the performance ratings. Preserve owners should continue to provide camaraderie filled atmosphere to gain repeat business. Additional analysis focuses on differences in perceptions between hunters with different demographic characteristics.
Therapeutic Use of Public Lands

As our society continues to become more complex, fast paced, and technology driven, the social and health issues once addressed on a more personal or family level, have slowly become eroded. As school, childcare, and work predominate the home environment, family dysfunction continues to proliferate. Where once children and teens could find solutions to problems, and a role to play through their family, community or church, youth are now relegated to school counselors, psychologists, family therapists, or adjudicated youth organizations to resolve “problem” kids and the dysfunctional families from which they often come (Kimball & Bacon, 1993). When remedies to adolescent or youth behavior are not resolved through “normal channels,” more and more families are seeking alternative methods and solutions for their children.

In particular are the increasing number of alternative programs that use the outdoors or wilderness setting as a treatment modality for adolescent and youth at risk (Berman & Davis-Berman, 1993; Harper & Cooley, 2007). Often referred to as therapeutic outdoor programs or wilderness therapy, these programs often include individual or group therapy under the supervision of a licensed or certified therapist, conduct individual client assessments, take place in a natural outdoor/wilderness environment, where the primary focus is to effectuate positive behavioral and social changes in the individual. These types of therapeutic outdoor programs, in order to be effective, and have a reasonable chance of eliciting sustainable, long term changes, are often a month or longer in duration, with intense outdoor activity creating the most long-term impact (Wilson & Lipsey, 2000). As popularity for therapeutic outdoor programs increases, so too does the impact to the environments in which they occur. At issue is how to accommodate a growing trend in the health care industry, where as many as 10,000 clients are served annually (Werhan & Groff, 2005), in increasingly remote, and often pristine wilderness areas. As the number of participants and outdoor health programs increases (Cooley, 1998), the impacts that this type of use can have on public lands may become more and more problematic in terms of user conflict, environmental damage, and the management of outdoor behavioral healthcare groups to safely achieve their outcomes.
Wadzinski, Les A, USDA Forest Service, Hoosier National Forest, USA

Laws and Managers- an Inconvenient Mix

Managers are faced with many responsibilities, and compliance with laws and the liability issues that go along with them just adds to the mix. Employees of state and local agencies inevitably have certain laws to comply with, and on the Federal level managers have to pay attention to laws such as the National Environmental Policy Act, Endangered Species Act, Americans with Disabilities Act, Archeological Resource Protection Act, and additional titles that could go on for pages. Add to that the more traditional legal issues such as injury lawsuits, and managers indeed have substantial challenges when it comes to compliance with the law. This presentation will try and make some sense of staying legal while still accomplishing the mission in an efficient manner. The perspective will be that of a manager/practitioner that must digest complicated information, make judgment calls without legal training, and do so within budget and staffing constraints. Using a few laws as case studies, participants will become familiar with several techniques that can be applied to help meet these challenges.
Navigating the farm through a changing social and operational landscape: an Australian experience

In the last 20 years changes in the way people farm and the way they talk about the way they farm have changed to incorporate an evolving environmental awareness. Are these changes evidence of a profound cultural shift in which environmental integrity is a new driver in farm enterprises or are they better typified as ‘opportunistic’; contingent on other non-environmental factors? This article will present the preliminary results of a research project which is exploring changes in farm practices through the experiences of a group of Victorian farmers. Predominantly graziers, these farmers participated in an ambitious project 20 years ago aimed at bringing ecological considerations into farm decision making. The project provided the know-how, understanding and the financial resources to redress ill-conceived fencing and land clearing decisions of an earlier generation. The benefits were assumed to be so self evident that the participating farmers would be on a new land management pathway. The outcomes have been variable as the farmers juggled expectations generated by the project with changes imposed by the farm operating environment and social norms - in particular gender relationships. This is an account of their experiences at navigating their farm businesses through the rapidly changing operational and social ‘landscapes’. This work is relevant to projects which seek to effect long-term change from short term interventions.
Thinking ‘meaningful’ participation in ‘effective’ conservation management: a feedback on the WWF RAPPAM

In the last decade, the international society of biodiversity conservation such as CI and WCPA of IUCN have made effort on the development of a comprehensive and effectively managed system of protected areas in order to prevent loss of biological diversity. WWF RAPPAM Methodology is regarded as the most popular approach with a special focus on the notion of participation. In this paper, we provide feedbacks gained from our case study, Wu-wei-kang Wildlife Refuge in Taiwan exemplified of WWF RAPPAM Methodology.

Participation is the fundamental idea to WWF RAPPAM Methodology as well as contemporary community development theories in social sciences. Our case, Wu-wei-kang Wildlife Refuge, has existed conflicts between refuge and its neighboring communities’ livelihood. In this paper, we first illustrate the application of WWF RAPPAM methodology in this study area. Second, we show the complicated process of ‘participatory workshop’ and problems of rapid assessment in achieving effective management. Especially, we found that the authority plays a very key role on the participatory processes. Then, a special focus on ‘meaningful participation’ is discussed by incorporating notion of empowerment and from other disciplinary in social sciences.

This study found that the participatory workshop can be a good communication mechanism and even alternative management institutions. We would like to suggest ‘empowerment’ theories developed in social sciences will contribute the understandings of stakeholders who are ignored in RAPPAM Methodology. As well, these theories will also provide supplementary explanations for effective participation as meaningful.
Managing with the difficult to measure in mind: indicators and proxies for forest estate planning models.

Forest estate models are used in forest management planning to forecast future forest conditions. Alternative future forest conditions are evaluated using criteria and indicators that attempt to represent society’s values. Economic and ecological aspects of sustainability are easily quantified, and have been paid considerable attention in criteria and indicator frameworks used in forest planning. A less clear definition has been given to measurable indicators of social criteria because they are inherently more challenging to measure. The purpose of this research was to develop a set of indicators for use in a forest estate planning model, with an emphasis on including social indicators. The resulting set of indicators represents a broad range of forest values that could readily be applied in any forest management planning exercise. However, we contend that the sustainability of a forest management strategy should not be evaluated only in terms of values represented by indicators that are measurable in a model. To address this shortcoming, we developed a forest values compatibility matrix to define compatibilities between values represented by the indicators and those for which quantifiable indicators are more difficult to define. Defining such proxies may allow increased understanding of potential outcomes of, and interactions between, social, economic and ecological aspects of alternative management strategies. To demonstrate their combined use, the indicators and compatibility matrix were used with a forest estate model to evaluate multiple forest zoning scenarios on a Crown timber license in New Brunswick, Canada. With zoning, conflicting values are managed in spatially explicit areas of the forest, which may result in a better overall forest-level outcome, in terms of the provision of social, economic and environmental values and benefits.
Westphal, Lynne M, US Forest Service R&D, Northern Research Station, USA

Using a collaborative modeling process for environmental decision making in the Calumet region of Chicago

Environmental decisions involve two essential components. First, environmental decisions involve values: what is it that people want or desire? Getting a sense of priorities and values requires involvement of the community of people who are potentially impacted by environmental decisions. Second, environmental decisions impact on complex systems. Technical expertise is needed for understanding how decisions propagate through complex environmental systems. Bridging the gap between technical expertise and stakeholders can be difficult. Failure to bridge this gap, however, may lead to failure of the environmental decision-making process.

Computer modeling is an approach that offers promise in facilitating meaningful participation in environmental decision making. While modeling often takes place in a black box that does not facilitate collaboration, some modeling approaches are suited for collaboration. At its best, the modeling process can combine local and technical expertise, can facilitate learning for all parties, and can support environmental decision making.

We collaborated with people interested in Calumet’s Indian Ridge Marsh on Chicago’s Southeast side to test and develop the uses of collaborative modeling to support environmental decision making. Working with a diverse group from local residents to consulting engineers, we met periodically to develop and implement use of a simple model to move forward in ecological rehabilitation plans for the marsh. This presentation outlines the successes and failures of this project and provides insights into future use of collaborative modeling.
Credibility, saliency, and legitimacy of boundary objects for water resource management decision making: Assessing stakeholder response to DCDC WaterSim

Researchers have argued that using science to support decision making is effective when the science is salient, credible, and legitimate to end users. This study evaluates this claim in the context of water resource decision making in Phoenix, Arizona. WaterSim is a scientific system-dynamics model with “decision levers” that enable users to gauge the response of water resource conditions to climate change, drought, population growth, and technological innovation, as well as policy decisions about the region’s built environment, landscaping, and recycled water. WaterSim is displayed in the Decision Theater, an immersive environment and decision space featuring a 270-degree rear projection screen for visualizing economic, social, and environmental processes.

WaterSim serves three functions. First, it is a vehicle for integrating interdisciplinary, multi-scalar research, providing a framework for communication between social scientists, climate scientists, and decision makers. Second, it serves as a type of boundary object, which engages end-users at an early stage in the scientific process, brings a wider range of expertise to the table, and makes scientific processes more transparent to decision makers. Third, WaterSim provides an experimental environment in which to study decision processes.

We presented WaterSim to nine focus groups of water resource stakeholders (120 participants) in the Decision Theater. Participants first responded individually to a set of questions by typing answers into a laptop running Group Systems software. Next, the same questions were presented to the groups by a neutral professional facilitator (not associated with model development) who led discussion. The focus groups were audio and video recorded, transcribed verbatim, and analyzed for both a priori and inductive themes.

Results indicate that legitimacy was not as important to participants as credibility and saliency. Participants also believed that water conservation policies are more politically feasible than growth management in addressing shortage conditions and were vocal in demanding more information about feasibility and potential impacts of various conservation policies in future versions of WaterSim. Implications of the results for the development of boundary objects and boundary organizations will be discussed as well as recommendations for future research on water management decision making under conditions of uncertainty.
Development of a Vulnerability Assessment Tool for Public Lands Used for Recreation

Recreation and land management agencies need to analyze potential disasters and vulnerabilities (e.g., National Fire Protection Association, 2004; National Recreation & Park Association & National Recreation Foundation, 2004). Importantly, federal agencies are directed to: conduct environmental, hazard, and vulnerability assessments; identify and prioritize critical infrastructure and resources; and implement “all-hazards preparedness” (The White House, 2003a, 2003b, 2004; U.S. Department of Homeland Security, 2004). However, vulnerability assessment tools for use with public lands appear to be lacking.

The purpose of this study was to develop vulnerability assessment tools for use with public lands used for recreation. In a qualitative study of NEPA comments, Whitworth (2005) identified homeland security themes that included: protection of federal resources, information and physical security, federal land access and transportation systems, natural resource access and use, and preservation of federal lands. Using these themes and associated public concerns, National Response Plan (U.S. Department of Homeland Security, 2004) and Homeland Security Presidential Directive (The White House, 2003a, 2003b, 2004) requirements, and open-source media, five terrorism factors and associated items were developed for this study: Physical Security of Agency Assets; Attacks on Infrastructure, People, and Natural/Cultural Resources; and Use of Public Lands by Terrorists. Three natural hazard factors were developed to assess Natural Hazards, and risks to Infrastructure and People. Five-point Likert-type measures were used to assess the Probability, Impact, and Vulnerability for each threat. The study adapted techniques from the Federal Emergency Management Agency (n.d.), General Services Administration (2000), and risk mapping (Kalt, 2003). Scale development included input from experts in measurement, hazard mitigation and disaster planning, and risk management.

Data were collected at the National Association of Recreation Resource Planners’ and Threat Assessment Conferences (n=20), and from university students attending the Fall 2006 National Outdoor Recreation and Rural Tourism Consortium (n=42). Data were entered into SPSS and scale indices were created to evaluate and prioritize risks. Chronbach’s alpha for the eight scales ranged from .74-.94, which supported the internal consistency of items within the scales. Descriptive statistics suggest that study methods may be used to evaluate and prioritize risks via vulnerability assessment indices and risk assessment graphing.
Visitor perceptions of importance of on-site recreational experiences related to health benefits

Marketing and managing federal recreational lands for the health benefits they provide for people and society may be one way to respond to the growing number of people in the U.S. diagnosed with mental and physical health problems resulting from inactive lifestyles, poor eating habits, and diminished time for outdoor recreational activities. It may also serve as a way to build economic and social capital within communities adjacent to federal lands. Currently federal land managers provide a suite of on-site recreational benefit opportunities for visitors. Several of those opportunities directly relate to human health benefits: physical fitness, physical rest, escape from personal/social pressure, and escape from physical pressure. Other opportunities they provide indirectly relate to human health benefits derived from recreating in natural areas: family togetherness, enjoyment of nature, introspection, and creativity. Although managers provide opportunities for these benefits, they do not necessarily target them as “health benefits”. Moreover, recreation management plans do not distinguish between local and non-local visitors and whether the lands they manage are perceived to have greater health benefits by one group than by another group. As a result federal land managers may be missing opportunities to provide recreation settings that could result in greater health benefits for all visitors. For local visitors missed opportunities for greater health benefits may impact both the economic and social capital of their communities.

Data from two Corps of Engineers sites, Lake Shelbyville and Carlyle Lake, on the Kaskaskia River in Illinois were examined to see how important visitors believe health benefits associated with recreation experience opportunities are compared to other benefits they might attain while recreating at these sites. In addition local visitors were compared to non-local visitors to see if they rated the importance of on-site experiences related to health benefits differently than non-local visitors. Implications for marketing and managing federal lands to address mental and physical health issues are presented and discussed.
Moose were introduced to the island of Newfoundland in 1898 and 1904 in order to provide a local food source. They are the dominant herbivore on the landscape, where wolves, typically a primary predator of moose, were eliminated. Since then, they have reached hyperabundant population levels and are causing significant and widespread ecological change to the island’s balsam fir and mixed wood forests.

Hunting is prohibited within national parks, and, as a result, many areas in both Terra Nova and Gros Morne support moose densities much higher than those observed in other boreal ecosystems. In some areas of Gros Morne, moose densities have been recorded at approximately 15 times normal ranges. Research conducted in both national parks has demonstrated that moose are negatively impacting ecological integrity. Specifically, they are severely restricting forest regeneration. As a result of intense herbivory by moose, dense canopied balsam fir/mixed-wood forests are being converted to open ecotypes dominated by grasses and heath. Data indicate a loss of forest species diversity, including tree species (such as red maple and mountain ash) as well as understory and alpine plants (such as Canada yew and dwarf birch). Species and forest cover loss have had significant negative impacts on other animals within the parks, including birds and prey species, which require the cover of a mature boreal canopy to survive. Moose have also been identified as a significant agent in the distribution and establishment of alien invasive plant species.

Parks Canada is examining options to actively manage moose populations in order to restore structure and function to Terra Nova and Gros Morne National Parks’ native forest ecosystems. This issue will not be managed successfully without the engagement and involvement of Parks Canada’s partners and key stakeholders. This paper presents the issue of hyperabundant moose in these national parks, our proposed collaborative approach and initial discoveries regarding public perception to the issue and to management options.
Destination development: An analysis of population growth and rural community well-being

Development trends in rural America have shifted dramatically over the last thirty years, moving from economies based almost entirely on natural resource extraction and manufacturing firms toward more service-oriented economies focused on attracting outside money in the form of people, whether temporary (tourists), seasonal, or permanent residents (Galston and Baehler 1995). Many rural communities, especially those rich in natural amenities and/or cultural heritage sites and those within extended commuting distance to vibrant metropolitan areas, are successfully drawing in-migrants, tourists, and seasonal residents who bring social, financial, and human capital to the community. These newcomers have invigorated rural communities with new people and new jobs. However, this has not occurred evenly across space, and it may bring new problems to communities, as well as benefits. This paper uses factor analysis to measure rural communities by their level of what I call “destination development,” and regression analysis to analyze the explanatory power of this construct in understanding various measures of economic and social well-being. I expect to find that destination development increases community well-being to a point, but that with overdevelopment, well-being tends to decline, creating an inverted U-shaped curve.
Mountaintop Removal and Environmental Injustice in Southern Appalachia: Progress and Prospects of Mountain Justice Summer

This paper examines coal mining related socio-environmental impacts and injustices in rural Appalachia and past and current responses to them. In particular, it examines how local residents, concerned citizens, mainstream and radical environmentalists and other coalition members launched the Mountain Justice Summer Campaign. Its early objectives were to inform the public about the impacts of mountain-top removal, organize public opposition to it and pressure government agencies to respond its problems. These goals have expanded to include creating alternative forms of community development, international solidarity, and extending pressure on financial institutions as well. The bridges and barriers Mountain Justice has encountered over the past two years in pursuing these goals are identified and assessed. The campaign’s dramatically expanding growth, support and strategies are examined within an environmental justice framework. Finally, considerations for future environmental justice efforts in Appalachia and other resource-dependent areas are discussed.
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Factors affecting landowner participation in the Candidate Conservation Agreements with Assurances (CCAA) program

The Endangered Species Act of 1973 (ESA) has been recognized as one of the most powerful laws enacted to protect endangered species in the world. Its protections extend onto private land, which has in some cases created conflict between the law, its enforcers, and private landowners. The Candidate Conservation Agreements with Assurances (CCAA) program was developed in 1999 to provide a regulatory incentive for private landowners to engage in proactive conservation for sensitive species to preclude the need for listing under the ESA in the future. Since 1999, however, there have only been 14 CCAAs signed, a relatively small number given the thousands of species eligible for the program. This research project conducted semi-structured, qualitative interviews with individuals from four participant categories to expand our understanding of why landowners choose, or choose not to participate in the CCAA program, and of what benefits and barriers they perceive in program implementation. Our participant categories included 1) private landowners enrolled in a CCAA; 2) private landowners that are eligible for, but declined to participate; 3) U.S. Fish and Wildlife Service employees responsible for CCAA program implementation; and 4) State fish and wildlife agency employees who have participated in CCAAs across the country. We expect to conduct approximately 40 interviews during this research project. While we have not yet completed our analysis, we anticipate that through this research we will be able to identify the primary factors affecting landowner participation in the CCAA program, barriers to participation in the program, and to gain a more complete understanding of landowner perceptions of sensitive and endangered species conservation on private lands. We are hopeful that our results will provide information that could positively affect program policy to increase participation and the potential of the CCAA program as an effective tool for conservation on private lands in the United States.
Visitors’ satisfaction in whale watching industry in Taiwan: The application of importance-performance analysis

The purpose of this study was to explore whale watching visitors’ satisfaction by using the techniques of importance-performance analysis (IPA), and further to understand the relationships among sociodemographic characters, travel motivation, needs for interpretation/education, and opinions about service quality. A total of 902 valid questionnaires were collected through face-to-face survey by convenient sampling in east coast of Taiwan. Results showed that most respondents were single (57.3%), female (54.2%), highly educated (49.9%), aged from 21-40 (57.8%), monthly income was between 600-1800 US dollars (45.7%), the key motivation variable was “experiencing the nature”, the most wanted interpretive topic was “concepts of ecological conservation”, and the most needed interpretive media was “interpreter”. Respondents perceived “safety for whale watching” the most important variable, and the performance of “whale watching is a suitable field trip” variable was the best.

There was a significant correlation between travel motivation and needs for interpretation/education. Travel motivation also positively correlated with the importance of service quality. The IPA technique was used to assess the performance of whale watching industry in Taiwan as perceived by domestic visitors. Twenty-six pertinent whale watching industry service quality attributes were identified. The results of IPA illustrated that Taiwan’s whale watching industry performed fairly good in 14 out of the 26 service quality attributes, in areas mainly related to tangibility, reliability and empathy dimensions (keep up the good work quadrant), while responsibility and edutainment dimensions of whale watching industry fell into the concentrate here quadrant. Regression analysis were conducted and found that “motivation for pursuing novelty”, “motivation for experiencing nature”, “motivation for sharing experiences”, “motivation for relaxing”, “needs for interpretive topics”, and “whether of not seeing the whale/dolphin” have significant influences on the satisfaction of service quality. The revealed findings and proposed suggestions are to be implemented in the future marketing and management of whale watching industry in Taiwan.
Agricultural conservation and the art of stewardship

The Paradise Creek Watershed in northern Idaho, small as it is, symbolizes a dilemma for the surrounding region’s agricultural landscape and human communities: failure to meet current water quality standards, or total maximum daily loads (TMDL), related to sediment within the waterway from non-point source pollution. At the watershed scale, a matrix of mixed land-uses likely contributes to non-compliance. However, historical impressions of problem sources in the Inland Northwest dryland farming region often look to agricultural producers as the primary cause. Although dominated by agricultural crop rotations of cereal grains and legumes, the dryland farming landscape was characterized by extremely high rates of soil erosion in earlier eras. In recent decades, conservation tillage emerged for some dryland farming operations, but many have maintained conventional practices due to a variety of economic, social, and agronomic barriers. More recent water quality legislation, however, has increased concern about the effectiveness of conservation practices and structures related to USDA programs such as the Conservation Reserve, Conservation Security, and Environmental Quality Incentive programs.

A recent survey of Inland Northwest farmers (located across portions of northern Idaho and eastern Washington) regarding their conservation attitudes, practices, and perceptions documents current conservation trends within this agricultural region. As part of this survey, farmers were asked to identify the degree of adoption for several best management practices (BMPs) for different landscapes. Survey respondents were also asked about their preferences regarding particular USDA programs as well as voluntary efforts they implement and maintain on their own. Contrary to often-reported accounts within the media, these data indicate a more complex story about the relationship between agricultural producers, conservation, and the availability, costs, and benefits of various government programs. In this context, this analysis offers insights on the key factors associated with differences among producers preferring particular government programs versus the opportunity to have stewardship exist outside a context of government subsidization.
Certifying small-scale private forests in New Brunswick: what does it take to make it happen?

Certification of forest management is becoming increasingly important, internationally as well as in North America, as a tool for promoting, monitoring and rewarding sustainable forest management. However, it is a tool that appears to work better for large areas of public or industry-owned forest than it does for small-scale private forests or woodlots. Major certification schemes are oriented towards large areas of forests, managed by professionals who can document the processes and results needed to meet required standards. These systems are less effective for multitudes of small woodlots, owned by families or individuals with differing objectives, interests and capacities. Nevertheless, woodlots are important for timber supply, environmental values and social benefits, and certification schemes are being developed or modified to recognize their particular requirements.

Canadian woodlot owners have recently developed their own certification scheme in response to growing industry demand for certified wood. Pilot projects for this scheme include Northumberland county in New Brunswick. Through interviews with woodlot owners and representatives of the timber industry and of owner organizations, we identified a number of characteristics which contribute to the perceived success of this pilot. We then compared this situation to that in another part of New Brunswick, Madawaska county, where no woodlots are currently certified.

Management standards and system requirements adapted to the small-scale of woodlots are, unsurprisingly, central to successful certification. Involvement in the system is voluntary and so landowner interest is a second key factor. However, our research highlighted the role of the landowner organization, or a similar group, in promoting certification, facilitating compliance with requirements and administering the scheme. Furthermore, forest industry support and benefits to certified landowners, such as higher prices, improved market access or technical support services, are essential to success. We concluded that woodlot certification would not currently succeed in Madawaska due to a lack of commitment from the industry and the landowner organization. Making certification happen on small-scale private forests needs more than just an appropriate standard and interested landowners. It also requires local organizations to promote and facilitate the scheme and the active support of the forest industry.
Examining the linkages between conservation initiatives, community perceptions, and land-use decisions: A study of the Community Baboon Sanctuary, Belize

Established in 1985, the 4,800 hectare CBS protects one of the few black howler monkey populations (Alouatta pigra) in Belize. With support of a local non-governmental organization, the lands for this sanctuary were set aside by private landowners from 7 Creole communities situated along 33 kilometers of the Belize River. For 20 years the CBS communities have been participating in two conservation initiatives: nature-based tourism and a voluntary, written pledge for private landowners to leave riparian forests intact and forested corridors that provide habitat connectivity for howler monkey populations, the tourism attraction. Little is known, however, about the linkages between landowner pledge compliance, nature-based tourism participation, land-use decisions, and forest cover.

Studies that address land-use/land-cover change are important in examining forest cover change, as well as the viability of community-based programs for forest conservation. Of equal importance in assessing the effectiveness of conservation initiatives, but an often overlooked part of the process, is the understanding of community benefits and place-based meanings attributed to natural areas that can help ensure management plans are responsive to local resident needs.

This study involves the evaluation of place-based meanings and perceptions of community benefits attributed to riparian forest landscapes and an examination of riparian forest cover change within the CBS’ 7 villages over 20 years. Methods include a change detection analysis from the development of a time series of land cover maps based on LANDSAT imagery from 1984 (pre-CBS), 1989, 1994, 2000, and 2004, as well as household interviews with local landowners that link observed land-use patterns with perceived benefits, place-based meanings, and other social dynamics influencing land-use decisions. Results show increased riparian forest cover on landowners’ properties involved in either conservation initiative. However, all residents interviewed agree that neither initiative is providing much economic benefit. Further examination showing higher perceived benefits and place-based meanings attributed to riparian forest landscapes and conservation among residents involved with either initiative indicate that it may be these intangible benefits and place-based meanings that are actually promoting conservation.
Exploring the relationship between recreational activity, leisure involvement, and place attachment

The attachment people develop to places has received much attention in the human dimensions of natural resource literature. Much of this work has focused on the formation of place attachment. For example, Eisenhauer et al. (2000) indicated that through their perceptions of the environmental features and characteristics of place, convenience, recreational activities participated in, and the economic and consumptive nature of their visit, people develop symbolic and emotional ties to a place. In the context of recreation places, others have indicated that activity experience variables also play a significant role in contributing to people’s attachment to place (Hammitt et al., 2004; Kyle et al., 2004). The purpose of this analysis was to further explore the relationship between leisure involvement and place attachment. Specifically, we examined this relationship among five different recreational activities enjoyed in the Chattahoochee National Forest in northeastern Georgia: viewing scenery, backpacking, day hiking, camping, and off-road vehicle use. The data for this analysis was collected through a mailback survey of visitors who were asked to participate while visiting the Chattahoochee NF (n=562; response rate=43%) during the summer of 2002. A non-response bias check indicated that they were no significant differences between respondents and non-respondents. Regarding varying levels of leisure involvement and place attachment, the results indicated that the relationship varied depending on the type of recreational activity the respondent indicated they participated in while visiting the Forest. For example, for off-road vehicle use, only the self-expression dimension of involvement was significantly related to the place identity and affective attachment dimensions of place attachment. However, for viewing scenery, the involvement dimensions of attraction and centrality were significantly related to the affective attachment and place identity dimensions of place attachment. These findings differ from that of Kyle et al. such that self-expression was a more prominent predictor of place attachment.
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Entrepreneurs’ perceptions and involvement of nature-based tourism impacts: case study of I-Lan, Taiwan

I-Lan county has promoted nature-based tourism (NBT) since 1980s in Taiwan, and the county is expected to conserve the environment and provide economic growth at the same time. This paper reports on research that examines the tourism business owners’ perceptions of the social, economic, and environmental impacts nature-based tourism has on I-Lan County.

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 indicated that 90% of package tour programs’ (PTP) respondents agreed that PTP helped their businesses. Most business owners reported that NBT had a moderate impact on their business – contributing approximately 30% of their annual sales and 31% of customers. Over 56% of respondents reported increases in sales revenue over the last five years. Participants believed benefits to the social/cultural environment were the most apparent impact in I-Lan, followed by economic benefits. Nearly 98% of respondents reported that they were definitely part of I-Lan, and 95% of them agreed that they had emotional attachment to the I-Lan area. Results indicated that 75% of participants believed that county government did well in tourism planning, and 60% of them believed that they could influence county government’s tourism planning. Participants believed that strong sense of community attachment positively influenced their perceptions of NBT.

Results show that with a better understanding of business owners’ perceived impacts, county tourism planners and researchers can have a more efficient and holistic management of nature-based tourism in I-Lan.
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Chun-Yu Yang, Tourism, Providence University

A Case of Hermeneutic Study on Development of Leisure Farm in Taiwan

Over the past 20 years there has been phenomenal growth of leisure farm in the rural areas of Taiwan. Although managers, visitor, residents and media are stakeholders in the development of leisure farm, very little research has done to conclude that the establishment of leisure farm is an outcome of comprehensive human interactions with natural resources and the environment. Therefore, the aim of this paper attempts to explore the extent of human interactions with natural resources and environment existing in leisure farm in Taiwan.

This research involved an in-depth interview field study, and secondhand data of media representation of all leisure farms at Shins country, Taichung county, Taiwan. The opinions on the values of human interactions with natural resources and environment suggested by Kellert (1997) existing in leisure farms were collected from 20 managers, 30 visitors, and 20 residents through a six month period.

Hermeneutics including tradition, individual and text was the reading analyses performed to identify what did, would, and could it happen in the development of leisure farm. Results of this study show the rethinking of development of leisure farm with the different expectation and consideration among managers, visitors, residents are needed to assure the healthy development of leisure farm.

To conclude, what should it happen in the sustainable development of leisure farm in Taiwan were recommended in the end of paper.
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A study on the development of ecotourism in the aboriginal reservation Areas in Taiwan – Results from 5-year studies in sequence.

TAIWAN is an island country located in the western rim of the Pacific Ocean. For the past half century, Taiwan has gradually become a developed and democratic nation through its three steps of economic reforms including: agricultural land redistribution, labor intensive industry for export and electronic industry development. All these economic reforms have made Taiwan become prosperous. However, some indigenous people who are mostly living in the remote central mountain areas seem ignored by the government and obtain little benefit from the achievement of the economic reforms.

About a quarter million hectares of the mountainous lands were designated as the aboriginal reservation Areas for nearly 400 thousand aborigines distributed in the central mountain areas from north to south. The land uses of these areas are limited by various laws and regulations even though the resources are abundant within them. A possible way to break through this limitation is to develop ecotourism on these areas where the aborigines could provide outdoor recreation opportunities and services for visitors without much change of their lands and meanwhile to gain their income paid by visitors.

If ecotourism is the way for aborigines to get out of their land use limitation, then the question of how to development ecotourism as their job or business has become an important issue to be figured out. Sequential studies(2002-2006)were conducted in some reservation areas with the application of both questionnaire survey and personal interviews to collect data for analyses and discussion.

This article is to present the results from a 5-year sequential studies including:(1)aborigines’ attitudes toward the development of ecotourism on their lands,(2)visitors’ perceptions of ecotourism and their willingness to pay for their trips,(3)activity programming and planning approach,(4)some promotion of education programs for both aborigines and visitors, and finally(5)an integrated ecotourism development model for managers’ references.
Public participation is required in most environmental impact assessment programs around the world. However, citizen involvement is often reduced to a procedural exercise instead of a substantive process to include the public in environmental decision making. Success of citizen participation relies heavily on administrators’ willingness to share power and citizens’ willingness to constructively respond.

The paper examines citizen participation in tourism development and forest management and provides ways to improve its effectiveness. Therefore, the purposes of this study were to investigate if perceived differences exist between forest managers and stakeholders in terms of (a) the degree of participation and stage of process, (b) the knowledge of tourism development and forest management, and (c) the level of motivation to contribute in citizen participation.

The study site Liu-Kuei Forest is located in southern Taiwan. It possesses 9,641 hectares of experimental forests with elevations ranging from 820 to 8,500 feet. Qualitative in-depth interview method was used to interview 16 stakeholders and 12 forest managers in September and October of 2004. Data allow us to depict the perceived differences of managers and stakeholders in terms of tourism development, willingness to participate, participation approaches, knowledge about management, and potential difficulties and limitation of participation.

The results showed that (1) more stakeholders favored tourism development than forest managers, (2) most stakeholders were reluctant to participate due to lack of mutual trust, (3) some managers revealed their sincere doubts of citizen’s abilities to participate, (4) the degree of citizen participation has not reached partnership and power sharing stage, (5) the knowledge and the level of motivation to contribute in citizen participation are different between managers and stakeholders. Finding and management implications are discussed. Suggestions and recommendations were made for practice and future research.
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Social Network Approach to Study the Participation of Community Forestry in Taiwan.

About 60% of Taiwan area is covered by forest and 80% of forest land is national forest. The authority of Forest management has been charged by Taiwan Forestry Bureau (TFB) until now. Since globalization has become a dominant movement, the forestry management shifted from government to collaborate with local community. The partnership of with community becomes an important policy of natural resources.

Since 2002, TFB has implemented the policy of community forestry and accumulated about 600 cases, from the consensus building and educational training including resources conservation to all aspect of community forestry (economic, social, and ecological). The organization of community is the basic organization to implement the Community Forestry and the social capital of the community influenced the ability of community participation, while the relationship of community member is the most important factor. Therefore, the purpose of this study is to examine the relationship between the community members and the social network analysis method was employed. By the analysis of degree, distance and betweenness of network centrality, the role and relationship of community members can be shown. The results can provide both the community and government to improve the capacity of Community Forestry.
The performance evaluation of agri-tourism development in Taiwan

The purpose of this study is to identify and measure the effectiveness of the Taiwanese Council of Agriculture's overall success in promoting agri-tourism development. An 18-member expert panel, consisting of farm owners, scholars, and policy enforcers, was interviewed to identify the potential indicators for the performance evaluation. A panel of three researchers then reviewed these indicators and developed the evaluation framework. Thirty-three performance indicators for the performance evaluation were embedded within three dimensions: economy, enjoyment, and ecology. After developing the evaluation framework, the Analytic Hierarchy Process (AHP) was utilized to assign weights to selected evaluation indicators using the judgments of the 18-member expert panel. The AHP provided more useful quantitative information about group preferences, satisfaction levels, and an overall performance score than the importance-performance analysis did. A mailed survey was also used in this study, 509 stakeholders (including farm owners, scholars, and policy enforcers) were asked how satisfied they were with each of these 33 performance indicators.

The results of this research show that the stakeholders deem these three dimensions of the evaluation framework as equally important. This suggests that future development should focus evenly on the economy, enjoyment, and ecology. On a scale of 0 (low) to 10 (high) these stakeholders gave an overall policy evaluation score of 5.9. The scholars assigned a slightly higher average rating (6.1) to the policy than did the farmers (5.8) and the policy enforcers (5.9). Thus, the policy was judged to be only marginally successful by all groups of stakeholders. From the micro view, the ratings of most economic indicators were below the average, indicating the economic performance needs to be enhanced.
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Comparison of Expressed Tourism Demand and Industry Perception of Market Demand in Northwestern Ontario

Northwestern Ontario is viewed by tourists as a place with rugged wilderness, solitude, and adventure, and where hunting and fishing are the main activities. At least this is what tourism providers think, and these perceptions form the basis for marketing campaigns that attempt to target specific market segments. A substantial amount of fiscal resources are spent on efforts predicated on these basic assumptions. Many resource managers are influenced by these assumptions and make resource allocation decisions based on this information. This study examined whether these perceptions are valid by comparing the tourism industry’s perceptions of their primary target market to the actual expressed demand of the market. Characteristics examined were motivations, sources of information, trip planning, travel party composition, transportation, accommodations, trip flexibility, travel intentions, and activity participation.

The visitor data were collected in 2004 via diary questionnaires distributed to non-resident travellers entering the region, yielding a sample size of 1,600. A web-based survey utilizing many of the same questions used in the visitor study were administered to a sample of tourism operators in the region in 2006. Results showed that while the tourism industry often has a good grasp about certain aspects of their primary target market, it is quite apparent that there is still much to be learned and that a wide discrepancy exists related to many important market characteristics. It was concluded that many of the basic assumptions held by tourism operators may not be valid and could limit the success of their marketing efforts.
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The Conflict of Tourism Mobility: Hualien as a land of pure and a place of barbarian

The very nature of tourism consists in the movement of people and place as well as the interplay between these two. That is studying tourism must put visitors back into the places and relations of places, which are always on the move. Pred (1984) pointed out that places do not remain stillness nor serve as background for travel activities, places are consistently remade by the tourists and the hosts. Massey (1997) further suggested that place is a process. Sheller and Urry shared the similar idea and explained the forces and factors which shape the movement of people and places are called “mobility”.

The capability to move refers as “mobility”, carries the meaning of the speed of change which depends on the attitude toward the place, developmental policy, advance in technology, and infrastructure. Economic globalization and advance in information and transportation technology has triggered and enlarged the inequalities of tourism mobility among places raise the consideration: what need to be mobilized in order to make a particular kind of place? To what extent of change should a place to be remade to capture people on the move and also to maintain the sustainability of the place.

Since 1997, Hualien was constructed, represented, and performed as the ‘retreat’ and ‘pure’ comparing with the ‘pressure’ and ‘crowdness’ of the “Mountain Front”. The nature characteristics: mountain, ocean, and indigenous culture. This study aimed to examine the concept of tourism mobility and to explore how the change of tourism mobility affected the change of the image of Hualien as well as the development of this place.
Understanding sustainable ecotourism from stakeholders’ perspectives: A case study in Wolong and Wanglang panda reserves in Sichuan, China

Along with the growing popularity of ecotourism in developing countries, debates on defining ecotourism and its sustainable elements continue. This study explores ecotourism development in two panda reserves in Southwest China. It sets out to understand the aspects of sustainable ecotourism held by stakeholders including governments, nature reserve administrations, local communities, tourism businesses, and conservation non-governmental organizations.

In-depth individual and group interviews were used to solicit the everyday reality instead of the often reported “ideal” situation in these two reserves. Contextual analysis using the NVIVO software platform was conducted.

The study identified commonalities and discrepancies in understanding of sustainable ecotourism among stakeholders. The five common aspects described by stakeholders are: 1) non-conventional programs and services, 2) environmental protection, 3) environmental education, 4) proactive community involvement, and 5) local economic benefits. However, each of these aspects were interpreted differently by stakeholder groups, especially in terms of the mechanisms of implementation. This qualitative information provides insights useful for facilitating stakeholders’ collaboration.

Stakeholders’ understanding of reserve ecotourism reflected a predominant anthropocentric approach on development. The researcher suggests an alternative approach to fill the gap of demand and supply. The study also suggests that policies to address each aspect of ecotourism should engage environmental, socio-cultural, and economic considerations. Consistent training and educative programs for local governments, reserve employees, and villagers should be employed to build the capacity of the ecotourism host communities. These are important aspects of sustainable ecotourism that have not been commonly addressed across stakeholder groups.
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Paul M Jakus, Economics, Utah State University
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Using the Almost Ideal Demand System to Estimate the Impact of Drought on Demand for Fishing Licenses in Utah

Fish and game agencies rely upon license sales for a large portion of their budgets. This paper examines the influence of drought, a common phenomenon in the western United States, on fishing license sales. Given the impact of drought on streamflow in rivers and water elevations in lakes and rivers, it is likely to have ecological effects on fisheries and, thus, could affect the demand for fishing. The demand for licenses is affected two ways: (1) a participation effect, i.e., whether people will buy a license at all when there are statewide droughts and (2), a choice effect, i.e., if an angler does buy a license, which would be chosen. We link a participation model to a demand system model to gauge the impact of drought on license sales. Using data on three types of resident licenses sold between 1986 and 2005, we find that drought negatively impacts license sales at the participation stage, but has little impact on the type of license chosen.
Predicting evaluation of National Forest managers’ performance: The role of forest value orientations, management preferences, and personal importance

When stakeholders question agency decisions about managing public natural resources, they sometimes question managers’ performance or priorities. We studied the relationship between management preferences and judgments about managers’ performance among Allegheny National Forest (ANF) stakeholders. The ANF is a 513,000-acre National Forest in northwestern Pennsylvania. Predominant forest species are northern hardwoods, white pine, and eastern hemlock; and oil and natural gas deposits are exploited throughout the forest. In the region outspoken advocates can be found for (a) intensive production of high quality hardwood saw timber; (b) intensive oil and gas production; (c) aggressive development of nature-based tourism resources; and (d) protection and expansion of designated Wilderness and National Recreation Areas. To study ANF stakeholders, we surveyed a sample of the adult population living within 150 miles of the forest and obtained 861 valid questionnaires for a response rate of 39 percent. Our dependent variable was evaluation of managers’ performance “managing the Allegheny National Forest in a long-lasting, sustainable way.” Predictor variables included forest value orientation (FVO), measured with a 9-item, utilitarian-mutualistic index; management preferences, measured with a 6-item, production-protection index; and personal importance of the ANF. Structural equation modeling demonstrated that FVOs were strong predictors of management preferences, but the influence of FVO on evaluation of managers’ performance was indirect and fully mediated by management preferences, a finding consistent with cognitive hierarchy models of human values. Personal importance of the forest positively predicted the strength of production or protection management preferences, regardless of direction. Finally, both strong management preferences for production and strong management preferences for protection were associated with positive evaluations of managers’ performance. The direction of management preferences, in contrast, was unrelated to evaluations of managers’ performance. Both practical and theoretical implications are discussed.