HUMAN DIMENSIONS OF NATURAL RESOURCE MANAGEMENT

November 2004

College of Natural Resources
at

Colorado State University

Knowledge to Go Places

Human Dimensions of Natural Resources at Colorado State University

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Achieving a sustainable relationship between human societies and the natural environment poses a serious challenge in the 21st century. The problem spans multiple locations and multiple scales. Farmers must choose between their own livelihood and killing a species whose numbers are rapidly diminishing. Rural communities attempt to balance expanding development with impacts on neighboring forest and water resources. Professional managers struggle with allocating limited resources among competing interests, and the world society must cope with the effects of global climate change. All of these concerns and countless more like them defy simple solutions. Dealing with them requires commitment to ideals, innovation, and a broad base of scientific understanding. We must learn more about natural environments and their intricacies. It is equally vital that we understand and attend to the needs and values of humans, human society, and culture. This latter area of inquiry has become known as human dimensions of natural resources (HDNR) and has become the focal point of research for social scientists at Colorado State University (CSU).

Faculty in the College of Natural Resources (CNR) at CSU have pioneered efforts in the study and application of human dimensions of natural resources. As early as 1970 and to the present time for example, Fisheries and Wildlife faculty explored public relations aspects of natural resource management. Forestry faculty advanced the study of natural resource policy issues and Natural Resource Recreation and Tourism faculty advanced the study of visitors to parks and other wildlands. A common thread of all these efforts was a commitment to helping natural resource professionals improve their ability to provide sound stewardship activities.

In the 1990s, human dimensions (HD) activities in the college expanded significantly. In 1992, faculty from the Department of Natural Resource Recreation and Tourism established a “Human Dimensions of Natural Resources Unit”. This unit provides a focal point for the diversity of HD expertise at CSU and their extensive involvement in natural resource issues. Also, in 1998, the Center for Parks and Protected Area Management was established. The center emphasizes outreach efforts at an international level and offers instruction and training to better prepare managers and other stakeholders to deal with the diversity of problems they face.

This brochure describes the HD-associated units, current HD projects in CNR, and the HD faculty. HD scientists in the College of Natural Resources are actively engaged in a host of natural resource issues. They are committed to reaching for the goal of sustainability and improving the stewardship of natural resources in the 21st century.

Units in the College of Natural Resources that Apply the Human Dimensions of Natural Resources

Human Dimensions in Natural Resources Unit (HDNRU)

The Human Dimensions in Natural Resources Unit (HDNRU) at Colorado State University was established in 1992 by faculty in the Department of Natural Resource Recreation and Tourism. The HDNRU promotes and draws upon the diverse group of social scientists at CSU who are actively involved in research related to the human dimensions of natural resources. Today, several faculty in the College of Natural Resources conduct activities under the auspices of the HDNRU.

The HDNRU was established in response to important transitions in the natural resource professions over the past several decades. The later half of the 20th century witnessed an explosion of interest in natural resource conservation. This movement emanated from concerns over threats from environmental degradation, the expansion of resource impacts to accommodate economic development and affluence, and debates among publics over appropriate resource uses. Natural resource management has traditionally been rooted in the principles of biological sciences, but a significant portion of today's challenges deal with people. This accentuates the need for a social science approach to natural resource issues.

Recognizing that need, the purpose of the HDNRU is to conduct high quality research, outreach and teaching that:

- Facilitates awareness and understanding of public values regarding natural resources,
- Improves communication with the public regarding natural resource issues,
- Leads to understanding and prediction of the social impacts of natural resource decisions,
- Improves methods of applying human dimensions information to decision-making.

Since its inception, the HDNRU has conducted research for a diversity of federal, state and local agencies in the U.S. While sustaining a focus on domestic natural resource activities, a high priority for the future is to conduct research and instruction that expands an understanding of the human dimensions of natural resources at a global level. In addition, the HDNRU has provided unique educational opportunities for graduate students who are interested in advancing our understanding of the human dimensions of natural resources and the condition of both humans and our natural resources.

To learn more about the HDNRU, we invite you to contact either of the Co-leaders:
Professors Michael Manfredo (manfredo@cnr.colostate.edu) and Jerry Vaske (jerryv@cnr.colostate.edu)

Center for Protected Area Management and Training

The Center for Protected Area Management & Training (CPAMT) was formed to assist professionals strengthen the management of the world's protected areas and adjacent lands. Objectives of CPAMT are:

- To provide technical assistance and training to protected area managers nationally and internationally,
- To provide opportunities for research and training to students in protected area management and expose them to a range of work environments,
- To contribute to the shared knowledge base and network of protected area professionals throughout the world,
- To infuse the knowledge and experience gained in work with protected area managers into the professional literature, training materials, courses, seminars, symposia, service learning, and other university activities.

One of the key areas of emphasis for CPAMT is the development of on-site, field-based training courses. CPAMT develops and carries out protected area management training programs at three levels: park rangers, technical staff and managers, and protected area directors. CPAMT also designs training programs for specific areas or regions that integrate people of different levels in an effort to strengthen protected area management teams and interagency collaboration. A major emphasis of CPAMT's International Activities has been in Latin America. However, members of the Center have conducted work in many of the world's countries including South Africa, Kenya, Vietnam, Thailand, Italy, and Indonesia.

Research efforts have focused on planning, visitor management, bio-physical and social impacts to park resources and visitor experience, public perceptions of management, interpretive and law enforcement techniques, commercial ecotourism evaluation, inter- and intra-agency and cross-boundary resource management, and impacts from adjacent land use.

CSU Environmental Learning Center

The Environmental Learning Center (ELC) is situated along the Cache la Poudre River four miles from the main CSU campus. Its 212 acres provide a rich and convenient location for faculty and students to conduct field-work, experiential education, and research. In addition to serving as a unique resource to university faculty and students, the ELC also serves more than 3,400 people annually from public schools, youth organizations and other groups.

The ELC is utilized for hands-on learning in disciplines related to management of protected areas, fish and wildlife, interpretation and other disciplines. Students from CSU regularly use the ELC as a learning laboratory to apply skills and knowledge presented in class.

In addition, the ELC provides opportunities for undergraduate and graduate level research projects on topics related to visitor management, invasive weed control, bird migration patterns and many others. Previous research has addressed visitor motivations, crowding, volunteer management, and visitor use patterns.

Current Human Dimensions Projects in the College of Natural Resources

Wildlife Values in the West

The Issue

Controversy has become an expected component of managing fish and wildlife in the western United States. The situation is borne by a conflict in public values, a condition believed to be linked to an ideological shift that has occurred throughout the 20th century. Have value orientations toward fish and wildlife changed in recent generations? If so, what is the nature of the change? Moreover, what is the reason that such change has occurred, and what are the likely effects these changes will have on public preference for management of fish and wildlife? These are questions being addressed in our study on *Wildlife Values in the West.*

The Study

Wildlife Values in the West is a long-term research program designed to assess the values and wildlife value orientations of publics residing in the western United States. It is a longitudinal effort intended to track these measures over time and to identify factors that may affect value and value orientation shift.

Using a survey administered approximately once every 10 years, the study will examine and monitor the relationship between values/value orientations and factors such as income, education, residential stability, and urbanization – factors that are believed to be indicative of societal changes that produce value shift. The study will also provide critical information about attitudes toward key regional and state-specific wildlife issues and about current and future demand for participation in wildlife-related recreation activities. The information collected will be useful in providing a context for state fish and wildlife agency strategic plan development, stakeholder involvement efforts, and information and education programs.

Wildlife Values in the West is a project of the Western Association of Fish and Wildlife Agencies (WAFWA) Human Dimensions Committee in cooperation with Colorado State University (CSU). The project is funded by both participating state agency contributions and through a grant awarded by the International Association of Fish and Wildlife Agencies (IAFWA) as part of the 2002 Conservation Grant Program.

The Team

CSU Team Members

- Michael Manfredo, PI
- Alan Bright, Co-PI
- Tara Teel, Co-PI
- Ashley Dayer, Graduate Research Assistant
- Shalini Misra, Graduate Research Assistant

WAFWA State Fish and Wildlife Agency Representatives

- Bill Romberg & Cindi Jacobson, Alaska Department of Fish and Game

- Ty Gray, Arizona Game and Fish Department
- Sonke Mastrup, California Department of Fish and Game
- Linda Sikorowski, Colorado Division of Wildlife
- Jolie Wanger, Hawai'i Department of Land and Natural Resources
- Michele Beucler, Idaho Department of Fish and Game
- Mike Mitchener, Kansas Wildlife and Parks
- Mike Lewis & Rob Brooks, Montana Fish, Wildlife and Parks
- Alicia Hardin, Nebraska Game and Parks Commission
- Jill Olson & Kelly Clark, Nevada Department of Wildlife
- Bill Graves, New Mexico Department of Game and Fish
- Arlen Harmoning, North Dakota Department of Game and Fish
- Andrea Crews, Oklahoma Department of Wildlife Conservation
- Ann Snyder, Oregon Department of Fish and Wildlife
- Larry Gigliotti, South Dakota Department of Game, Fish and Parks
- Ruben Cantu, Texas Parks and Wildlife Department
- Dana Dolsen, Utah Division of Wildlife Resources
- George Tsukamoto, Washington Department of Fish and Wildlife
- Chris Burkett, Wyoming Game and Fish Department

WAFWA Human Dimensions Committee Chair

- Duane Shroufe, Arizona Game and Fish Department

WAFWA Human Dimensions Project Managers

- Linda Sikorowski, Colorado Division of Wildlife
- Ty Gray, Arizona Game and Fish Department

WAFWA Human Dimensions Project Administrator

- Larry Kruckenberg, Wyoming Game and Fish Department & WAFWA Secretary/Treasurer

Update on Current Effort

The pilot phase of *Wildlife Values in the West* was completed in 2002 in six states: Alaska, Arizona, Colorado, Idaho, North Dakota, and South Dakota. The pilot phase project report was released in January 2003. In addition to providing participating states with important information about the make-up of their publics and about public reactions to key regional and state-specific management issues, the pilot phase allowed for the testing and refinement of an approach to be applied in the larger on-going effort. Data collection is currently underway in 19 western states and is expected to be completed by March 1, 2005.

Peer-Reviewed Publications and Project Reports

- Gigliotti, L. M. (2003). *Evaluation of the North Dakota Game and Fish Department, 2002 public opinion survey*. Report prepared for North Dakota Game and Fish. Pierre, SD: Human Dimensions Consulting.
- Gigliotti, L. M. (2003). *Evaluation of the North Dakota Game and Fish Department, Internal assessment*. Report prepared for North Dakota Game and Fish. Pierre, SD: Human Dimensions Consulting.
- Gigliotti, L. M. (2003). *Management of fish and wildlife in Idaho: Opinions of Idaho residents, 2002*. Report prepared for Idaho Fish and Game. Pierre, SD: Human Dimensions Consulting.
- Gigliotti, L. M. (2003). *Wildlife values and beliefs of South Dakota residents*. Project Report HD-10-02.AMS. Pierre, SD: South Dakota Game, Fish and Parks.
- Manfredo, M. J., Teel, T. L., & Bright, A. D. (2003). Why are public values toward wildlife changing? *Human Dimensions of Wildlife, 8*(4), 285-304.
- Manfredo, M. J., Vaske, J. J., & Teel, T. L. (2003). The potential for conflict index: A graphic approach to practical significance of human dimensions research. *Human Dimensions of Wildlife, 8*(3), 219-228.
- Teel, T. L., Bright, A. D., & Manfredo, M. J. (2003). *Regional results from the pilot phase of the research project entitled "Wildlife Values in the West."* (Project Rep. No. 55). Project Report for the Western Association of Fish and Wildlife Agencies. Fort Collins, CO: Colorado State University, Human Dimensions in Natural Resources Unit.

Public Acceptability of Wildland Fire Management

The Issue

Recent catastrophic wildfires in the United States have highlighted the importance of understanding public acceptability of wildland fire management and the actions individuals can adopt to protect their property. Although land managers accept fire as a means to reduce fuel loads and improve natural resources, the public is not always as accepting of fire as a management tool.

The Study

The HDNRU currently has 5 ongoing research projects designed to understand the publics' value orientations, attitudes, and norms regarding acceptable wildland fire management practices, as well as the specific activities individuals are engaged in (e.g., defensible space, fire wise construction) to protect their homes and property. The data for these investigations were obtained from (1) recreationists visiting national forests (e.g., Arapaho-Roosevelt NF in Colorado, San Bernardino NF in California, Mt Baker-Snoqualmie NF in Washington), and (2) individuals living in the wildland urban interface in Colorado, Illinois, and Minnesota. The results from these studies have identified the conditions under which the public will tolerate wildlife fire management and the extent to which homeowners have adopted defensible space and fire wise construction behaviors.

The Team

CSU Team Members

- Jerry Vaske
- Alan Bright
- Maureen Donnelly
- Nicole Timmons, Graduate Teaching Assistant
- Rachel Dyar, Graduate Research Assistant
- Joshua Carroll, Graduate Research Assistant

Other Team Members

USDA Forest Service Team Members

- Jim Absher, Pacific Southwest Research Station
- Sue Stewart, North Central Research Station
- John Dwyer, North Central Research Station
- Katie Kneeshaw, Aldo Leopold Wilderness Research Institute

Articles

- Absher, J. D., Bright, A. D., Vaske, J. J., & Kneeshaw, K. (2003). Understanding wildland fire basic beliefs and social norms as antecedents to fire management education and communications. In *Urban and Rural Communities Living in Fire Prone Environments: Managing the Future of Global Problems*. Sydney, Australia. October 3-6, 2003.

- Bright, A. D., Vaske, J. J., Kneeshaw, K., & Absher, J. D. (2003). Scale development of wildfire management basic beliefs. In P. J. Jakes (comp). *Homeowners, communities, and wildfire: Science findings from the national fire plan*. Gen. Tech. Rep. NC-231. St. Paul, MN: North Central Research Station, Forest Service, U.S. Department of Agriculture: pp. 18-25.
- Kneeshaw, K., Vaske, J. J., Bright, A. D., & Absher, J. D. (2004). Acceptability norms toward fire management in three national forests. *Environment & Behavior*, *36*(4), 592-612.
- Kneeshaw, K., Vaske, J. J., Bright, A. D., & Absher, J. D. (2004). Situational influences of acceptable wildfire management actions. *Society and Natural Resources*, *17,* 477-489.

Hunters' Responses to Chronic Wasting Disease

The Issue

Chronic Wasting Disease (CWD) is a fatal brain disease found in deer and elk. The disease is similar to mad cow disease and a variant of Creutzfeldt-Jakob disease in humans. Although human infection from CWD is unlikely, the possibility for transmission of the disease to humans cannot be entirely dismissed. The similarity between CWD and other related diseases that can cause human death has generated considerable concern and controversy among wildlife managers, biologist, and hunters. Some hunters have stopped hunting, public support for wildlife management agencies has declined, and the social and economic stability of communities that depend on hunting has been impacted. Although much is known about the biology of CWD, the broader human consequences to wildlife management and society are poorly understood.

The Studies

The HDNRU currently has 3 ongoing research projects designed to address hunters' response to CWD. One of these projects is a regional effort funded by the Western Association of Fish and Wildlife Agencies. The 8 participating states include Arizona, Colorado, Nebraska, North Dakota, South Dakota, Utah, Wisconsin, and Wyoming. The other two projects expand on the regional study by addressing CWD issues specific to the states of Colorado and Wisconsin.

The Team

CSU Team Members

- Jerry Vaske
- Michael Manfredo
- Mark Needham

Regional Team Members

- Duane Shroufe, Director, AZ Game & Fish
- Chris Burkett, Wyoming Game & Fish
- Dana Dolsen, Utah Division of Wildlife Resources
- Jaquie Ermer, North Dakota Game & Fish
- Larry Gigliotti, South Dakota Game, Fish & Parks
- Ty Gray, Arizona Game & Fish
- Bruce Morrison, Nebraska Game & Parks
- Jordan Petchenik, Wisconsin Department of Natural Resources
- Linda Sikorowski, Colorado Division of Wildlife

Wildlife Values Globally: A Collaborative Effort to Explore the Human Relationship with Wildlife Cross-Culturally

The Issue

The condition of a wildlife population is largely influenced by the human societies sharing its ecosystem. Whether that condition is characterized by decline or abundance, whether the species is preserved or utilized, whether it has plentiful habitat or patchy fragments, whether interactions with humans are conflict-ridden or harmonious depends upon the human values, norms, and attitudes that guide human action. Unfortunately, our knowledge of human ideology and its effects on wildlife is limited to a few nations in the world. Attainment of such knowledge would be readily useful for guiding policy development, management, and educational efforts directed towards wildlife conservation. It would allow for sharing of lessons learned between societies and planning for future challenges. Moreover, through knowledge of ideology and factors shaping ideology, we would gain insight into human relationships with natural environments.

The Study

This project proposes a global program of research to (1) assess wildlife value orientations cross-culturally, (2) describe and classify normative behaviors related to human-wildlife conflict situations, (3) assess attitudes towards forms of wildlife management, and (4) explore the linkage of cognitive hierarchy of individual thought and behavior (behaviors-attitudes/norms-value orientations) and cultural level factors. The program enlists the participation of a collaborative network of researchers from wildlife biology, geography, anthropology, and human dimensions of natural resources. Research will be aimed at providing essential information for improved wildlife management and mitigation of human-wildlife conflict at the local, regional, and global level.

The Team

CSU Team Members

- Michael Manfredo
- Ashley Dayer
- Tara Teel
- Alan Bright
- Jerry Vaske

Other Team Members

- David Fulton, USGS--Minnesota Cooperative Fish and Wildlife Research Unit, University of Minnesota
- Harry Zinn, Department of Recreation, Park and Tourism Management, Pennsylvania State University
- Lisa Naughton, Department of Geography, University of Wisconsin

- Manohar Mariapan, Department of Forest Management, Universiti Putra Malaysia
- Noppawan Tanakanjana, Department of Conservation, Faculty of Forestry, Kasetsart University
- Petra Kaczensky, International Takhi Group, Research Zoo Salzburg
- Frank Jensen, Danish Centre for Forest, Landscape & Planning, The Royal Veterinary & Agricultural University
- Wolfgang Schroeder, Wildlife Biology & Management Unit, Center for Life Sciences Weihenstephan, Technische Universitaet Muenchen

Articles

- Manfredo, M.J. & Dayer, A.A. (2004). Concepts for exploring the social aspects of human-wildlife conflict in a global context. *Human Dimensions of Wildlife, 9*, 317-324.

Galapagos fisherman, San Cristobal Island

The Assessment of Public Knowledge, Values, and Attitudes toward Biodiversity and Sustainable Forestry

The National Commission on Science for Sustainable Forestry (NCSSF) seeks to improve the understanding of values and attitudes toward biodiversity and sustainable forestry and the relevant tradeoffs between how the public "understands and values biodiversity and their attitudes about biodiversity versus other forest values such as water quality, wood production, recreation and carbon sequestration." Over the past quarter century, there has been an explosion of studies examining public values and attitudes toward natural resources and related issues. These studies hold the promise of assisting natural resource managers in a number of ways. First, by understanding the publics' positions on issues, managers can better represent and balance diverse views in decision processes. Second, by assessing attitudes toward specific types of behavior, behavioral outcomes can be accurately predicted. Third, knowing why people hold certain beliefs and attitudes provides a basis for changing attitudes and behaviors. Consequently, managers increasingly turned toward implementing attitudinal studies to assist in their decisions. Unfortunately, despite this volume of research, most studies have limited generalizability; their implications do not extend far beyond the specific situation studies. Such descriptive studies lack the theoretical foundation necessary for the advancement of science and minimize the utility of these investigations. We propose a two-stage approach that addresses the NCSSF concern and attends to the concerns of how current attitudinal research has been conducted. ***Stage 1*** will involve an extensive review of the biodiversity literature and related topics (e.g., environmentalism, forest management, fire management, wildlife management). From that literature, a selected number of key generalizations will be developed. In ***Stage 2***, an external advisory group will be assembled to critically discuss, review and revise the propositions established in the first phase. The review group will include scientists with expertise in attitude/values research, and managers (and/or extensions specialists) who can assist in enhancing the utility of the information. Deliverables from this project will include 1) a presentation of the project plan at the NCSSF meeting in June, 2004 in Boulder, CO., 2) a final technical report describing the findings of the review and advisory group input, 3) a presentation of the final technical report at the June 2005 NCSSF, 4) an applications-focused PowerPoint presentation to be made available on the web for viewing individually or in a classroom context, 5) one or more peer reviewed journal publications.

The Team

CSU Team Members

- Alan Bright, Associate Professor
- Mike Manfredo, Professor
- Holly Stinchfield, Graduate Research Assistant

Public Perceptions of Elk and Vegetation Management in Rocky Mountain National Park, Colorado

The Issue

Elk numbers have increased in the Rocky Mountain National Park (RMNP) area over the last 30 years and are currently at their highest levels in recent history. The elk in this area spend summer at higher elevations inside park boundaries. During winter, they migrate to lower elevations in the park and the town of Estes Park. Under these conditions, aspen stands are not regenerating and some willow stands are hedged. Evidence suggests that this may be due to the high elk numbers. Park managers are faced with the question of whether this represents natural conditions and what management response would be acceptable to the public.

The Study

To assist park managers in answering the social aspects of the elk density issue, this study assessed the public's preferences for different end states of elk and vegetation in RMNP, and the acceptability of management actions that might be implemented in the park. Four possible future scenarios were developed based on a combination of elk numbers and corresponding vegetation conditions. In addition, various management actions for achieving these conditions were listed. Data were collected using a survey to different groups: visitors to RMNP, residents of the gateway towns of Estes Park and Grand Lake, residents of Colorado, and national residents. Results suggest the public's preferred alternative involving a moderate elk reduction.

The Team

CSU/UAF Team Members

- Peter Fix, University of Alaska Fairbanks, Co-PI
- Michael Manfredo, CSU, Co-PI
- Susan Stewart, CSU, Graduate Research Assistant

RMNP Team Members

- Therese Johnson, Management Biologist
- Ryan Monello, Ecologist
- Terry Terrell, Science Officer

Other Team Members

- Dennis Lowry, USDA Forest Service
- Richard Widmer, Town of Estes Park
- Jim Cervenka, Town of Grand Lake
- Stan Gengler, Estes Valley Recreation and Parks District

The Report

Stewart, S. C., Fix, P. J., & Manfredo, M. J. (2004). *Public perceptions of elk and vegetation management in Rocky Mountain National Park, Colorado.* (Project Rep. No. 56). Project Rep. for Rocky Mountain National Park. Fort Collins: Colorado State University, Human Dimensions in Natural Resources Unit. 131 pp.

Monitoring Sustainable Development in Europe's Protected Areas

The Issue

Natura 2000 is an ecological network of protected areas in the European Union (EU), which serves as the center of the EU's policy on nature conservation with the aim to maintain and restore habitats and species at a favorable conservation status in their natural range. *Natura 2000* will be implemented in 20-25 European countries and it is important to know how to promote and maintain strategies of biodiversity and ecological networks, implement national action plans, and integrate nature management in other policy areas. The Protected Area Network (PAN Parks) project, initiated by the World Wide Fund for Nature (WWF) and a Dutch leisure company in 1997, was named by *Natura 2000* as one of the most relevant management initiatives for *Natura 2000* sites. This initiative forms a point of departure from which to research and monitor the balance of ecological integrity in nature conservation and sustainable tourism development in Eastern European National Parks.

The Study

This research aims to reveal the subtle connection between tourism and nature conservation practices and to contribute to the future development of PAN Parks, while monitoring socio-environmental problems and educating for an ecologically sound tourism development. The research seeks to measure both positive and negative impacts of sustainable tourism strategy development from a socio-cultural, environmental and economic perspective and the effectiveness of different types of procedures/approaches to minimize the negative while enhancing potential positive impacts of tourism. Central questions are: *Can sustainable tourism make a positive difference in European protected areas*? *Does the PAN Parks initiative bring any changes in the practice of nature conservation*?

Outcomes

The goal is to develop best practice guidelines on how to manage visitor experiences in present and future PAN Parks (in the EU and Accession countries) while sustaining the essence and quality of environments (socio-cultural, ecological, and economical) in PAN Park locations (i.e., Sweden, Finland, Bulgaria, Poland, and Romania).

The Team

CSU Team Members

- Stuart Cottrell
- Peter Newman

PAN Parks Foundation Team Members

- Zoltan Kun, Director, PAN Parks Foundation
- Myléne vander Donk, Research Coordinator
- Sue Clark, Marketing Director

Other Team Members

- André Brasser, WWF Netherlands
- Peter Fredman, European Tourism Research Institute and Mid-Sweden University
- Niek Beunders, The Netherlands

Trail Erosion in Fulufjaellet National Park, Sweden

Bi-complexity of the Greater Serengeti – Humans in a Biologically Diverse Ecosystem

The Issue

The Greater Serengeti Ecosystem ("the Serengeti") is a complex coupled human and natural system driven by a network of diverse and intense trophic interactions played out over a heterogeneous landscape. The linkages between human and natural components of the Serengeti are so pervasive that human decision-making may be the critical process governing the fate of the entire ecosystem. Pressure is mounting as human and animal populations converge on the western border of Serengeti National Park and Mara Reserve.

The Study

The objective of this project is to understand the dynamics of coupled natural and human systems in the Greater Serengeti Ecosystem and how linkages between systems determine the resilience or vulnerability of the overall ecosystem (including human populations) to environmental change. Through fieldwork and modeling the project is addressing how natural processes and human activity interact to govern biodiversity and the vulnerability of human populations surrounding the Serengeti.

The Team

CSU Team Members

- Mike Coughenour, Natural Resource Ecology Laboratory
- Kathleen Galvin, Natural Resources Ecology Laboratory

Other Team Members

- Craig Packer, University of Minnesota
- Steve Polasky, University of Minnesota
- Bob Holt, University of Florida
- Mark Ritchie, Syracuse University
- Peter Abrams, University of Toronto
- Feetham Banyika, University of Dar es Salaam
- Markus Borner, Frankfurt Zool. Society
- Sarah Cleaveland, Edinburgh University
- Chris Costello, UC Santa Barbara
- Andy Dobson, Princeton University
- Sarah Durant, London Zool. Society
- John Fryxell, Guelph University
- Emmanuel Gereta, Tanzania National Parks
- Ray Hilborn, University of Washington
- Peter Little, University of Kentucky
- Sam McNaughton, Syracuse University
- Simon Mduma, Tanzania Wildlife Research Inst.
- Charles Mlingwa, Tanzania Wildlife Research Inst.
- Han Olff, Groningen University
- Victor Runyoro, Ngorongoro Conservation Authority

- Tony Sinclair, University of British Columbia
- Rob Slotow, University of Natal-Durban

Developing Institutions and Capacity for Sheep and Fiber Marketing in Central Asia

The Issue

Kazakhstan, Kyrgyzstan, and Tajikistan in common with the other Central Asian republics had highly developed livestock industries which produced wool, other animal fibers and pelts, as well as meat. Following the disintegration of the Soviet Union, these industries and the USSR markets on which they were based, largely collapsed. The wool and fiber industries are now experiencing a revival. Regionally, wool production has remained steady since the year 2000 yet the prices remain low. Most wool and fibers go to the other Newly Independent States though China and have become increasingly important to the trade.

The Study

The objective of this project is to investigate how producers in Kazakhstan, Kyrgyzstan, and Tajikistan can gain more value from their livestock through improved marketing of wool, fiber, and meat products. Research is being conducted in selected sites with cross-sections of producers who require multiple types of information and services to respond effectively to the demand for their products. The project is undertaking outreach, training, and institutional development activities likely to improve producer income by increasing prices or reducing costs in sales of wool, cashmere, camel hair, and to a lesser extent, meat/animals.

The Team

CSU Team Members

- Kathleen Galvin, Natural Resource Ecology Laboratory
- Randy Boone, Natural Resource Ecology Laboratory

Other Team Members

- Robert Stobart, University of Wyoming
- Dave Thomas, University of Wisconsin
- Jess Reed, University of Wisconsin
- Liba Brent, University of Wisconsin
- Malcolm Childress, University of Wisconsin
- Carol Kerven, Macaulay Institute, Aberdeen UK
- Serik Aryngaziev, Kazakhstan Institute of Livestock and Veterinary Research
- Koishibek Karymasakov, Kazakhstan Institute of Livestock and Veterinary Research
- Nurlan Malmakov, Kazakhstan Institute of Livestock and Veterinary Research
- Berik Aryngaziev , Kazakhstan Mynbaevo Sheep Breeding Institute
- Amir Karakulov, Tajikistan Livestock Research Institute
- Murat Otynshiyev, Asutor, Kazakhstan

The Report

- Galvin, K.A., C. Kerven, A. Abdurasulov, E. Almeev, S. Aryngaziev and K. Karymsakov. (2003). Project Report: Feasibility of market development and support services for livestock products in Kazakstan and Kyrgyzstan. U.S. AID, Global Livestock Collaborative Research Support Program.
- Galvin, K.A. C. Kerven, N. Malmkov and J. Sunderland. (2002). Livestock marketing in Kazakstan. Post presented at the USAID Global Livestock CRSP Program Conferences, Washington, D.C.

Advancing Understanding and Practice of Community-Based Forestry in the U.S.

The Issue

In the past 15 years, community-based forestry has emerged to alter institutional arrangements governing forest policy and management in the U.S. Community-based forestry focuses on a triple bottom-line of ecological, economic and community sustainability by initiating, implementing, and monitoring innovative forest practices, contractual arrangements, economic development activities, and community building efforts. The emergence of new, and the transformation of existing, institutional arrangements is beginning to take effect not only at local levels, but in state and national policy arenas.

The Study

Sponsored by the Ford Foundation, this is a participatory research study conducted in full partnership with Community-Based Forestry (CBF) groups throughout the U.S. An interdisciplinary team of ecologists, economists, and social scientists specializing in community development, policy, and institutional analysis is working with CBF groups to understand and analyze issues such as: 1) networks and power relationships between community groups and external institutions, 2) inclusion and empowerment of disenfranchised populations, 3) policy effects on CBF efforts, and visa-versa, 4) creating new entrepreneurial arrangements for forest restoration, 5) collaborative arrangements among private landowners, and 6) the role of traditional /local ecological knowledge.

The Team

CSU Team Members

- Antony S. (Tony) Cheng, Co-PI, Department of Forest, Rangeland, and Watershed Stewardship
- Maria Fernandez-Gimenez, Co-PI, Department of Forest, Rangeland, and Watershed Stewardship

Other Potential Team Members

- Shorna Broussard, Purdue University
- Steve Daniels, Utah State University
- Cecilia Danks, University of Vermont
- Rory Fraser, Alabama A&M
- Melanie Hughes McDermott, Rutgers University
- Andy Seidl, Colorado State University
- Vicky Sturtevant, Southern Oregon University

Partners in the Ford Community-Based Forestry Demonstration Program learn about challenges and opportunities, and share experiences with one another

Collaborative Forest Planning as a Tool for Ecological Stewardship and Community Development

The Issue

Collaborative approaches to stakeholder involvement in national forest planning are surfacing throughout the U.S. While much has been documented on the structural and process features of such collaborative efforts, very little empirical research exists on outcomes, especially with regard to how collaborative planning can enhance the capacity of local communities to be effective partners in stewardship of national forests. As national forests around the U.S., and especially in the Rocky Mountain Region (Region 2), embark on revising their forest plans, understanding the link between collaborative forest planning, stewardship, and community development is the key.

The Study

Using intensive case study methodologies in six national forests in the Rocky Mountain Region, the intent of this research is to discover and analyze key components of collaborative forest planning, and to integrate these into a comprehensive inventory of collaborative planning initiatives, strategies, and tools to be shared with all national forests. Specifically, the study will explore: 1) conceptual foundations of collaboration being utilized by each forest, 2) skills and resources that exist or are desired by the USFA Forest Service and community stakeholders, 3) the extent to which collaboration in forest planning is being transferred into broader contexts, and 4) critical tools and techniques that are enhancing community capacity to be partners in stewardship.

The Team

CSU Team Members

- Antony S. (Tony) Cheng, PI, Department of Forest, Rangeland, and Watershed Stewardship

Fort Lewis College team members

- Sam Burns, Office of Community Services

Reports

A synthesis report is scheduled to be completed and released in Spring 2005, with additional publications forthcoming to reach various audiences.

Understanding Recreation and Shooting Use and Users on the Pawnee National Grasslands

The Issue

Most human activities on public lands like the Pawnee National Grassland (PNG) have the potential to have impacts on the biophysical environment and on the quality of the experience of other visitors. A variety of management actions are required to keep such impacts within acceptable limits. Population growth along the Colorado Front Range has resulted in increasing use levels on the PNG in general and recreational target shooting in particular. Front Range urbanization has led to the closure of a number of the areas previously used by recreational target shooters and PNG managers have simultaneously seen an increase in the intensity and spatial distribution of recreational target shooting as well as a number of associated impacts. The purpose of this study is to provide information related to user and use characteristics to facilitate the collaborative development of a plan or strategy for managing recreational use on the PNG.

The Study

This study will utilize qualitative and quantitative approaches to identify a range of potential indicators of quality and help refine study questions, and identify potential recreation related conflicts that may occur on the PNG. Qualitative techniques, such as focus groups and personal interviews will be used to inventory stakeholders in the management of recreational target shooting. Quantitative visitor surveys will be delivered to a random sample of recreational target shooters, other visitors, and adjacent land owners with a map of the PNG in order to collect spatially explicit data. This approach will facilitate a better understanding of the intensity and spatial distribution of visitor use and potential recreation related impacts on the PNG. The data obtained from the survey will then be coded into ArcGIS software in order to formulate data layers for all data collected.

Outcomes

The goal is to provide information which will help to inform a management planning process for the PNGs.

The Team

CSU Team Members

- Peter Newman
- George Wallace
- Maureen Donnelly
- Kathryn Morgan
- Ward McKonly

Other Team Members

- Michael Antolin, Associate Professor, Short Grass Steppe, Long Term Ecological Research, Colorado State University
- Linda Sikorowski, Colorado Division of Wildlife
- Steve Currey, USDA Forest Service

Informing Carrying Capacity Decision Making in Yosemite National Park

The Issue

As use of national parks and related areas continues to rise, and visitors and types of activities continue to diversify, we are challenged to balance use and preservation in parks, wilderness and related areas. Park and wilderness managers can meet these mandates through the formulation of management objectives and associated indicators and standards of quality. Management objectives are broad narrative statements representing the recreation experience to be provided and the desired condition of the resource. Indicators of quality are measurable, manageable variables reflecting the essence of management objectives. Standards of quality represent the minimum acceptable condition of indicator variables. This study identifies social, resource and managerial indicators and standards of quality in order to help inform carrying capacity decision making in Yosemite National Park.

The Study

In the year 2000, Yosemite National Park undertook two major planning efforts: the *Merced Wild and Scenic River Comprehensive Management Plan* and the *Yosemite Valley Plan*. Both of these plans recognized the importance of developing an optimum number of visitors in Yosemite Valley and the Merced River Corridor in order to protect natural and cultural resources while also providing for quality visitor experience. Establishing both an ecological and social carrying capacity is essential to provide guidance in how best to enhance and protect the natural and cultural resources. With a better understanding of visitor use and expectations, park management will be better able to address and protect park resources through zoning, distribution of visitor use, and traffic management.

Outcomes

The goal is to provide information to the Yosemite National Park Service which will help to inform carrying capacity decision making.

The Team

CSU Team Members

- Peter Newman
- David Theobald
- Jennifer Switzer, Graduate Research Assistant
- Ward McKonly, Graduate Research Assistant

Others

- Robert E. Manning, University of Vermont
- Steven R. Lawson, Virginia Tech Univsity

Yosemite National Park

Land Use Planning and Regulation in and Around Protected Areas: A Study of the Best Practices in and Capacity Building Needs in Mexico and Central America

The Issue

In densely populated Mesoamerica, the expansion of agriculture, mining and logging, infrastructure projects, land speculation, and urban, residential and tourism development threaten many Protected Areas (PA).

The Study

The study gathered national level data in six Mesoamerican countries (Mexico, Guatemala, Honduras, Nicaragua, Costa Rica and Panama) and for 16 individual protected areas in these countries. Using focus groups with participatory activities (mapping, pile sorts, etc.), targeted interviews, site visits, expert observation, and document review, we first gathered data on the national legal frameworks for governance and land use decision making, and later analyzed the land use and decision processes actually being used around sixteen protected areas in these countries. We used cross-case analysis to describe and compare the best collaborative (cross-boundary) land use decision practices being used within and adjacent to PAs by governments, NGOs, and communities. We then described the obstacles to expanding the use of best practices and innovative techniques, and suggested capacity building activities that may overcome them.

The Team

CSU Team Members

- George Wallace
- Jim Barborak
- Craig MacFarland

The Report

Wallace, G.N., Barborak, J., and C.G. MacFarland. (2003). Land use planning and regulation in and around protected areas: A study of best practices and capacity building needs in Mexico and Central America. In *Proceedings form World Parks and Protected Areas Congress, Capacity Building Stream*, Durban, South Africa. (accepted and in press).

Capacity Building of Protected Area Personnel in Paraguay

The Issue

None of the Latin American countries and almost none of the countries in the world have capacity building and training programs developed for long-term improvement of their protected areas staff at all levels. Also, such programs do not cover both government and private protected areas managers' training programs. Paraguay has over 35 protected areas that are either government or private. They have around 120 rangers, almost half of them from Non-Governmental Organizations (NGOs). Some others are autonomous bi-national staff from Brazil and Paraguay, and others work for private organizations. Moreover, very few professional and technical staff have received adequate training on protected areas management.

The Program

The team was to develop a comprehensive capacity building program for Paraguay. This included the design of training programs that would appropriately prepare the staff of all government and private protected areas. This program involved a detailed questionnaire to all rangers and technical and professional staff (public and private), as well as extensive meetings with representatives of the management organizations at all levels. The report proposes the capacity building program in the following aspects:

1) Adequate academic leveling for all major staff levels (especially for rangers)
2) General short courses for all staff levels
3) Specific short courses for all levels on key themes
4) Short training courses on practical subjects and themes
5) Short courses for training trainers
6) Fellowships for short courses, workshops, etc. in Paraguay and in other countries

The program contains two major Terms of Reference for the detailed development of the complete curriculum for all components of the program: theme by theme (modules) and training materials for every event designed.

The Team

CSU Team Members

- Craig MacFarland
- Victor Vidal

The Report

MacFarland, C. and V. Vidal. (2004). *Design of the capacity building and training program for park rangers and professional and technical staff: Management of public and private Protected Areas. Paraguay Silvestre: Iniciativa para Proteccion de Areas Silvestres del Paraguay.* GEF/UNDP/SEAM (Ministry of Environment), 91 pp.

Evaluation of the Co-Management of Protected Areas for USAID Nicaragua

The Issue

The management of park and protected areas by agency managers, local people, and their NGOs together is a phenomenon of the last decade and still very much experimental in nature. It intends to integrate protected area management with rural development. This evaluation, done for USAID, focused on the ground management in the six protected areas (PA) encompassed by the USAID sponsored COMAP project: Isla Juan Venado, Cerro Tisey-Estanzuela, Cerro Musun, Estero Padre Ramos, Cosiguina, Chocoyero-El Brujo. To evaluate project implementation, the team visited the six PAs and analyzed the past and current resource conditions, planning documents, staffing, and infrastructure; discussed management accomplishments, issues, and concerns with PA staff; and interviewed local/community partners and stakeholders. These included buffer zone residents, municipal leaders, NGO staff (apart from COMAP staff), and project loan recipients. The evaluation describes project implementation at the local level, stakeholder issues and concerns, discusses strengths of the project and potential changes that would enhance its success.

The Team

CSU Team Members

- George Wallace
- Jim Wurz
- Peter Newman

USDA Forest Service Team Members

- Bruce Bayle

World Conservation Society Team Members

- Jim Barborak

The Report

Bayle, B., Wurz, J., Wallace, G., and J. Barborak. (2003). *An evaluation of six co-managed protected areas in Nicaragua: The COMAP project*. USDA Forest Service/USAID report.

Evaluation of the co-management of protected areas in Nicaragua

Meso-American Trail Development: On Site Capacity Building through Training and Skill Development

The Issue

Although there is widespread international and national support for conservation initiatives in Latin America there is a dearth of in country capacity to implement ground activities. The Meso-American Trail initiative seeks to conserve critical biodiversity habitat, provide employment opportunities through ecotourism development, create community constituencies, and build capacity through training and project implementation.

The Project

The CPAMT is directing a series on-site trainings focused on trail building and infrastructure development in Protected Areas and their surroundings. Along with the Department of Natural Resource Recreation and Tourism at CSU, the USDA Forest Service, the World Conservation Society, and local NGOs, CPAMT is conducting a series of regional and country-specific training programs. All material is developed and presented in Spanish, with a comprehensive trails manual in Spanish. Participants include a broad spectrum of stakeholders including area managers, rangers, community members, and private ecotourism operators. Each training program emphasizes skill development through carefully designed field and team exercises. Additionally, two participants are selected as potential trainers and are recruited to participate as instructors-in-training in future courses. Additionally, CSU graduate students are directly involved in training activities to develop expertise in project implementation and training.

The Team

CSU Team Members

- George Wallace
- Larry Lechner
- Katherine King

USDA Forest Service

- Michael Olywler

World Conservation Society

- Jim Barborak

Salva Natura, El Salvador

- Juan Pablo Domínguez Miranda
- Enrique Paz

Mesoamerican trail development

Wildlands and Protected Area Management File Based Training Course

Background

This intensive 4.5 week training course is held in Spanish and is designed for mid-level professional and technical personnel who are interested in improving the management of protected areas in their countries. The course is designed for personnel in the field of protected areas planning and management, who work for government agencies, non-governmental organizations, and in the private sector. The program is especially oriented to field-level personnel in Latin America, who work directly with protected areas, or those Spanish speakers who may have matriculated in protected areas studies programs in North American universities. The first fourteen courses, held in July-August from 1990-2004, have trained more than 285 Latin American protected area managers from 24 countries.

The Training

Almost 75% of the training programs are conducted in the field. They provide practical examples of management of this great variety of protected areas and an ample range of exercises to provide participants with the practical concepts, methods, and techniques required to improve management of the protected areas where they work. Six main themes receive focus during the course: social and environmental benefits of protected areas; protected area systems; working with user groups; managing natural resources; the planning process; achieving desired resource and social conditions; and fostering effective management. The course is sponsored by the USDA Forest Service International Programs and is carried out in partnership with various other federal land and resource management agencies including the Bureau of Land Management, Fish and Wildlife Service, and National Park Service. Scholarships are provided by a variety of donors as well. Primary sponsors include UNESCO's World Heritage Centre, the Nature Conservancy, and the Wildlife Conservation Society.

The Team

CSU Team Members

- George Wallace
- Craig MacFarland
- Jim Wurz
- Ryan Finchum
- Katherine King

O Boticario Foundation for Nature Protection team members, Brazil

- Dr. Miguel Milano

Wildlife Conservation Society Team Members

- Jim Barborak

First Steps toward Active Management of the Sierra La Cojolita Communal Reserve: Training for the Lacandon Community

The Issue

In response to increasing tourist visitation, continued deforestation, subsistence farming, and the need to protect sources of clean water, three Maya ethnic groups in eastern Chiapas overcame their historic differences and cooperated to establish the Reserva Comunal Sierra la Cojolita. The reserve represents a vital biological link between the Petén in Guatemala and the Selva Lacandona in Chiapas, the last large rainforest in North America. As a communal reserve, Sierra la Cojolita presents unique management challenges because of minimal government involvement and a lack of protected area management expertise among community members.

The Project

CPAMT affiliates worked with USAID-Mexico and Conservation International-Mexico to develop and implement an initial training program in protected area management for members of the communities involved with the Sierra la Cojolita Reserve. Program and curriculum development was complicated by factors such as: (1) limited reading and writing ability; (2) three different native languages spoken, with Spanish as a second language; (3) some lingering mutual distrust among the three ethnic groups; and (4) difficulties to travel to a central training site. Program and curriculum consultation and development for the project took place from January through March 2002, and 2 two-week training sessions were held for 25 participants in April and May in Frontera Corozal and San Javier, Chiapas. Program goals were achieved by means of presentations, small group exercises, and extensive field work.

The Team

CSU Team Members

- Craig MacFarland
- Jim Wurz
- Sonja Macys

Conservation International-Mexico Team Members

- Ignacio March Mifsut, Director, Conservation Inernational-Chiapas
- Ruth Jiménez Cruz, Geographer, Conservation Inernational-Chiapas
- Ramón Guerrero Vásquez, Conservation Inernational-Chiapas

USAID-Mexico Team Member

- Susan Scott, Environment Program Specialist

The Report

MacFarland, C. and J. Wurz. (2002). Informe sobre la participación del Centro para el Manejo y Capacitación en Áreas Protegidas (CMCAP), Colorado State University, en el proyecto: Capacitación a la Comunidad Zona Lacandona sobre el Manejo de Áreas Naturales Protegidas: Los Primeros Pasos para el Manejo Activo de la Reserva Comunal Sierra la Cojolita. Report presented to USAID-Mexico and Conservation International.

Maya participant at the training for the Lacandon community at the Sierra La Cojolita Communal Reserve

Visitor Impact Monitoring and Mitigation for the Rio Bravo Conservation and Management Area, Belize

The Issue

Protected area managers, particularly in the developing world, are faced with the challenge of carefully balancing protected area conservation efforts and income-generating activities. They must ensure that the biophysical and cultural resources, visitor experiences, jobs, and alternative income sources they create are protected and managed sustainably.

The Study

Program for Belize (PfB) is a Belizean non-profit organization established in 1988 to promote conservation of the natural heritage of the country and wise use of its natural resources. In a flagship project, the PfB seeks to demonstrate practical applications of its principles focused on linking conservation of tropical forests with the development of sustainable land uses in the Rio Bravo Conservation and Management Area in northwest Belize. To support PfB and the other Mesoamerican Ecotourism Alliance (MEA) members in this extensive planning process, CPAMT will facilitate the design and implementation of the site-specific Visitor Impact Monitoring and Mitigation Program for Rio Bravo. This project will launch a long-term effort to inventory and monitor visitor-related impacts in Rio Bravo and adjacent communities. This site will serve as a model for the other 15 MEA member sites throughout Mesoamerica and other Belizean-managed protected areas.

The Team

CSU Team Members

- Jim Wurz
- Ryan Finchum
- Jill Majerus

PfB

- Herbert Haylock, Manager of Ecotourism Operations
- Ramon Garcia, Rio Bravo Conservation Area Manager

MEA Team Members

- Mark Willuhn, Manager

Ocelot in Belize

Participatory Rangeland Planning and Curriculum Development on the Tohono O'odham Nation

The Issue

Attempts at formal rangeland management on the 2.8 million acre Tohono O'odham Nation in Southern Arizona have met with little success over the past 70 years. A way forward was needed to overcome distrust of range professionals on the reservation, and poor communication among resource users. The objectives of this participatory research and education project were 1) to implement a pilot participatory rangeland planning project in one of the Nation's 11 districts, and 2) to develop a rangeland curriculum for the Nation using a collaborative approach to curriculum development and implementation.

The Study

Research objectives associated with this project were 1) to evaluate the relationship between grazing intensity and perennial forage grass density in Sif Oidak District, in order to determine if conventional management practices are appropriate; 2) to document current and past livestock uses, management practices and management institutions in Sif Oidak District; and 3) to evaluate the collaborative curriculum development project and its effects on cooperation and communication on rangeland issues on the Nation.

The Team

CSU Team Members

Maria E. Fernandez-Gimenez, PI

University of Arizona Team Members

- University of Arizona Cooperative Extension
- John Hays, Jr., Graduate Research Assistant
- Jennifer Arnold, Graduate Research Assistant

Tohono O'odham Nation Team Members

- T.O. Community College
- T.O. Rangeland Conservation and Management Department
- T.O. Soil and Water Conservation District
- Sif Oidak Livestock Committee

Other Team Members

- Natural Resources Conservation Service, Sells Office

The Report

This project concludes in 2005.

Gilbert Two-Two explains rangeland health to participants in the Rangeland Ecology workshop presented as part of the collaborative rangeland curriculum project

Traditional Ecological Knowledge of Beluga Whales: Local Documentation and Cooperative Application in Alaska

The Issue

Traditional ecological knowledge (TEK) has become a buzz word in natural resource management, but little is known about how to integrate TEK into contemporary resource management institutions.

The Study

This research, conducted in partnership with the Alaska Beluga Whale Committee, documented how a long-standing and successful co-management group incorporated TEK and integrated TEK and science in their activities. The lessons from this project will help to develop guidelines for other agencies and organizations striving to incorporate TEK, and will advance understanding of the complex ways that different knowledge and cultural systems interact in resource management.

The Team

CSU Team Members

Maria Fernandez-Gimenez, Co-PI

Other Team Members

- Henry P. Huntington, Huntington Consulting, PI
- Kathryn J. Frost, Alaska Marine Ecological Research

Cooperators

Alaska Beluga Whale Committee

The Report

Huntington, H.P., M.E. Fernandez-Gimenez, and K.J. Frost. (2004). Ways of working together: Traditional knowledge, co-management, and the Alaska Beluga Whale Committee: A report of the project "Traditional Ecological Knowledge of Beluga Whales: Local Documentation and Cooperative Application in Alaska." Alaska Beluga Whale Newsletter 7(1). (available from the Alaska Beluga Whale Committee, c/o North Slope Borough, Dept. of Wildlife Management, P.O. Box 69, Barrow, AK 99723)

Faculty in the College of Natural Resources in Human Dimensions of Natural Resources

College of Natural Resources, Dean

Joyce Berry

Dean, College of Natural Resources

Associate Professor, Department of Natural Resource Recreation and Tourism

Education

- Doctor of Forestry and Environmental Studies, Yale University
- M.S., Regional Resources Planning, Colorado State University
- B.S., Political Science, University of California Berkeley

Interests

- Natural resource policy
- Environmental leadership
- Integration of natural and social sciences
- Public values and public involvement strategies

Co-leaders in the HDNRU

Michael Manfredo

Co-Leader, Human Dimensions in Natural Resources Unit

Professor and Head, Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Recreation Behavior (Social Psychology), CSU
- M.S., Recreation and Parks, Pennsylvania State University
- B. A., Anthropology, Pennsylvania State University

Interests

- Human dimensions of wildlife and natural resource management
- Cross-cultural values and attitudes research
- Attitude and behavior change theory

Jerry Vaske

Co-leader, Human Dimensions in Natural Resources Unit

Professor, CSU Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Social Psychology, University of Maryland
- M.A., Sociology, University of Wisconsin
- B.A., Sociology and Psychology, University of Wisconsin

Interests

- Social psychology
- Research methodology and statistics
- Human dimensions of wildlife and natural resources

Alan Bright

Associate Professor, Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Recreation Resource Management, CSU
- MBA, University of Illinois
- B.A., Accounting, Illinois Wesleyan University

Interests

- Social psychology
- Human dimensions of natural resources and wildlife
- Tourism business

Antony S. (Tony) Cheng

Assistant Professor, Department of Forest, Rangeland, and Watershed Stewardship

Education

- Ph.D., Forest Resource Policy, Oregon State University
- M.S., Forest Resource Policy, University of Minnesota
- B.A., Political Science, Whitman College

Interests

- Policy and institutional analysis, especially vis-à-vis community-based resource management
- Collective action and collaborative planning at landscape scales
- Conflict management
- Public involvement

Brett L. Bruyere

Assistant Professor, Department of Natural Resource Recreation and Tourism

Director, Environmental Learning Center

Education

- Ph.D., Recreation Resources, CSU
- M.S., Recreation Resources, CSU
- B.A., Political Science, Washington State University

Interests

- Environmental education
- Interpretation
- Outdoor education
- Park and protected area management

Craig Macfarland

Affiliate, Center for Protected Area Management & Training

Education

- Ph.D., Zoology (Ecology and Conservation Biology), University of Wisconsin
- M.A., Vertebrate Field Ecology/Plant Ecology, University of Wisconsin
- B.A., Biology/Chemistry, Austin College

Interests

- Protected area management
- Watershed management
- Visitor management
- Protected area planning
- Regional and national strategic planning for natural resource conservation
- Ecotourism and concessionaire management
- Development of capacity building programs
- Project evaluation

Delwin E. Benson

Professor and Extension Wildlife Specialist, Department of Fishery and Wildlife Biology

Education

- Ph.D., Outdoor Recreation and Administration, CSU
- M.S., Natural Resources Administration, CSU
- B.S., Wildlife Biology, CSU

Interests

- Environmental education
- Resource management decision making
- Wildlife and recreation enterprises on private land
- Hunter attitudes and behavior

George Wallace

Associate Professor, Department of Natural Resource Recreation and Tourism

Director of the Center for Protected Area Management & Training (CPAMT)

Education

- Ph.D., Natural Resource Management, CSU
- M.A., Education/Rural Community Development, University of New Mexico
- B.A, Philosophy / Biological Science, CSU

Interests

- Protected area management
- Land use planning
- Devolution & community-based conservation both in the US and Latin America

James Wurz

Affiliate, Center for Protected Area Management & Training

Education

- M.S., Recreation Resources Management (specialization in Protected Area Management), CSU
- B.A., Spanish, University of Wisconsin

Interests

- Protected area management
- Visitor management
- Protected area planning
- Ecotourism and concessionaire management
- Project evaluation

Kathleen Galvin

Chair, CSU Department of Anthropology

Senior Research Scientist, CSU Natural Resource Ecology Laboratory

Education

- Ph.D., Anthropology, State University of New York
- M.A., Anthropology, CSU
- B.A., Anthropology, CSU

Interests

- Human-environment interactions
- Human adaptability and vulnerability
- Human dimensions of global environmental change
- Pastoralism

Larry Lechner

Affiliate, Center for Protected Area Management & Training

Education

- M.S., Natural Resource Recreation and Tourism (emphasis on Park and Protected Area Management), CSU
- B. A., Philosophy, CSU

Interests

- Protected area infrastructure design, construction, and maintenance
- Protected area management
- Visitor management
- Protected area planning
- Project evaluation

Mark Willuhn

Affiliate, Center for Protected Area Management & Training

Education

- MBA, San Francisco State University
- B.S., Forestry-Business, CSU

Interests

- Sustainable tourism
- Micro-enterprise development
- Visitor impact monitoring and mitigation
- Linking protected area visitation to generating conservation benefits
- Market driven conservation strategies
- Local, regional and international market linkage
- Local capacity building for sustainable tourism ventures

Maria E. Fernandez-Gimenez

Assistant Professor, Department of Forest, Rangeland, and Watershed Stewardship

Education

- Ph.D., Wildland Resource Science, University of California, Berkeley
- M.S., Range Management, University of California, Berkeley
- B.A., Philosophy, Yale University

Interests

- Community-based and collaborative natural resource management
- Participatory research
- Traditional and local ecological knowledge
- Adaptive management and ecological monitoring
- Pastoral development and land tenure policy

Maureen Donnelly

Associate Professor, Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Social Psychology, University of Maryland
- M.S., Recreation Resource Management, University of Maryland
- B.S., Recreation Resource Management, University of Waterloo, Ontario

Interests

- Social psychology
- Tourism impacts and planning
- Human dimensions of natural resources

Peter Newman

Assistant Professor, Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Natural Resource Management, University of Vermont
- M.S., Forest Resource Management, State University New York
- B.A., Political Science, University of Rochester

Interests

- Human dimensions of resource management
- Social carrying capacity in national parks, wilderness, and related areas International protected areas management

Ryan Finchum

Assistant Director, Center for Protected Area Management & Training

Education

- M.S., Natural Resource Recreation and Tourism (emphasis in protected area management and international ecotourism), CSU
- B.S., Environmental Science and Geography, Louisiana State University

Interests

- Ecotourism and sustainable tourism
- Environmental interpretation
- Protected area planning

Stuart Cottrell

Assistant Professor, Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Recreation and Parks, The Pennsylvania State University
- M.S., Parks and Recreation Administration, Florida International University
- B.S., Recreation and Parks, Western Illinois University

Interests

- Visitor impact management
- Sustainable tourism development
- Responsible environmental behavior
- Travel and tourism behavior

Tara Teel

Assistant Professor, Department of Natural Resource Recreation and Tourism

Education

- Ph.D., Human Dimensions in Natural Resources, CSU
- M.S., Fisheries and Wildlife Management, Utah State University
- B.S., Fisheries and Wildlife Management, Utah State University

Interests

- Applications of social science theory to natural resource management issues
- Human dimensions of wildlife management
- Human-wildlife conflicts
- Research on values, attitudes, and behavior
- Communication theory
- Natural resources tourism

Photo Credits

Cover sketch

Ram Papish

Inside flap pages

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