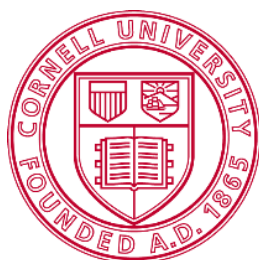


ANNUAL REPORT 2010

Human Dimensions Research Unit



Cornell University

Department of Natural Resources
Human Dimensions Research Unit

Fernow Hall
Ithaca, NY 14853

<http://www.dnr.cornell.edu/hdru>

ANNUAL REPORT 2010

Human Dimensions Research Unit

Department of Natural Resources
College of Agriculture and Life Sciences
Cornell University

PURPOSE

This 2010 annual report provides an overview of recent research, teaching, and outreach activities of the Human Dimensions Research Unit (HDRU). The report is designed to reflect the work, interests, and capabilities of the HDRU. Publications listed in this report may be requested from the HDRU by emailing HDRU@cornell.edu or by going to the HDRU website at:

<http://www.dnr.cornell.edu/hdru>



MISSION

The HDRU strives to expand the understanding of academicians, students, natural resources agency staff, non-governmental organizations and policy makers about the human dimensions of natural resource management and policy by studying human attitudes, values and behaviors associated with natural resource management and applying theory and empirical findings to real-world, contemporary problems. Our research outcomes, which include empirical data, conceptual frameworks, and theoretical insights, are reported in conferences, journals, books, policy briefs, and reports of various types. HDRU research is used by a wide array of decision makers and natural resource practitioners, especially those in state and federal agencies, to develop, implement, and evaluate natural resource policies and management approaches.

HDRU faculty and staff contribute to the teaching

and outreach functions of the College of Agriculture and Life Sciences and the Department of Natural Resources. We advise both undergraduate and graduate students, and teach courses concerning natural resources policy and management. Some of our faculty also have Extension appointments, from which we serve citizens of New York State and beyond. In 2009, an HDRU Outreach series was developed to facilitate sharing of research findings in non-technical form.

DESCRIPTION

During 2010, the HDRU and cooperators consisted of dozens of faculty, staff, graduate assistants, and undergraduate student technicians. Research and outreach programs are supported by grants and contracts from federal and state agencies, nongovernmental organizations, foundations, Cornell Cooperative Extension, and the Cornell University Agricultural Experiment Station.

HDRU graduate faculty have membership in the fields of Natural Resources, Development Sociology, Public Affairs, and Water Resources. In 2010, graduate faculty committee members came from a variety of departments: Communication, Education, Development Sociology, City and Regional Planning, Natural Resources and others. Our program's primary geographic focus is domestic, but includes some international work.

The HDRU has earned an international reputation in the development of the human dimensions specialization of natural resource management. The oldest university unit of its kind, its history dates from the early 1970s. The success of the HDRU has been greatly enhanced by a partnership of approximately 35 years with the NYS Department of Environmental Conservation's Division of Fish, Wildlife, and Marine Resources.

FACULTY AND STAFF

UNIT FACULTY:

Shorna Broussard Allred, Associate Professor and Unit Associate Director

Specializations: Human dimensions of natural resource management; natural resource policy; environmental attitudes and behavior; with emphasis on forest and water resources.

Paul D. Curtis, Associate Professor and Extension Wildlife Specialist, Department of Natural Resources

Specializations: Resolving conflicts between people and wildlife; citizen participation in decision making; outreach and policy education.

Daniel J. Decker, Professor and Unit Director

Specializations: Integration of human dimensions insights into wildlife management decision making, policy, planning, and practice; stakeholder involvement in wildlife management; community-based natural resources management; risk perception and communication related to wildlife management.

Barbara A. Knuth, Professor and Unit Associate Director; Vice Provost and Dean of the Graduate School

Specializations: Integrating human dimensions into natural resources decision making; risk management and communication related to fishery and wildlife management; Great Lakes and marine resource management.

Heidi Krester, Adjunct Assistant Professor, Livelihoods & Conservation Coordinator for the North America Program

Specializations: Land-use development and patterns; how human activities in rural landscapes influence wildlife and human-wildlife conflicts; how communities, groups of actors in a conservation issue, or a single organization move from process and discussion of an issue to on-the-ground conservation impacts.

T. Bruce Lauber, Senior Research Associate

Specializations: Resolving conflicts between people and wildlife; citizen participation in decision making; outreach and policy education.

Katherine A. McComas, Associate Professor, Department of Communication

Specializations: Risk, science, and environmental communication; community involvement and public participation; trust and credibility related to science communication.

Richard C. Stedman, Associate Professor and Unit Associate Director

Specializations: Sense of place; community resilience; impacts of social and environmental change on wildlife recreation and community; risk and policy; environmental attitudes and behaviors; community-based resource management; landowner attitudes and behaviors; coupled human/ecological systems.

UNIT STAFF:

Meghan S. Baumer, Administrative Assistant

Specializations: Unit office management; website maintenance; word processing; administrative assistance.

Nancy A. Connelly, Research Specialist

Specializations: Incorporating human dimensions perspectives in natural resources management; risk perception and communication related to fisheries management; survey research methods.

Jody W. Enck, Research Associate

Specializations: Sociocultural and motivational aspects of wildlife recreation; stakeholders' attitudes about management of overabundant wildlife species; potential social feasibility for restoring rare/ extirpated species.

William F. Siemer, Research Associate

Specializations: Motivational aspects of recreational participation; wildlife-related attitudes and values; educational program evaluation.

Karlene K. Smith, Research Aide

Specializations: Survey implementation; interviewing; database management; content analysis.

**Human
Dimensions
Research
Unit**

GRADUATE STUDENTS:

Andrea Armstrong, Graduate Assistant

Specializations: Conservation practice adoption and policy; urbanization; water quality.

Ingrid Biedron, Graduate Assistant

Specializations: Human dimensions of marine ecosystem-based management; the role of regional fishery management councils in ecosystem-based fisheries management.

Christopher Clarke, Graduate Assistant

Specializations: Health and environmental communication; risk perception; wildlife disease.

Ashley Dayer, Graduate Assistant

Specializations: Human dimensions of forest management for wildlife, persuasion, wildlife values, environmental education and communications.

Stephen Decker, Graduate Assistant

Specializations: Human dimensions of large herbivore restoration and management, integrated approaches to wildlife management in Newfoundland and Labrador, Canada.

Darrick Evensen, Graduate Assistant

Specializations: Perception and communication of environmental risks, with consideration of theoretical and practical implications.

Heather Wieczorek Hudenko, Graduate Assistant

Specializations: Wildlife management and policy; human-wildlife interactions; wildlife conservation.

Micah Ingalls, Graduate Assistant

Specializations: Community-based natural resource management and social-ecological resilience.

Jeffrey Jacquet, Graduate Assistant

Specializations: Energy development and economic and social impact analysis.

Christine Moskell, Graduate Assistant

Specializations: Community engagement in urban forestry.

Rachel Neugarten, Graduate Assistant

Specializations: Environmental and socioeconomic evaluation of forest management.

Laura Rickard, Graduate Assistant

Specializations: Science, risk, and health communication; public understanding of science and risk; examining formal and informal processes of risk management and communication in national parks.

Andrew Roe, Graduate Assistant

Specializations: Forest management and stewardship; conservation policy; property parcelization.

Timothy Shaffer, Graduate Assistant

Specializations: Community engagement on natural resource and community development issues; public deliberation program development.

Carrie Simon, Graduate Assistant

Specializations: Human dimensions of Great Lakes ecosystem-based management; social network analysis; institutional theory; organizational change.

Heather Triezenberg, Graduate Assistant

Specializations: Community-based natural resources management; social network analysis in wildlife management controversies.

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Summary of 2010 Research Activities

Wildlife Resources Management and Policy

Public Involvement in Wildlife Management

Communities across the country have increasingly called for wildlife management solutions tailored to their particular situations, especially with respect to human-wildlife conflicts. In addition to seeking involvement in defining problems, goals, objectives, and methods, some communities have expressed willingness to share responsibility for implementing management. For community-based management to be effective, community capacity often needs to be increased. Recent studies have made substantial progress in defining the relevant elements of community capacity and exploring social learning that occurs as communities work with state agencies on local wildlife problems. Other research is examining stakeholder interests and how various groups attempt to use the political process to achieve these wildlife management goals.

Sustaining and Improving Hunting and Trapping in New York: Public Attitudes, Conflict Resolution, and Political Activism

Funded by: New York State Department of Environmental Conservation and Cornell University Agricultural Experiment Station

Collaborators: Y. Connie Yuan (Dept. of Communication), Janis L. Dickinson (Dept. of Natural Resources), John F. Forester (Dept. of City and Regional Planning), Gordon Batcheller and Bryan Swift (DEC Bureau of Wildlife)

Investigators: Barbara Knuth, T. Bruce Lauber, and Heather Triezenberg

HDRU Contact: Barbara Knuth
(bak3@cornell.edu)

The goal of this project is to better understand the factors contributing to political activism regarding wildlife harvest activities, with specific objectives to: (1) identify social network connections among stakeholders with differing viewpoints in wildlife harvest disputes; (2) determine relationships

between network position and perception of the dispute; (3) identify and compare stakeholders' policy positions and underlying interests; and (4) identify which variables best explain stakeholders' intentions to contact decision-makers to have an influence on management and policy decisions. We conducted in-depth, semi-structured interviews with key stakeholders in four case study communities, and implemented a mail-back questionnaire and a nonrespondent telephone survey in "potentially-affected" areas of New York where these social conflicts may emerge in the future. Results suggest there are few activists on each side of the issue and opposition to hunting or trapping is not great. Instead, stakeholders are interested in when, where, and how trappers and hunters interact with residents when engaging in waterfowl hunting or furbearer trapping.

Publications:

Triezenberg, H. 2010. Social networks and collective actions among wildlife management stakeholders: Insights from furbearer trapping and waterfowl hunting conflicts in New York State. Ph.D. Dissertation, Cornell University.

Triezenberg, H.A., B.A. Knuth, Y.C. Yuan, and J.L. Dickinson. In Press. Internet-based social networking and collective action models of citizen science: Theory meets possibility. Chapter 16 in J.L. Dickinson and R. Bonney, eds. Citizen Science: Public Collaboration in Environmental Research. Cornell University Press, Ithaca, NY.

The Social Framework for Community-based Deer Management

Funded by: New York State Department of Environmental Conservation (NYSDEC)

Collaborators: Kevin Clarke and David Riehlman (NYSDEC)

Investigators: Bruce Lauber and Dan Decker

HDRU Contact: Bruce Lauber (tbl3@cornell.edu)

In this study, we explored how community characteristics and activities contribute to successful community-based wildlife management. In particular, work is focused on: (1) assessing the capability of communities to work in co-management situations with state wildlife agencies; (2) identifying difficulties that communities encounter in this process and the causes of these difficulties; and (3) suggesting methods that would enable decision making over a shorter time frame and with the expenditure of fewer resources.

In the most recent phase of this project, we followed the evolution of community-based deer management in three New York State communities. We collected baseline data in 2006 about community characteristics and activities related to deer management in each of these communities when deer management was in its early stages (i.e., no management actions selected or implemented). We monitored deer management efforts in each community since that time, and assessed how community characteristics and activities influenced the ways in which these efforts evolved.

During the past year, we prepared and released a final report based on this work. Based both on theory and our analysis of cases, we identified several possible barriers to community-based deer management. The three most important barriers were inadequate stakeholder engagement, a decision-making process that was ineffective at promoting information exchange and dialogue, and lack of leadership. We also concluded that it may be worthwhile to develop future studies to explore the needs and perspectives of those local stakeholders with the greatest legitimacy in deer (and other wildlife) management issues – local elected officials and managers of large land parcels. Little research attention has been directed towards these groups in

the past, but the degree of influence and control they have over wildlife management makes them well worth understanding.

Publication:

Lauber, T.B. 2010. Community-based deer management: learning and community capacity. HDRU Publ. No. 10-1. Dept. of Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ., Ithaca, N.Y. 34 pp.

Revisions to USFWS Publication on Visitor Impacts on Waterbirds on National Wildlife Refuges

Funded by: U.S. Fish and Wildlife Service (USFWS)

Collaborators: Bob Adamcik and Deb Rocque (USFWS)

Investigators: Daniel Decker, Jody Enck, and Bill Siemer

HDRU Contact: Jody Enck (jwe4@cornell.edu)

Staff with the National Wildlife Refuge System (NWRS) within the USFWS contacted HDRU to assist with revising a document on visitor impacts on waterbirds on National Wildlife Refuges. HDRU and NWRS staff subsequently developed the idea of broadening the scope of the document to reflect the positive and negative interactions occurring within the coupled ecological-social systems surrounding the NWRS. The “new” purpose of the document is to provide an information resource to NWRS managers striving to balance waterbird conservation and visitor uses at particular refuges. In addition to literature on waterbird disturbance mitigation measures, the reader will be introduced to some concepts from the field of human dimensions of wildlife management that will help the refuge manager weigh the collateral effects of various mitigation measures on human values associated with waterbirds and refuges. This document is intended as a tool for managers to inform decision-making, both with respect to specific situations and in the context of updating each refuge’s comprehensive plan. HDRU staff have overseen the completion of a review of the literature on visitor impacts on wildlife and a review of

literature pertaining to the human dimensions of Refuge visitation. We anticipate completing a final, revised document during summer 2011.

Other Publications on Wildlife Resources Management and Policy:

Enck, J.W., and W. Gordon. 2009. Wilson Hill Wildlife Management Area hunter survey: Opinions about possible management options. HDRU Publ. 09-8. Dept. Nat. Resour., Cornell Univ., Ithaca, NY. 27 p.

Lauber, T.B., R.C. Stedman, D.J. Decker, B.A. Knuth, and C.N. Simon. in press. Social Network Dynamics in Collaborative Conservation. *Human Dimensions of Wildlife*.

Lauber, T.B., R.C. Stedman, D.J. Decker, B.A. Knuth, and C.N. Simon. 2010. Tailoring the network to the needs in collaborative conservation: the State Wildlife Action Plans. Society for Conservation Biology Annual Meeting. Edmonton, Alberta. July 2010.

Lauber, T.B., R.C. Stedman, D.J. Decker, and B.A. Knuth. 2010. Collaborative conservation: approaches for linking knowledge to action. Department of Natural Resources, Cornell University, Ithaca, NY. April 2010.

Lauber, T.B., D.J. Decker, and R. Plummer. 2010. Developing adaptability: the promise and pitfalls of collaborative conservation. Special Session. Society for Conservation Biology Annual Meeting. Edmonton, Alberta. July 2010.

Human Dimensions of White-tailed Deer and Black Bear Management – New Needs, New Approaches

Human interactions with white-tailed deer (*Odocoileus virginianus*) and black bears (*Ursus americanus*) increased as wildlife ranges and populations expanded, and human populations spread across the landscape. While many human-wildlife interactions are positive, some are negative. The HDRU continues to focus much work on management issues related to positive and negative impacts of white-tailed deer and black bears.

We have examined many facets of white-tailed deer management. Impacts of deer on farmers, other rural landowners, suburban homeowners, communities adjacent to National Parks and other stakeholders have been subjects of our efforts to understand the multifaceted importance of deer management. Our research has revealed factors affecting social acceptability of various deer management approaches, especially in suburban areas. Preferences and satisfactions of deer hunters, challenges they face in gaining access to private lands, and land access policies of rural landowners also have been topics of study for purposes of understanding factors affecting implementation of effective deer management programs. We also have

designed, tested and evaluated processes for public input to deer and black bear management.

Burgeoning white-tailed deer populations in New York and many other states have created many challenges for deer managers, and society in general, as people have been trying to learn how to coexist with deer. Similarly, black bear populations and their ranges have expanded in New York and some neighboring states. The need for effective population management and site-specific problem alleviation has led managers and researchers into new territory. The HDRU has had opportunities to collaborate with several public and private cooperators to engage in a more thorough analysis of deer population management at the landscape level, and we have also worked with NYSDEC as they have developed a statewide black bear management plan. This research has been used by other states to inform their approaches to bear management.

Historically, we have worked primarily on the human dimensions of deer and bear management. In recent years we have also worked with biologists

and population modeling specialists to integrate the biological and human dimensions of deer and bear management in a way that allows us to examine more meaningfully scales and impacts of deer population management. In addition, we have worked with NYSDEC on a passive adaptive impact approach to management.

Assessing and Mitigating Deer Impacts at a Landscape Scale with an Integrated Research and Extension Program

Funded by: Cornell University Agricultural Experiment Station and Cornell Cooperative Extension

Collaborators: Paul Curtis, Gary Goff, and Peter Smallidge (Dept. of Nat. Resour.)

Investigators: Paul Curtis, Gary Goff, Tom Brown, Rich Stedman, and Daniel Decker

HDRU Contact: Nancy Connelly (nac4@cornell.edu)

The primary purpose of the final study conducted under this project was to estimate the extent of deer damage compared with other impacts on forest regeneration in New York State. To do this, all impacts to forest regeneration must be considered, not just deer. Obtaining actual field measurements on a statewide basis is cost prohibitive, so we took an indirect approach to gauging impacts on forest regeneration. A statewide mail survey, with a telephone follow-up to a sample of nonrespondents, was implemented to gather the expert opinions' of foresters currently working in New York. A total of 278 people responded to the questionnaire, 197 completed the survey and 81 indicated they were not currently practicing in the field, for an adjusted response rate of 54%. Foresters practicing in New York State estimated that forest regeneration, in stands opened up for regeneration, was moderately or highly successful only 30% of the time. Nonrespondents to the mail survey indicated that they thought regeneration was a bit more successful than respondents, so the overall success rate statewide might be a bit higher than 30%. Deer browsing and interfering vegetation were the biggest problems for regeneration statewide. Foresters indicated that 72% of the marginally successful or completely failed stands statewide

were impacted by deer browsing. Half were impacted by interfering vegetation. Foresters generally recommended a specific harvest method or TSI control of less desirable stems to encourage successful regeneration. In areas outside the Adirondacks, most foresters also recommended antlerless deer harvest. Fencing to exclude deer was rarely recommended, presumably because the cost of fencing exceeds the value of most timber stands.

Publications:

Connelly, N. A., P. J. Smallidge, G. R. Goff, and P. D. Curtis. 2010. Foresters' perceptions of forest regeneration and possible barriers to regeneration in New York State. HDRU Publ. No. 10-2. Dept. of Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ., Ithaca, N.Y. 30pp.

Stedman, R.C. 2010. A Matter of Life and Death: Hunting in Contemporary Vermont. *Human Dimensions of Wildlife* 15(4): 305-307.

Assessing Deer Hunters' Experiences with and Attitudes toward Pilot Antler Restrictions in Southeastern New York State

Funded by: New York Department of Environmental Conservation (NYSDEC)

Collaborators: Jeremy Hurst, Kevin Clarke, Jim Farquhar, and Ed Kautz (NYSDEC)

Investigators: Daniel Decker, Richard Stedman, and Jody Enck

HDRU Contact: Jody Enck (jwe4@cornell.edu)

The New York State Department of Environmental Conservation (NYSDEC) initiated a pilot deer hunting regulation restriction based on antler restrictions (only adult bucks with >3 points on a side are legal for harvest) in wildlife management units (WMUs) 3C-3J for the 2005 hunting season, and expanded the pilot to include WMUs 3H-3K in 2006. HDRU surveyed deer hunters living in those WMUs following the 2005, 2006, and 2007 hunting seasons as part of an on-going evaluation of the pilot program, using an augmented panel study design such that >900 hunters responded to more than one of the surveys. During 2010, HDRU staff

worked with NYSDEC biologists to develop another survey instrument to continue the evaluation, with the intention of mailing the survey to 1,500 hunters in early 2011. This survey will continue to monitor hunter behaviors and attitudes and also will measure the degree to which hunters are experiencing desirable levels of positive impacts they associate with hunting under the pilot program.

Human Dimensions of White Tailed Deer: Statewide Deer-hunter Survey

Funded by: New York Department of Environmental Conservation (NYSDEC)

Collaborators: Jeremy Hurst, Ed Kautz, Art Kirsch, Jim Farquhar, and Dave Riehlman (NYSDEC)

Investigators: Richard Stedman, Daniel Decker, and Jody Enck

HDRU Contact: Jody Enck (jwe4@cornell.edu)

The goal of this study was to investigate deer hunters' beliefs and attitudes about several deer management issues that emerged during statewide scoping meetings held during fall 2009, assess hunters' opinions about whether and when a new deer-hunting opportunity for youth should be held, assess hunters' experiences with the harvest reporting system, determine whether empirical evidence suggests that deer management permits (DMPs) are being used in the wrong wildlife management units (WMUs), and assess hunters' attitudes about the possible legalization. The survey revealed hunters' preferences and reasons for preferences for 14 possible regulatory actions. Most respondents thought it would be a good idea for

NYSDEC to create a new firearms hunting opportunity for 14-15 year-old youth during a weekend prior to regular firearms season although no clear preference emerged about the particular timing for such a weekend hunt. About one-quarter of respondents who had used the harvest reporting system were dissatisfied with it, and the survey revealed several opportunities for NYSDEC to consider to improve the system. We determined that the prevalence of hunters purposefully misusing DMPs was low quite low, even in WMUs where hunters theoretically had the greatest opportunity to misuse DMPs.

Publication:

Enck, J. W., R. C. Stedman, and D. J. Decker. 2011. Final report: statewide deer hunter survey – 2010. HDRU Publ. 11-1. Dept. Nat. Resour., Cornell Univ., Ithaca, NY. 59pp.

Presentation:

Enck, J. W. 2010. Survey of New York State deer hunters following the 2009 season. Paper presented at the annual meeting of the New York State Conservation Council. Utica, NY. October.



Program Assessments and Evaluations

Natural resource management agencies increasingly seek formal assessments before establishing new programs or modifying existing programs. They also periodically evaluate ongoing programs. HDRU research staff bring diverse disciplines to bear on program assessments and utilize a comprehensive evaluation strategy that examines program theoretical foundation, design, implementation, and impacts. We continually refine this approach as needed and identify elements that facilitate or impede program success or failure. Such evaluation allows resource managers and program directors to make better decisions about program modification and continuation and also to determine the impacts of programs.

Recruiting and Retaining Hunters and Trappers

Funded by: New York State Department of Environmental Conservation (NYSDEC)

Collaborators: Gordon Batcheller (NYSDEC)

Investigators: Daniel Decker, Bill Siemer, Richard Stedman, and Jody Enck

HDRU Contact: Jody Enck (jwe4@cornell.edu)

The New York State Department of Environmental Conservation (NYSDEC), like most other state fish and wildlife agencies, has been concerned about declining participation in hunting because of the negative consequences on funding for agency programming, as well as possible decline in public interest or support for management activities. In February 2010, HDRU staff convened a second workshop with NYSDEC staff (the first was in December 2009) to develop a situation assessment and to start identifying information needs that would form the basis for a multiple-study research agenda. Based on workshop results, HDRU developed a set of questions to be used to guide a review of the published literature to assess the profession's collective state of knowledge about hunter recruitment and retention and to identify gaps in that knowledge base. DJ Case & Associates was commissioned to conduct the literature review. This review uncovered some important insights about factors affecting the processes of recruitment and

retention, but also documented some substantial deficiencies in our understanding resulting from discrepancies in definitions of the terms recruitment and retention, a focus on behavioral outcomes rather than social processes, and a plethora of suppositions not based on empirical findings. HDRU will work with NYSDEC to use those insights to develop a plan of inquiry for filling gaps in our base of knowledge.

Publication:

Siemer, W. F., D. J. Decker, R. C. Stedman, and J. W. Enck. 2010. A summary of workshop outcomes. HDRU summary report. Ithaca, NY.

Presentations:

Decker, D. J. 2010. A conceptual model of the management system for influencing participation in hunting as an example of civic recreation conservation. Presented at a workshop on hunter recruitment and retention. Ithaca, NY. February.

Enck, J. W. and D. J. Decker. 2010. A matter of access in the East: roots of landowner-hunter conflicts. Paper presented at the annual meeting of The Wildlife Society, Salt Lake City, UT. October.

Civic Conservation Recreation

Funded by: Cornell University Agricultural Experiment Station, Multi-state Hatch Funds

Collaborators: Bernd Blossey, Paul Curtis, and Jay Boulanger (DNR Cornell)

Investigators: Marianne Krasny, Daniel Decker, Richard Stedman, Jody Enck, and Keith Tidball

HDRU Contact: Jody Enck (jwe4@cornell.edu)

Recent interest in the idea of "re-connecting Americans with nature" has resonated with broad segments of the public and a range of policy makers at all levels of government, perhaps

because of the explicit claims of improvements in the health and resilience of individuals, communities, and the ecosystem if the process of re-connection is successful. The purpose of this study is to identify and measure indicators of benefits to individuals, communities, and ecosystems through conservation-related recreation. We are using deer hunting through the Cornell University Lands Deer Management Program as a case study. In 2010, HDRU staff convened and facilitated a workshop with staff from the New York State Department of Environmental Conservation (NYSDEC) at which we jointly developed a conceptual model of the components and relationships in a dynamic and coupled social-ecological system as it relates to participation in deer hunting. Using this model as a guide, we initiated interviews with Cornell staff involved in facilitating and administering the Cornell deer management program to determine deer-related and stakeholder-stakeholder impacts they believe need to receive management attention through the program, identify constraints and opportunities for meeting the program's objectives, and to assess capacities and limits of various entities involved in the program. Through articulation of these models, and discussions with leaders of the Cornell University Lands Deer Management Program, NYSDEC and CU deer managers gained insights about their capacities and limits with respect to engaging recruited and retained participants in a form of conservation recreation with individual, community, and ecological benefits. In 2011, HDRU will develop and implement surveys with current and past participants to better understand benefits that have been accrued, or lost, as a result of the hunting program.



Assessing Awareness and Building Capacity through Webcasting

Funded by: Sustainable Forests Partnership and Penn State University

Investigators: Shorna Broussard Allred, Richard Stedman, Peter Smallidge, and Ashley Dayer

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

In this project, we focus our attention on the ability of emergent technologies to reach forest landowners and deliver effective educational programming. There are three components to this project: (1) exploring webinar participants' awareness of and adherence to forest stewardship principles, (2) developing and implementing the webinars, and (3) evaluating the webinars for educational and communicative effectiveness.

Publication:

Broussard Allred, S. and P.J. Smallidge. 2010. An Educational Evaluation of Web-Based Forestry Education. *Journal of Extension* 48(6), Article 6FEA2.

Presentations:

Broussard Allred, S., Stedman, R., Dayer, A. and P. Smallidge. 2010. Assessing the Educational Impact of the Sustainable Woodlands Webinar Series. *New York Society of American Foresters Annual Meeting*, Syracuse, NY, January 27-29, 2010.

Smallidge, P. and S. Broussard Allred. 2010. Practical applications and applied research in the use of web conference technology (AKA webinars) for educational programming with owners and managers. *Western New York Agriculture In-Service Training*, Geneva, NY, March 12, 2010.

Understanding Attitudes and Values of Wildlife Stakeholders

Developing Knowledge to Manage Economic, Health, and Safety Risks of Wildlife for Individuals and Communities in New York

Funded by: Cornell University Agricultural Experiment Station and New York State Department of Environmental Conservation (NYSDEC)

Collaborators: Matt Merchant (NYSDEC)

Investigators: Daniel Decker and Bill Siemer

HDRU Contact: Bill Siemer (wfs1@cornell.edu)

This activity focuses on developing knowledge and understanding to manage a variety of wildlife-related risks for individuals and communities in New York. This year HDRU staff reported on a qualitative case study of human-black bear interactions that occurred over a three-week period in the summer of 2008 near New Paltz, New York.

In July of 2010, two children in Westchester County New York were attacked by coyotes in separate incidents. These events received media coverage in *The New York Times* and other mass media available to residents throughout the county. HDRU had conducted information about attitudes, perceptions and experiences related to coyotes in Westchester County in 2006. Recognizing this as a rare opportunity for longitudinal research on risk perception, HDRU staff designed an instrument to re-survey residents in the 2006 study areas, to assess potential changes in attitudes toward, perceptions of, and experiences with coyote-related human injuries near the original study areas. Data was collected through a telephone survey in fall 2010. Plans are in place to conduct a third telephone survey in the same study areas in early 2011. This set of studies will provide unique insights on how media coverage of wildlife-related risks can influence beliefs, attitudes and behaviors of suburban stakeholders.

Publication:

Siemer, W. F., D. J. Decker, and M. Merchant. 2010. Wildlife Risk Perception and Expectations for Agency Action: Insights from a Black Bear Management Case Study. Human Dimensions Research Unit Series Publication 10-4. Department of Natural Resources, Cornell University, Ithaca, N.Y.

Survey of Landowners between the Greater Yellowstone Ecosystem and the Selway-Bitterroot Wilderness

Funded by: The Wildlife Conservation Society

Collaborator: Heidi Kretser (WSC)

Investigator: Daniel Decker

HDRU Contact: Nancy Connelly (nac4@cornell.edu)

Last year HDRU partnered with the Wildlife Conservation Society to conduct a survey of landowners in three communities within the Greater Yellowstone Ecosystem (Western US). The purpose of the survey was to assess the communities' values surrounding wildlife, the relationships between these values and rural livelihoods, and the subsequent definitions of "acceptable" levels of development and wildlife populations. These communities are biologically important to the High Divide, and also fall along a continuum of development and income and as such, work in these areas will provide a broad foundation for identifying the social context of rural development and ecosystem conservation. The mail survey was implemented in the fall of 2009 and the preliminary results have been presented widely (see below), with further analysis on-going.

Presentations:

Kretser, H., N.A. Connelly, J. Burrell, and T. Rosen. 2010. A landowner survey on attitudes toward wildlife and land-use planning in the Central Linkage Ecosystem. Paper presented at the Yellowstone Science Conference.

Toivola, A.R., H. Kretser, N.A. Connelly, and J. Burrell. 2010. A spatial assessment of land owner preferences toward wildlife management in the developing exurban landscapes of the Yellowstone Rockies. Paper presented at Pathways to Success: Integrating Human Dimensions into Fish and Wildlife Management 2010 Conference. Estes Park, CO, Sept. 27- Oct. 1.

Kretser, H., N.A. Connelly, and J. Burrell. 2010. A landowner survey on attitudes toward wildlife and land-use planning in the Central Linkage Ecosystem. Paper presented at the Wilburforce High Divide Meeting.

Kretser, H., N.A. Connelly, and B.A. Knuth. 2010. Landowner sentiments toward wildlife and land-use planning. Paper presented at Emerging Issues Along the Urban-Rural Interface 2010 Conference.

Landowner Attitudes toward Early Successional Habitat in New York

Funded by: New York State Department of Environmental Conservation (NYSDEC)

Collaborators: Mike Wasilco, Mark Kandel, Tom Bell, Paul Novak, and Matt Swayze (NYSDEC)

Investigators: Shorna Broussard Allred, Richard Stedman, Daniel Decker, Jody Enck, and Ashley Dayer

HDRU Contact: Ashley Dayer (aad86@cornell.edu)

With changing land use practices and suppression of natural disturbance, early successional forest habitat (ESH) and related species are in decline in New York State. This type of habitat supports Golden-winged Warbler, American Woodcock, and other important game and non-game species. Historically, this habitat was prevalent in the state, but now, its quality and maintenance for wildlife depends upon management. Given that 77% of New York's forest lands are privately owned, the existence of adequate ESH hinges on private forest landowners undertaking management activities.

This study, initiated in 2008, addresses the management need for restoring and retaining ESH,

particularly upland forest (shrubland and young forest). The study focuses on private forest landowners of the Southern Tier of New York State.

The project objectives include: (1) explore the state of knowledge and outreach amongst experts working with private forest landowners on ESH; (2) determine private forest landowner attitudes, awareness, motivating factors, actual decisions, and constraints toward types of management practices on their lands; and (3) develop a forestry engagement typology of private forest landowners to better understand a target audience and inform outreach efforts.

The project seeks to inform outreach strategies or incentive programs that will effectively encourage private landowners in New York State to manage for ESH. We expect that these findings will aid the NYSDEC as well as other partners interested in encouraging landowners to increase ESH. The results and conclusions will also further our understanding of the human dimensions of forestry and wildlife.

In 2010 we conducted interviews with private landowners with experience in ESH management on their land and focus groups with private landowners. In fall 2010 we implemented a survey of private landowners in the southern tier of New York State. In 2011 we will complete data analysis for this project and hosted a statewide workshop with partners to discuss survey results and implications for programming.

Presentations:

Broussard Allred, S., Stedman, R., Dayer, A, Enck, J., and M. Kurth. Policy Instrument Design for Early Successional Forest Habitat Conservation. *Society of American Foresters National Convention*, Albuquerque, NM, October 27-31, 2010.

Dayer, A.A., Stedman, R.C. Broussard Allred, S., Decker, D., Enck, J. (2010, September 29). "For the Love of the Game (and Nongame)": *Private Lands Wildlife Habitat Management*. Presentation for Pathways to Success: Human Dimensions of Wildlife, Estes Park, Colorado.

Dayer, A.A., Broussard Allred, S., Stedman, R.C. (2010, July 6). *Canaries in the coalmine: Birds as motivators and indicators for private landowner habitat management*. Presentation for Society for Conservation Biology, Edmonton, Alberta.

Stedman, R.C., Broussard Allred, S., & Dayer, A.A. (2010, June 8). *Cutting the trees to save the forest? Landowner / expert differences in perceptions of early successional forest habitat*. Presentation for International Symposium on Society and Resource Management, Corpus Cristi, Texas.

Dayer, A.A. (2010, January 28). *Early successional forest habitat on private lands: A study of private landowner decision-making in New York State*. Poster presentation for New York Society of American Foresters, Syracuse, New York.

Dayer, A.A., Broussard Allred, S., Stedman, R. & Moskell, C. (2010, January 28). *Attracting landowners to create the “unattractive”:* Professionals’ perceptions of challenges to early successional habitat management on private lands. Presentation for New York Society of American Foresters, Syracuse, New York.

Understanding the Human Dimensions of Human-Wildlife Habituation: Developing Knowledge for Interventions to Foster Positive Interactions between People and Wildlife

Funded by: National Park Service

Collaborators: Dr. Kirsten Leong (Biological Resources Management Division, National Park Service) and Bruce Connery (Acadia National Park, National Park Service Habituation Steering Committee)

Investigators: Daniel Decker and Heather Wiczorek Hudenko

HDRU Contact: Heather Wiczorek Hudenko (hah29@cornell.edu)

While many human-wildlife interactions may benefit both wildlife and humans, interactions that lead to conflict are a pressing issue for wildlife managers. A key factor believed to lead to human-wildlife conflict is habituation. Inconsequential

presence of humans or human activity experienced by wildlife are the primary causes of habituation in wildlife, yet little is known about the way in which human beliefs, attitudes, and behaviors may influence this phenomenon. A collaboration between the Biological Resources Management Division (BRMD) of the National Park Service (NPS) and Cornell University’s HDRU was established to explore the human dimensions component of human-wildlife habituation in and around protected areas.

The HDRU team (H. Wiczorek Hudenko, W.F. Siemer, and D.J. Decker) conducted a content analysis of NPS management guidance documents used to address human-wildlife interactions. We found that management strategies to avoid food conditioning were more comprehensive and prolific than were those for habituation-related issues, although at times the two processes were not distinguished from one another in the documents. The majority of management documents focused on species that have the potential to cause significant negative impacts such as bears, wolves, mountain lions, and elk. Strategies to address negative human-wildlife interactions were multi-faceted and typically included both a wildlife and visitor component, and involved multiple park divisions. Education and communication initiatives were the most common visitor-directed strategy described in the documents.

Our findings from the content analysis echoed data from a survey of park managers (conducted earlier in the project). Managers reported a focus on food-related issues, concerns about visitor attitudes and behaviors that led to negative human-wildlife interactions, and a preference for education and communication efforts to address problems.

In response to the emphasis on education and communication initiatives, we conducted a review of published literature that studied the effectiveness of such efforts in parks. Relative to the prolific use of education and communication initiatives in parks, we found few studies that empirically evaluated the success of these programs. Based on input from the NPS Habituation Steering Committee and earlier phases of this project, it appears that NPS will continue to use these visitor-directed strategies to reduce problems between people and wildlife in parks. Thus, comprehensive evaluations of interventions are needed to

determine the most effective means of communicating with visitors and encouraging human behaviors that limit problems with wildlife while maximizing visitor enjoyment.

Publications:

Wieczorek Hudenko, H. (in review). Exploring the influence of emotion on human decision-making in human-wildlife conflict. *Human Dimensions of Wildlife*.

Wieczorek Hudenko, H. (in review). Integrating emotion into models of human-wildlife interactions. Natural Resource Technical Report. National Park Service, Fort Collins, Colorado.

Wieczorek Hudenko, H., and B. Connery. (in review). Managers' perspectives on the human dimensions of human-wildlife habituation in National Parks: Report from a survey of National Park Service managers. Natural Resource Technical Report. National Park Service, Fort Collins, Colorado.

Wieczorek Hudenko, H., and D. J. Decker. (in review). Perspectives on human dimensions of wildlife habituation: Report from a workshop conducted at the Human Dimensions of Fish and Wildlife Management Conference. Natural Resource Technical Report. National Park Service, Fort Collins, Colorado.

Wieczorek Hudenko, H., and D. J. Decker. (in review). Perspectives on the management of human-wildlife habituation: Report from a workshop conducted at the George Wright Society Conference. Natural Resource Technical Report. National Park Service, Fort Collins, Colorado.

Wieczorek Hudenko, H., and W. F. Siemer. (in review). Management of habituation and food conditioning in the National Parks: Report from a content analysis of NPS guidance documents. Natural Resource Technical Report. National Park Service, Fort Collins, Colorado.

Wieczorek Hudenko, H., W. F. Siemer, and D. J. Decker. (in review). Status of peer-reviewed literature on the human dimensions of managing wildlife habituation and food conditioning in National Parks. Natural Resource Technical Report. National Park Service, Fort Collins, Colorado.

Staten Island Residents' Experiences with and Attitudes toward Wild Turkeys in their Neighborhood

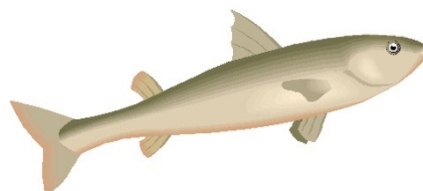
Funded by: New York Department of Environmental Conservation (NYSDEC)

Collaborators: Joe Pane, Susan Mattei, Steve Zahn, Mike Schiavone, and Bryan Swift (NYSDEC)

Investigators: Daniel Decker and Jody Enck

HDRU Contact: Jody Enck (jwe4@cornell.edu)

Wild turkeys have inhabited some neighborhoods on Staten Island for several years, and their numbers have increased to more than 150 birds as of winter 2010-11. Many residents enjoy seeing and interacting with the birds; many residents also have expressed concerns about problems caused by the turkeys. By fall 2010, the issue had become highly politicized and had received substantial coverage in the New York City media. The New York State Department of Environmental Conservation (NYSDEC) asked HDRU to conduct a mail survey of residents of neighborhoods where turkeys occur. The purpose of the survey is to determine residents' experiences with and attitudes towards turkeys in their neighborhood. In particular, we will ask residents to identify specific positive and negative aspects of having turkeys in their neighborhood, and will assess the acceptability of each of four possible management actions NYSDEC might take to address residents' interests and concerns with turkeys. The survey will be implemented in early 2011.



**Human Dimensions of Wildlife Disease:
Understanding Perceptions of Risk and
Identifying Implications for Developing Effective
Communication Messages**

Funded by: National Park Service and Cornell University Agricultural Experiment Station

Collaborators: Margaret Wild, Kevin Castle, and Kirsten Leong (National Park Service)

Investigators: Daniel Decker, Richard Stedman, Katherine McComas, Bill Siemer, and Darrick T.N. Evensen

HDRU Contact: Darrick T.N. Evensen (dte6@cornell.edu)

The purpose of this research is to increase understanding of why National Park Service (NPS) employees and community members living near national park units perceive risks with respect to wildlife-associated diseases (including vector-borne diseases). In contrast to the majority of research on risk perceptions about wildlife-associated diseases, which has examined the magnitude of people's risk perceptions, this research investigated the factors that contribute to the types and magnitudes of risks individuals perceive. We designed this research with the goal of helping wildlife managers and communications specialists, particularly in the NPS, understand better how to respond to risk perceptions that individuals have regarding wildlife-associated diseases. Understanding why people perceive risks related to a disease would allow the NPS to identify clear objectives for risk communications and to target certain content matter to diverse groups that may harbor different concerns.

In 2010, we completed all data analysis of the 106 in-depth interviews conducted in 2009. A final report highlighting key findings and policy implications was submitted to the NPS. Additionally, three HDRU professors and three HDRU graduate student researchers organized and facilitated a workshop at Grand Canyon National Park in which NPS officials at the park, NPS officials from the Wildlife Health program, and officials from the US Public Health Service examined risk communication surrounding an incident involving plague at Grand Canyon. A report based on the discussions during the workshop as well as

interviews conducted before and after the workshop was submitted to the NPS and US Public Health Service attendees at the workshop.

Publications:

Evensen, D.T. 2011. *In the eye of the beholder: Perceptions of and reactions to wildlife and vector-borne disease risks*. Unpublished master's thesis, Cornell University, Ithaca, NY.

Decker, D. J., Evensen, D. T., Siemer, W. F., Leong, K. M., Riley, S. J., Wild, M. A. et al. 2010. Understanding risk perceptions to enhance communication about human-wildlife interactions and the impacts of zoonotic disease. *Institute for Laboratory Animal Research* 51(3): 255-261.

Evensen, D. T., Decker, D. J., and Siemer, W. F. 2010. Perceptions of wildlife-associated diseases in and around national parks. Final Report submitted to National Park Service Biological Resources Management Division Wildlife Health Team. GLNF Cooperative Ecosystems Study Unit Task Agreement No. J2340080021.

Evensen, D. T., and Clarke, C.E. in review. Efficacy information in media coverage of infectious disease risks: An ill predicament? *Science Communication*.

Presentations:

Evensen DT. 2010. The fourth dimension of risk: A case study of temporal variability in risk perceptions. *Poster presented at: Society for Risk Analysis Annual Meeting*. Salt Lake City, UT.

Evensen DT. 2010. Natural threats in the 'Lymelight': Understanding how people perceive risks associated with Lyme disease. *Paper presented at: International Symposium for Society and Resource Management*. Corpus Christi, TX.

Other Publications on Wildlife Resources Management and Policy:

Wieczorek Hudenko, H. , W. F. Siemer, and D. J., Decker. 2010. Urban carnivore conservation and management: The human dimension. Pages 21-33 in S. Gehrt, S. Riley, and B. Cypher (Ed.s)

Urban Carnivores: Ecology, Conflict, and Conservation, Johns Hopkins University Press, Baltimore, MD.

Evensen D. T. 2010. The fourth dimension of risk: A case study of temporal variability in risk perceptions. *Poster presented at: Society for Risk Analysis Annual Meeting*. Salt Lake City, UT.

Evensen D. T. 2010. Natural threats in the 'Lymelight': Understanding how people perceive risks associated with Lyme disease. *Paper presented at: International Symposium for Society and Resource Management*. Corpus Christi, TX.

Fisheries Resources Management and Policy

Understanding Participation, Attitudes, and Values Associated with Fisheries Management

Many stakeholders with diverse interests are affected by fisheries management decisions and activities. Understanding the attitudes and values of these stakeholders toward management is a base for predicting not only the acceptability of various management strategies, but also the likely impacts that will be produced through management programs. This information is useful to fisheries agencies, and also to communities and marine trades groups who wish to improve marketing of the fisheries resources of their localities and regions.

Increasing the Effectiveness of Fish Consumption Advisories in the Great Lakes States

Funded by: Minnesota Department of Health and U.S. Environmental Protection Agency

Collaborators: Pat McCann (Minnesota Department of Health) and Henry Anderson (Wisconsin Department of Health Services)

Investigators: Barbara Knuth, Bruce Lauber, Jeff Niederdeppe, and Nancy Connelly

HDRU Contact: Bruce Lauber (tbl3@cornell.edu)

Although toxic substances in the Great Lakes have been reduced in recent decades, they remain present at a level posing a risk to people who consume Great Lakes fish. All Great Lakes states use fish consumption health advisories as a strategy for informing the public about the risks and benefits of

fish consumption and lowering their exposure to contaminated fish. However, a variety of studies in different contexts have found that these advisories are only partially successful in achieving their goals with some groups more likely to be exposed than others. Past research has shown that different at-risk groups may be best served by different fish consumption advisory approaches.

Given the differences in information needs of at-risk groups, gathering background information about key audiences and field testing advisory materials can play a critical role in the success of risk communication efforts. Through this project, we are providing Great Lakes states with the information they need to improve the effectiveness of their advisories. We are planning an assessment of current fish consumption health advisory practices in the Great Lakes states and a series of focus groups and standardized surveys with audiences of concern.

During the past year, we initiated this project and completed an initial social network survey to assess relationships among people working on fish consumption health advisories in the Great Lakes region. In the coming year, we will interview key individuals in each Great Lakes state to assess current advisory practices, conduct focus groups with urban anglers and women of child-bearing age to identify factors influencing their consumption of fish, and implement standardized mail surveys of licensed anglers in each Great Lakes state to assess their levels of fish consumption and factors influencing it.

2010 Vermont Angler Survey

Funded by: Vermont Dept. of Fish and Wildlife

Investigator: Barbara Knuth

HDRU Contact: Nancy Connelly
(nac4@cornell.edu)

In early 2010 HDRU conducted a statewide survey of anglers for the Vermont Department of Fish and Wildlife. The survey was sent to a sample of 5,400 resident and nonresident anglers, and 2,046 completed questionnaires were returned, for an adjusted response rate of 40%. Most people (91% of residents and 97% of nonresidents) who bought a license that permitted fishing in Vermont in 2009 actually went fishing in 2009. Commitment to fishing in Vermont, as measured by year-to-year participation was high, with 70% of residents fishing in each of the past 3 years and 54% of nonresidents. We estimated that over 75,000 residents and almost 33,000 nonresidents fished at least one day in Vermont in 2009, and almost all of them fished open water. Adjusting for non-response bias, we estimated that residents spent almost 2 million days fishing open water in Vermont in 2009; nonresidents spent 278,000 days. Fewer anglers engaged in ice fishing, but residents and nonresidents spent almost 400,000 days ice fishing in 2009. Trout from various types of waters and bass were the most popular species to fish for during the open water season; yellow perch and northern pike were most popular for ice fishing.

Three statewide angler surveys have been conducted over the past 20 years using similar methods and many identical questions. The number of people buying fishing licenses in 1990 and subsequently going fishing was much larger in 1990 compared with 1999 and 2009. Whereas the mean number of days fished by Vermont residents has not changed over time, the change in the number of people fishing has resulted in a decrease in total days fished of about one-third between 1990 and 1999/2009. For nonresidents, the number of people fishing has declined as well as the average number of days fished, so the estimated total has decreased by over half.

Publication:

Connelly, N. A., and B. A. Knuth. 2010. 2010 Vermont angler survey report. HDRU Publ. No. 10-3. Dept. of Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ., Ithaca, N.Y. 139pp.

Presentation:

Connelly, N. A., B.A. Knuth, and R. Kirn. 2010. Trends in fishing participation in Vermont (1990-2009); Are angler interests and behaviors changing? Paper presented at the 140th Annual Meeting of the American Fisheries Society, Pittsburgh, PA, September 12-16.

Other Publications and Presentations on Fisheries Resources Management and Policy:

Connelly, N. A., and T. L. Brown. 2010. Sportfishing Participation on Lake Ontario: Modeling the Past, Predicting the Future. *North American Journal of Fisheries Management* 30:821-830.

Connelly, N. A., and T. L. Brown. 2010. Assessing the economic importance of recreational fishing for communities along Lake Ontario. *Tourism in Marine Environments* 6:63-71.

Connelly, N. A., S. Keeler, and B.A. Knuth. 2010. Understanding New York's anglers by knowing their species and water body preferences. Paper presented at Pathways to Success: Integrating Human Dimensions into Fish and Wildlife Management 2010 Conference. Estes Park, CO, Sept. 27- Oct. 1.

Knuth, B.A. 2010. People and trout: Implications of social and economic trends for wild trout and associated habitats. Wild Trout X, West Yellowstone, Montana. September 2010.

Lauber, T.B., N.A. Connelly, and B.A. Knuth. 2010. Human responses to VHS in the Great Lakes: stakeholder characterization. Great Lakes Board of Technical Experts Meeting. Lodi, NY. September 2010.

Forest Lands Management

Over the last decade, HDRU has developed a continuous research thrust in the human dimensions of forest management. In 1999–2001, we evaluated the impacts of several programs designed to assist Northern New York landowners following the severe ice storm of 1998. During 2003–2005, we worked with NYSDEC’s Division of Lands and Forests to assess use and visitor satisfaction with hiking experiences in the Adirondacks. Two additional projects funded through the Northeastern States Research Cooperative have provided opportunities to examine community collaboration in forest management and public awareness of, and attitudes toward, a range of forest management practices that enhance ecosystem management.

Much of our applied research related to forest management has implications for Extension programs. We are continuing our close working relationship with Cornell Cooperative Extension with a new project aimed at better identifying the interests and needs of underserved forest owners in New York. Dr. Rich Stedman and Dr. Shorna Broussard Allred have several projects related to community forestry and the economic dependence of such communities on forest resources. Descriptions of those projects are included in this section.

The Power of Peer Learning in Natural Resources Education

Collaborators: Gary Goff (Cornell Dept. of Natural Resources) and Eli Sagor (University of Minnesota)

Investigator: Shorna Broussard Allred

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

Social networks offer potential outcomes related to communication, participant leadership, community building, information exchange, and more. Some outreach strategies targeting family forest owners utilize peer networks in information diffusion, communication, and building connections. While much is known about traditional forest owner

behavior change strategies related to financial and technical assistance through an expert approach, little is known about the role and outcomes of peer interactions in the landowner community. Additionally, the state of knowledge is scant as to the kinds of outcomes that can be expected from various forms of engagement in landowner social networks. This research and extension project focuses on a forestry education program that builds the forest stewardship knowledge of volunteers and empower them to establish formal and informal networks in their communities.

Publications:

Broussard Allred, S. and E. Sagor. (In Press). Perspectives: Empowering Woodland Owners through Peer Learning. *Journal of Forestry*. [Accepted June 2010].

Broussard Allred, S., Goff, G., Wetzel, L. and M. Luo. (In Press). Evaluating Peer Impacts of the Master Forest Owner Volunteer Program in New York. *Journal of Extension*. [Accepted 12-20-2010].

Broussard Allred, S., Goff, G.R., Luo, M.K., and L.P. Wetzel. 2010. *An Evaluation of the Impact of the New York Master Forest Owner Volunteer Program*. Cornell University Human Dimensions Research Unit, HDRU Outreach Publication No. 10-2, January 2010.

Broussard Allred, S., Goff, G., Luo, M., and L. Wetzel. 2010. *Woodland Owner Cooperation*. Cornell University Human Dimensions Research Unit, HDRU Outreach Series No. 10-3, January 2010.

Presentations:

Sagor, E., Broussard Allred, S. and A. Kueper. 2010. Peers, personal networks, and landowner behavior: Practical insights from three recent studies. 7th *Natural Resource Extension Professionals Conference*, Fairbanks, AK, June 27-30, 2010.

Broussard, Allred, S. The Power of Peer Learning: Best Practices for On-Site Visits with Forest Owners. *Master Forest Owners Training*, Arnot Forest, Van Etten, NY, September 19, 2010.

Allred, S.B. 2011. Peer to Peer Woodland Owner Outreach: What is it and How Can it Strengthen the Tree Farm System? *American Tree Farm System National Leadership Conference*, Englewood, CO, February 23-25, 2011.

Communicating Effectively for Enhanced Woodland Sustainability

Funded by: U.S. Forest Service

Investigators: S. Broussard Allred and P. Smallidge (Cornell University); J. Finley, A. Muth, and A. Metcalf (Penn State)

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

To increase our effectiveness in addressing private forestland issues, we must understand the various segments of the owner population. In this project we propose using peer-to-peer learning approaches to deliver education and outreach to private forest landowners (PFL) through (1) volunteer landowners, (2) service foresters, and (3) extension educators. The messages will address parcelization and the need to “keep forests as forest.” Both New York and Pennsylvania recently completed statewide PFL studies, which will permit us to explore both audience and motivation segments. Combining landowner analysis with motivation assessments of existing volunteer forest owners, we will create targeted messages, education materials, and outreach efforts to build the capacity and skills of the three outreach groups. These tools will then be used to reach out to other landowners and help them make better decisions about conserving working forests. Ongoing assessment of the resulting outreach efforts will provide material for modifying and redirecting approaches. This project also serves as the foundation for future analyses to develop targeted programs for other issues facing private forest resources. Additionally, results will provide the basis for other states to similarly engage their private landowners and to develop more successful outreach and technical assistance

programs. This 2-year project was funded by the U.S. Forest Service in 2010.

Presentation:

Broussard Allred, S. 2010. Using Owner Typologies in Media/Marketing Campaigns for Educational Programs. Workshop at “Forest Resources Extension Sharing” In-Service training, Arnot Forest, Van Etten, NY, May 4, 2010.

Participatory Development of an Urban Forestry Community Engagement Model

Funded by: The Ittleson Foundation

Faculty Collaborators: Dr. Scott Peters (Department of Education, College of Agriculture and Life Sciences, Cornell University) and Dr. Nancy Wells (Department of Design and Environmental Analysis, College of Human Ecology, Cornell University)

Collaborators: Veronique Lambert, Lorraine Brooks, Caroline Tse (Cornell University Cooperative Extension – NYC, Urban Environment Program), Ruth Rae, Kristy King, Minona Heaviland, Jennifer Greenfield, Jackie Lu (NYC Department of Parks and Recreation), Morgan Monaco, Ellen Arnstein (Million Trees NYC/NYC Parks), Faisal Al-Juburi (Million Trees NYC/New York Restoration Project), Susan Goberman, Nelson Villarrubia (Trees NY), Erika Svendsen, Lindsey Campbell (US Forest Service), Gerard Lordahl (Council on the Environment of NYC), and Alice Ewan Walker (Alliance for Community Trees)

Investigators: Dr. Shorna Broussard Allred, Gretchen Ferenz, Christine Moskell, and Kristen Loria

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

The purpose of this social science research and education project is to work with residents and community organizations to develop, implement, and evaluate an urban forestry community engagement model that will be used by organizations to reach and empower people to be active stewards of their community’s trees and

natural resources. The research sites for this project are Canarsie, Brooklyn and Jamaica, Queens. These sites were chosen because the MillionTreesNYC initiative has recently planted thousands of trees in these communities as part of a larger plan to plant one million trees in all five-city boroughs by 2017. In spring 2010, an on-site survey was administered to residents in Canarsie and Jamaica to investigate residents' perceptions of and attitudes toward urban trees planted along streets and in parks. Focus group interviews were also held with residents, educators and civic leaders to supplement the data collected in the survey in each neighborhood. Additional data collection in 2010 included semi-structured interviews conducted with 12 practitioners from across the country working in non-profit, municipal, state and commercial urban forestry sectors. The theoretical framework guiding data analysis and the community engagement model was also developed.

Project team members and staff from the Urban Environment program area at Cornell University Cooperative Extension-NYC networked and built relationships with community groups in Canarsie and Jamaica with the help of local project collaborators in New York City. Preliminary analysis of the survey and focus group data collected in Jamaica and Canarsie served to inform educational activities designed to address gaps in knowledge related to urban forest management. The project team implemented 19 educational sessions in both communities between September and October. Sessions were participatory and hands-on, combining presentation and discussion with neighborhood exploration and games related to urban forestry topics, such as tree stewardship, tree species identification and urban wildlife.

Publications:

Moskell, C., Broussard Allred, S., and G. Ferenz. 2011. Examining motivations and strategies for engagement in urban forestry. *Cities and the Environment* 3(1): Article 9.

Moskell, C. What can trees do for me? The benefits of urban trees. *Urban Environment Program, Cornell University Cooperative Extension-New York City*.
<http://nyc.cce.cornell.edu/UrbanEnvironment/SustainableCommunities/Forestry/Documents/CornellHealthBenefitofTrees.pdf>.

Presentations:

Moskell, C. and Lambert, V. 2010. Roundtable discussion about urban forestry community engagement to the members of the Alliance of Community Trees. Partners in Community Forestry Conference. November 7-10. Philadelphia, PA.

Moskell, C., Lambert, V., Brooks, L. 2010. Developing a model for effective community stewardship of urban forests. North American Association for Environmental Education 39th Annual Conference. September 29 – October 2, 2010. Buffalo, NY.

Moskell, C., Broussard Allred, S., Loria, K., Lambert, V., Brooks, L., Ferenz, G., Cheng, S., Kudryastev, A. 2010 Residents' attitudes toward street trees and park trees in New York City. 7th Annual North American Association for Environmental Education Research Symposium. Buffalo, New York. September 28-29, 2010.

Moskell, C. Broussard Allred, S. 2010. Pathways to stewardship: A theoretical framework for stakeholder engagement in urban forestry. *International Symposium on Society and Resource Management*. Corpus Christi, Texas. June 7-11, 2010.

Broussard Allred, S., Ferenz, G., Moskell, C., Lambert, V., Tse, C. 2010. Examining motivations and strategies for engagement in urban forestry. *Million Trees NYC Research Symposium*. New York, New York. March 5-6, 2010.

Moskell, C., Broussard Allred, S., Ferenz, G., Lambert, V., Tse, C. 2010. Process and outcomes of engagement in urban forestry. *Cornell University Department of Natural Resources Graduate Research Symposium*. Ithaca, New York. January 19-20, 2010.

Woody Biofuel Production in New York: Building Capacity through Applied Social Science Research

Funded by: Cornell University Agricultural Experiment Station

Collaborators: Brett Chedzoy (CCE Schuyler County), Laurel Gailor (CCE Warren County), Guillermo Metz (CCE Tompkins), Marilyn Wyman (CCE Greene County), and Tony Nekut (Master Forest Owner Volunteer)

Investigators: Shorna Broussard Allred and Peter Smallidge

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

Although woodlands dominate more than 60% of the New York landscape, the contribution of those woodlands to renewable energy as woody biofuel is potentially limited by access. Specific constraints on access include landowner attitudes about biomass harvesting and the willingness and availability of loggers and foresters to redirect their time and equipment from potentially more profitable harvests. In an attempt to better understand those constraints HDRU researchers teamed with Cornell Cooperative Extension specialists to study three audiences involved in supplying woody biofuels – landowners, foresters, and loggers. Knowing these constraints will support the development of educational programs that help guide the decisions of owners and producers in sustainable and renewable energy enterprises.

In the fall of 2010 surveys were conducted with two of the audiences – landowners and foresters – to identify and understand barriers within the woody biofuel supply system in New York State. Results will be analyzed in early 2011.

Private Forest Owners of Pennsylvania

Funded by: Pennsylvania Bureau of Forestry

Collaborators: A.E. Luloff, James Finley, and Alex Metcalf (Penn State University)

HDRU Contact: Richard Stedman (rsc6@cornell.edu)

The decisions of private forest landowners are of paramount importance to the sustainable management of forest resources. Many private forest landowners are difficult to identify, especially in the context of landscapes undergoing rapid change. This five-year project sought to identify the full spectrum of forest landowners in Pennsylvania (ranging down to one acre), conduct large scale (n=6600) mail surveys of these landowners, and calibrate their beliefs about the sustainability of their forest management practices through site visits by State Bureau of Forestry Service Foresters. Moving beyond a snapshot view, the five year longitudinal nature of the project allows us to track changes in ownership over time (i.e., address parcelization) and management practices. 2010 represented the final year of data collection; we now have assembled five rounds of data collection (2006, 2008, 2010 statewide survey of 6000 landowners and 2007 and 2009 property visits of approximately 100 landowners). Three manuscripts are in preparation from these data.

Addressing Private Forestland Parcelization in the Hudson River Watershed: An Integrated Research and Extension Approach

Funded by: Cornell University Agricultural Experiment Station, Cornell Cooperative Extension

Collaborators: Richard Stedman and Peter Smallidge (Dept. of Natural Resources)

Investigators: Andrew Roe and Shorna Broussard Allred

HDRU Contact: Andrew Roe (awr45@cornell.edu)

Forestland parcelization is recognized as one of the most serious challenges facing forests today. Parcelization divides large single ownership forest tracts into smaller parcels with diverse ownerships, often with development and a reduction in forest area, impacting the sustainability of forestlands. This study is made up of three main components to understand the extent and effects of forestland parcelization in the Hudson River watershed from the central Adirondacks to New York City. The first stage of this project was conducted through an examination of parcelization patterns, with an analysis of sales data from the New York State Office of Real Property data. The total number and area of sales and divisions of properties from 2000

to 2010 were calculated in each county to reveal the geographic areas property classes with the highest amounts of ownership change. A GIS analysis of landcover change was conducted in a three county area with a continuum of sales activity. The second part of the research involved semi-structured interviews with consulting foresters and land trust protection staff about their observations of the effects of forest property division and their responses to increasingly parcelized landscapes. Interviews were conducted with twenty foresters and five land trust protection staff, transcribed, and coded for emergent themes. The third stage involved interviews with individual landowners who had made the decision to parcelize their land and results informed the design of a mail survey to understand and examine the distribution of key factors influencing the process.

The results of these study components will allow the researchers to understand both the extent and effects of parcelization in the study area and inform an extension approach to focus on the geographic areas where parcelization poses the greatest concern.

Presentations:

Roe, A.W. and S.B. Allred. 2010. Forest Ownership Change and Parcelization in the Hudson River Watershed. Presented at Society of American Foresters National Convention, Albuquerque, New Mexico, October.

Roe, A.W. and S.B. Allred. 2010. "Parcelization in the Eastern Hudson Valley: Land Ownership Patterns and Changes. Poster presented to The Nature Conservancy, New York Chapter Annual Meeting, New York City, New York, September.

Roe, A.W. and S.B. Allred. 2010. The Changing Role of Forestry: Forester Adaptations to Parcelization in New York State. Poster presented at Rural Sociological Society Annual Meeting, Atlanta, Georgia, August.

Roe, A.W. and S.B. Allred. 2010. Forestland Parcelization Patterns in the Hudson River Basin. Poster presented at New York Chapter of Society of American Foresters, Annual Meeting, Syracuse, New York, January.

Roe, A.W. and S.B. Allred. 2010. Identifying Patterns of Forestland Parcelization in the Hudson River Watershed. Poster presented at Cornell University Department of Natural Resources Graduate Research Symposium, Ithaca, New York, January.

Awards:

2nd Place Award for Graduate Student Presentation at Society of American Foresters Annual Meeting.

Honorable Mention for poster presentation at Rural Sociological Society Annual Meeting.

Natural Resources Communication and Education

Communication and education (C&E) programs and courses are fundamental to natural resource management. State and federal agencies, universities, state cooperative extension services, and nongovernment organizations conduct a wide variety of programs and courses. C&E programs perform an important role in bringing informed public involvement to decision making and

influencing public perception of and behavior toward natural resources and their management. The traditional focus of C&E efforts has been to raise informational levels of the public. The HDRU fulfills this role both through its teaching and through a variety of Extension and outreach programs. It is also frequently involved in conducting C&E program evaluations.

Environmental Education and Development of an Urban Land Ethic

Funded by: Cornell University Agricultural Experiment Station

Collaborator: Brigitte Griswold (The Nature Conservancy)

Investigators: Keith Tidball and Bruce Lauber

HDRU Contact: Bruce Lauber (tbl3@cornell.edu)

Urban ecosystems have often been approached from deficit-based thinking, with a focus on what is lacking rather than what is there. Through this study, we are exploring how urban residents come to understand, appreciate, and contribute to the integrity, stability, and beauty of *urban* ecosystems and how they see the relationship between the natural and the human in these systems. Given the influence that urban areas have on the environment of our state and our world, this work is of critical importance.

During the past year, we have explored the question of what characteristics contribute to the health, or resilience, of urban socio-ecological systems from the perspective of urban environmental educators, which we view as a set of people with particular expertise in the prerequisites for a healthy urban environment. We completed a series of in-depth telephone interviews with urban environmental educators and educators with the Leopold Education Project, and observed several environmental education programs in New York City. Based on the results of this work, we developed and implemented an internet survey of members of the North American Association for Environmental Education. We also held a focus group with past participants in an environmental internship program run by The Nature Conservancy.

This project will culminate in a workshop for urban environmental educators scheduled for March 2011 in which we will present and refine our study results and develop a set of recommendations for urban environmental educators. Results of this project will also be published in extension and peer-reviewed publications to be prepared in the coming year.

Presentation:

Tidball, K.G. and T.B. Lauber. 2010. Environmental education and the development of an urban land ethic: benefits for people and ecosystems. North American Association for Environmental Education Annual Meeting. Buffalo, NY. September 2010.

Sustainable Forest Management for Wildlife

Funded by: CALS Land Grant Graduate Fellowship & State Wildlife Grant (through NYFOA) & Audubon New York

Collaborators: Richard Taber, Kristi Sullivan, Gary Goff, and Stephen Morreale

Investigators: Shorna Allred and Ashley Dayer

HDRU Contact: Ashley Dayer (aad86@cornell.edu)

Wildlife habitat conservation often requires active management. In states such as New York, where the majority of existing and potential wildlife habitat is found on private lands, the future of wildlife species in the state depends on the engagement of private landowners. Yet, few private landowners report conducting forest management for wildlife. In fact, many landowners believe that leaving their land to let nature take its course is best for wildlife. In order to address the wildlife habitat needs for Species of Greatest Conservation Need in New York State, this project aims to address those lands where there is greatest potential for wildlife habitat (ecologically and socially). Additionally, it strives to develop and test outreach approaches for encouraging landowners to take actions to improve or maintain these habitats for wildlife.

A survey of landowners with high quality habitat for wildlife was conducted in Cattaraugus County in Fall 2010, in collaboration with Cornell Cooperative Extension, New York Forest Owners Association, and Cornell Cooperative Extension – Chenango County. Additionally a similar survey of landowners was implemented in Tug Hill in late Fall 2010 by Audubon New York. Two more surveys of private forest landowners will be conducted in Rennselaer and Dutchess/Putnam counties in Spring 2011. These surveys aim to inform the tools, messages, and marketing materials for extension activities and

identify landowners with high quality habitats for Species of Greatest Conservation Need and interest in management for wildlife. The extension programming is then conducted in collaboration with local Cornell Cooperative Extension offices. Follow up surveys, to measure the impacts of the programming on attitudes and behavior intentions, will be conducted online.

Other Publications on Natural Resources Communication and Education:

Lauber, T.B., E.J. Taylor, D.J. Decker, and B.A. Knuth. 2010. Challenges of Professional Development: Balancing the Demands of Employers and Professions in Federal Natural Resource Agencies. *Organization and Environment*. 23(4):446-464.

Water Resources Management and Policy

Community Capacity for Ecosystem-based Management in New York's Great Lakes and Marine Coastal Areas

Funded by: Cornell University Agricultural Experiment Station

Investigators: Barbara Knuth, Ingrid Biedron, and Carrie Simon

HDRU Contact: Barbara Knuth (bak3@cornell.edu)

New York State recently embarked on an institutional commitment to govern and manage its Great Lakes and marine coastal ecosystems using the principles of ecosystem-based management, codifying this commitment in the 2006 New York Ocean and Great Lakes Ecosystem Conservation Act. The goals of this project are to address the concept of human and institutional capacity to implement the Act and achieve its associated goals, particularly related to capacity-building in both the Great Lakes and marine/coastal regions. Project personnel are conducting a literature and document review, and will conduct semi-structured interviews with members (or designates) of the NY Ocean and Great Lakes Ecosystem Conservation Council and agency and other stakeholder contacts. We anticipate identifying several NY Great Lakes and marine coastal communities for study in later stages of this project. The findings from this study should help advance governance and institutional aspects of ecosystem-based management in the NY Great Lakes and marine regions.

Social-Ecological Resilience in the Hudson River Watershed

Funded by: NYS Department of Environmental Conservation

Investigators: Richard Stedman and Micah Ingalls

HDRU Contact: Richard Stedman
(rcs6@cornell.edu)

Social-Ecological Resilience is gaining ground as an analytical lens for the assessment of social and ecological capacity for absorbing or recovering from shocks to the system (such as disaster, or climate change), and the relationship between the various components of the system which confer, or erode, resilience. This study investigates various social and ecological dimensions of resilience within the greater Hudson River Watershed in New York State. The particular research emphasis during the 2010 period focused on issues of farmer identity and behavior on the landscape, and the impacts of these factors on biophysical indicators of resilience.

Presentation:

Ingalls, M. L. (2011). "Revitalizing Agency: Farmer Identity and the Living Landscape." Talk given at the Graduate Student Association Symposium, Department of Natural Resources, Cornell University, January.

Watershed Management

The behavior of riparian landowners is key to protecting water quality. Many watershed systems are increasingly dominated by non-agricultural interests, yet policy initiatives (both incentive programs and regulatory regimes) are still designed primarily around agriculture. This leaves significant gaps in understanding and effectiveness.

Assessing Riparian Landowner Willingness to Implement Best Management Practices (BMPs)

Funded by: USDA Conservation Enhancement Assessment Program

Collaborators: James Shortle, Robert Brooks, and Robert Carline (The Pennsylvania State University)

Investigators: Richard Stedman and Ann Armstrong

HDRU Contact: Richard Stedman (rsc6@cornell.edu)

This study examines agricultural and nonagricultural riparian landowners' willingness to implement and maintain a suite of BMPs tied to the provision of local and extra-local water quality benefits. Riparian areas provide critical ecosystem services (e.g. wildlife habitat, water quality conservation), and their protection is highly encouraged by governmental and watershed organizations. In particular, policies, incentives and disincentives have been tied to agricultural land uses. As such, past research (that was focused on agriculture) may not well represent many watersheds undergoing urbanization. This study examines two primary questions: (1) how do non-farming landowners compare to agricultural landowners in their willingness to implement riparian buffers; and (2) how does urbanization influence this willingness. A major finding from this work is that residential landowners are significantly less likely to be willing to adopt riparian buffers than traditional farmers, suggesting that as parcelization and urban land uses become more prevalent, riparian conservation on the whole will decrease. We recommend that watershed organizations provide additional conservation support for non-agricultural landowners. Ann Armstrong, graduate student supported by this

research, completed her related Master's thesis in July 2010.

Publications:

Armstrong, A.L., and R.C. Stedman. Rural landowner identity and efficacy in a transitioning agricultural watershed. Manuscript under review at *Society and Natural Resources*.

Armstrong, A.L., and R.C. Stedman. Landowner willingness to implement riparian buffers in an urbanizing watershed. Manuscript under review at *Landscape and Urban Planning*. Submitted March 2011.

Armstrong, Andrea. 2010. River of dreams? Factors of riparian buffer adoption in a transitioning watershed. Master's thesis, Cornell University.

Presentations:

Armstrong, A. R.C. Stedman, J. Bishop, P.J. Sullivan. "What's a stream without water? Landowner perceptions of intermittent streams as disproportionate sources of water quality pollution." National Water Program Annual Conference, Washington, DC. January, 2011.

Armstrong, A. "Water quality conservation and private landowners: Why landscape matters." Rural Sociological Society Annual Conference. August, 2010. Atlanta, GA.

Armstrong, A. "Socioeconomic Messages: Spring Creek watershed." Conservation Effects Assessment Project synthesis meeting. May, 2010.

Using Social Indicators to Evaluate Non-point Source Water Pollution Projects

Funded by: USDA-CSREES National Integrated Water Quality Program

Investigators: Linda Stalker Prokopy (Purdue University), Ken Genskow (University of Wisconsin - Madison), Shorna Allred (Cornell University), Joe

Bonnell (The Ohio State University), Asligul Gocmen (University of Wisconsin – Madison), and Rebecca Power (University of Wisconsin Extension)

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

This integrated research, education and extension project examines factors that lead to measurable behavior change. Specifically, we look at the most effective ways to bring about water quality benefits through appropriate behavior change. Throughout the study project team members work with local partners and stakeholders to build capacity and knowledge of social factors that lead to behavior change. In the first year of the study, we used a recently developed social indicator framework to determine what factors correlate with measurable behavior change of farmers and land managers in three Midwestern watersheds. Based on this knowledge, in year 2, we worked with local watershed planning and implementation groups to develop interventions that promote behavior change in environmentally critical areas. These tools were selected based upon our understanding of what motivates land managers to adopt practices. Using a paired subwatershed approach in each of the three subwatersheds, we applied the refined interventions in one subwatershed with the other subwatershed serving as the control. In year 3, we analyzed the effectiveness of the tools and build this knowledge into extension publications directed at stakeholders in the watersheds, an eXtension Community of Practice, an educational curriculum for undergraduate and graduate courses on watershed management, trainings for practitioners at national water conferences, and peer-reviewed journal articles. Results of this project will enhance our understanding of the complex social dynamics that lead to adoption and rejection of conservation practices by farmers and farm managers. It will also provide new knowledge of how education and incentive programs can be made more effective by an in-depth understanding of the target audience and the context in which farm management decisions are made.

Publication:

Flores, K., L. Prokopy, and S. Broussard Allred. (In Press). It's who you know: Social capital, social networks, and watershed group processes. *Society and Natural Resources*.

Presentation:

Broussard Allred, S., Bonnell, J., Genskow, K. and A. Gocumen. 2010. Social Dimensions of Watershed Management: Curriculum Development. 2010 *Land Grant and Sea Grant National Water Conference*, Hilton Head, SC, February 21-25, 2010.

Social Dimensions of Watershed Stewardship

Funded by: NYS Dept. of Environmental Conservation, Hudson River Estuary Program

Investigators: Shorna Allred (Cornell University), Allison Chatrchyan (Cornell Cooperative Extension Dutchess County), Carolyn Klocker (Cornell Cooperative Extension Dutchess County), and Margaret Kurth (Research Assistant)

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

Local land-use decisions are influenced both by the collective decisions of landowners and municipal officials. A variety of policy tools exist which enable local governments to regulate local land-use activities and balance development with the conservation of valuable natural resources. These tools include: “Regulatory and Authoritative Tools” such as restricting development and passing local laws and ordinances, “Environmental Planning Tools” such as including sustainable land-use planning principles in comprehensive plans and conducting environmental monitoring, and “Outreach and Education Tools” such as using tailored messages to reach stakeholder audiences and holding educational workshops. It is important to consider the social context of a community when designing strategies that address land-use planning and water quality issues. Policies and approaches that embrace local values and concerns are more likely to be accepted by the public and can help foster local partnerships in community watershed protection. Designing informed strategies requires an understanding of stakeholder attitudes, perceptions, and motivations. The Wappinger Creek Watershed is located in Dutchess County, NY and is one of the five major tributaries to the lower Hudson River. Nonpoint source pollution reduction has become a priority in the watershed as the impacts of increased population growth and land-

use change have become evident. The 2000 Natural Resource Management Plan for the watershed recommends that current residential development practices be changed to avoid water quality degradation. A study was conducted in the Spring and Summer of 2009 to help understand what types of water quality protection approaches will be most acceptable in the watershed. A questionnaire was sent to 326 municipal officials and 1,422 landowners in the 13 municipalities of the Wappinger Creek Watershed to inform outreach, education, and policy making in the watershed. This research reports on the results of the survey related to the policy preferences, riparian management behavior, and attitudes of municipal officials and landowners.

Presentations:

Kurth, M., Broussard Allred, S., Chatrychan, A., Klocker, C. 2010. Social-psychological Influences of Landowner Decision-Making: Understanding Impacts on Water Quality. *The 7th Annual Meeting of the Environmental Consortium*, Suffern, New York, October 12-16, 2010.

Broussard Allred, S., Bonnell, J., Genskow, K. and A. Gocumen. 2010. Social Dimensions of Watershed Management: Curriculum Development. *2010 Land Grant and Sea Grant National Water Conference*, Hilton Head, SC, February 21-25, 2010.

Broussard Allred, S., Kurth, M., Chatrchyan, A., Klocker, C. and N. Curri. 2010. Community Perspectives on the Wappinger Creek Watershed. *Presentation at "Protecting Wappinger Creek: A Public Meeting to Discuss Water Quality in the Watershed"*, Millbrook, NY, May 26, 2010.

Kurth, M., Broussard Allred, S., Chatrchyan, A., and C. Nurre. 2010. Wappinger Creek Watershed Municipal Views. *Presentation to the Wappinger Creek Inter-Municipal Council*, Dutchess County, NY, January 8, 2010.

Broussard Allred, S. 2010. Understanding Adoption and Performance of Best Management Practices for Water Quality. *178th Annual Meeting and Agricultural Forum*, New York State Agricultural Society, January 7, 2010.

Natural Resources Policy, Planning, and Evaluation

Natural resources planning involves public input, particularly at the beginning of the planning cycle and at the end, through assessment or evaluation, as input to plan revision. The HDRU has undertaken research and outreach in a number of situations involving planning. In 2005, we had the opportunity to work with the St. Regis Mohawk Tribe in Northern New York in their efforts to develop a natural resources plan for tribal lands. In 2006, we worked with the Wildlife Conservation Society as it assessed its efforts at building capacity for conservation in the Adirondacks. In 2007 we began work on a new round of strategic planning by the American Fisheries Society. In 2009, we began working with natural resource professionals from agencies and NGO's across New York to understand climate change adaptations and resource needs.

Empowering Land Managers to Increase Resilience of New York's Natural Resources in the Face of Regional Climate Change

Funded by: Cornell Cooperative Extension (Smith-Lever)

Collaborators: Rebecca Schneider, Kristi Sullivan, Peter Smallidge, Gary Goff, Paul Curtis, David Wolfe, Jonathan Comstock, and Allison Chatrchyan

Investigators: Shorna Broussard Allred, Rebecca Schneider, and Allison Chatrchyan

HDRU Contact: Shorna Broussard Allred (srb237@cornell.edu)

New Yorkers are already observing effects of global climate change in their surroundings, including

documented increases in precipitation, warmer springs and earlier river thaws, and changes in plant phenology. Land managers, from private landowners to professional agency staff, need sound guidance on how to respond to predicted changes so that natural resources will be resilient, and New York's communities will be more sustainable. Our overall goal is to work collaboratively with New York land managers, including CCE educators, to develop an extension program focused on natural resource management that addresses regional climate changes anticipated over the next several decades. The specific project objectives are: (1) to conduct a survey of land managers to engage them and assess their needs, (2) to conduct issue-based workshops that team scientists and stakeholders to develop recommendations, and (3) to develop, pilot, and evaluate associated education programs. A survey of natural resource professionals was conducted in Fall 2009 and was planned for municipal officials in the Winter of 2010. The purpose of the survey is to assess information needs, attitudes toward current climate change related issues, adaptations, opportunities, and challenges for the purposes of informing an outreach program.

Presentation:

Chatrchyan, A., Broussard Allred, S. and R. Schneider. 2010. Resilience in the Face of Climate Change: Empowering Natural Resource Managers and Professionals through Extension Education. 7th *Natural Resource Extension Professionals Conference, Fairbanks, AK, June 27-30, 2010.*

Environmental Policy Capacity

Funded by: Canadian Forest Service

Collaborators: Adam Wellstead, Canadian Forest Service, Michael Howlett, and Simon Fraser University (British Columbia)

HDRU Contact: Rich Stedman (rsc6@cornell.edu)

The factors driving the ability of governments to make effective policy and respond proactively to broad challenges, such as global climate change, is poorly understood. Our project involves national quantitative assessments of environmental policy capacity within multiple levels (Provincial and Federal) of the Canadian government. In 2010 we implemented a national online study examining key attitudes, perceived barriers to effectiveness, and professional networks related to climate change-related policy capacity.

Publications:

Wellstead, A., and R.C. Stedman. Climate change policy capacity at the Sub-National Government level. Manuscript forthcoming at *Journal of Comparative Policy Analysis*.

Wellstead, A., R. Stedman, and M. Howlett. Multi-level policy analytical capacity in Canada: A structural equation model (SEM) study of Federal, Provincial and Territorial policy analysts and analysis. Manuscript forthcoming at *Public Policy and Administration*.

The Well-Being of Resource-Dependent Communities

The well-being of communities that depend on the extraction and processing of forest-based resources is crucially important to definitions of the sustainability and resilience of the resource dependent industries. Defining this relationship is somewhat difficult, based on the myriad indicators of well-being, and multiple definitions of dependence. The conceptual basis of this overall

trajectory has broadened in the past year: from “forest dependence” to “resource dependence” (reflecting emerging projects in the area of mineral and agricultural-based dependence). Further, wholesale changes in the structure and governance of the forest industry may pose significant challenges to community sustainability.

Under this heading, Richard Stedman is involved in several on-going studies in this area (funding and collaborators are listed separately for each).

Resource Dependence and the Well-Being of Rural Canadian Communities

Funded by: Canadian Forest Service

Collaborators: William White, Michael Patriquin (Canadian Forest Service, Northern Forestry Centre), and John Parkins (University of Alberta)

HDRU Contact: Richard Stedman (rsc6@cornell.edu)

Several ongoing projects with colleagues in the Canadian Forest Service, and the New Rural Economy Project at Concordia University (Quebec) examine the well-being of resource-dependent communities in Canada, and also compares outcomes with those obtained in the United States. This project involves quantitative analysis of cross-sectional and longitudinal secondary data obtained from Statistics Canada that addresses the measurement of forest dependence, well-being, the effect of forest dependence and well-being, and how this relationship varies across place, time, and indicators used to represent well being. This project moved forward in 2010 by completing longitudinal analysis on StatsCan data, and engaging new analyses on the relationship between economic diversity, dependence, and indicators of community well being.

Publication:

Patriquin, M., R.C Stedman, and J.R. Parkins. Economic diversity and dependence in rural Canadian communities. Manuscript under review at *Canadian Journal of Agricultural Economics*.

Presentations:

Stedman, R.C. 2010. (Invited Paper) Resource dependency and diversity: From findings to metaphors (and back again?). Invited paper at Freudenfest: A Symposium to Honor William R. Freudenburg's Scholarly Contributions. University of California Santa Barbara, November 6.

Stedman, R.C. 2010. (Invited Paper) Identifying and assessing sustainability in resource dependent communities. Invited paper at Bennington College. May 19, Bennington, VT.

Community Response to Forest Fire Risk in the Northeast United States

Funded by: US Forest Service

Collaborators: Pam Jakes (USFS), Jason Gordon (Mississippi State University), A. E. Luloff, and James Finley (Penn State University)

HDRU Contact: Richard Stedman (rsc6@cornell.edu)

Another study under this larger research theme involves using theories of risk perception and management to explore the response of rural stakeholders in the northeast to the potential for forest fire. We analyzed secondary data for the entire northeast United States and conducted in depth interviews in multiple targeted communities. Work in 2010 involved data analysis and manuscript preparation.

Publications:

Gordon, J.S., R.C. Stedman, and A.E. Luloff. 2010. Wildland fire as a latent symbol of social discontent: A community analysis in West Virginia. *Society and Natural Resources* 23(12): 1230-1243.

Gordon, J.S., R.C. Stedman, D. Matarrita-Cascante, and A.E. Luloff. 2010. Wildfire perception and community change. *Rural Sociology* 75(3): 455-477.

Gordon, J.S., A.E. Luloff, and R.C. Stedman. A Multi-Site Comparison of Community Wildfire Risk Perceptions. Manuscript under review at *Journal of Forestry*.

Resilient Communities and Climate Change in the Circum-Boreal Region

Funded by: Norwegian Research Council

Collaborator: Vera Hausner (Natural Resources Management, Department of Biology, University of Tromsø)

HDRU Contact: Richard Stedman
(rsc6@cornell.edu)

A third project under this research theme involves funding from the Norwegian Research Council examining the relationship between global ecological change and the well being of resource dependent communities in the circum-boreal-polar region. Along with colleagues from Canada, Russia, Sweden, and Norway, we have created an integrative comparative framework for examining similarities and systematic differences across communities in these four nations in their ability to respond to global climate change stressors. We held a workshop in Tromsø, Norway, in May 2010 to bring the research team together face-to-face for the first time, have developed a white paper that will be presented at the 2011 meetings of the Resilience Alliance.

Presentation:

Stedman, R.C. 2010. (invited) How to identify resource dependent communities. *Invited paper at Tromsø University, Tromsø, Norway June 1.*

Evaluating the Outcome of Working Forest Easements

Funded by: Northeast States Research Cooperative

Collaborators: Steven Wolf and Rachel Neugarten

HDRU Contact: Richard Stedman
(rsc6@cornell.edu)

A fourth project develops and tests a set of indicators of the impact of large scale timber divestiture in the Adirondacks on the well being of local rural communities. Our specific focus is on the sale of the Finch Pruyn holdings to The Nature Conservancy (and subsequently, New York State). Through extensive interview data collected in 2009

and 2010, coupled with analyses of secondary data sources, we explored the capacity for monitoring socio-economic outcomes of the land sale, especially that which focuses on “working forest easements”. Under this project, Rachel Neugarten finished her MS Thesis in 2010.

Publication:

Neugarten, R., S. Wolf, R. Stedman, and T. Tear. Integrating ecological and socioeconomic monitoring of working forests. Manuscript under review at *Bio Science*.

Presentation:

Neugarten, R., S. Wolf, and R. Stedman. 2010. Forest at work: a case study of conservation and sustainable forestry in the Northern Forest. Paper presented at the 2010 Annual Meetings of the Rural Sociological Society, Atlanta, GA, Aug 12-15.

Regional Impacts of Energy Development on the Social, Economic, and Ecological Well-being of Rural Communities in the Northeast

Funded by: Atkinson Center for Sustainable Future and Cornell Univ. Agric. Exper. Sta. (Hatch)

Collaborators: Susan Christopherson, Susan Riha, Rod Howe (Cornell University), Stephan Goetz (Northeast Center for Rural Development), Warren Allmon and Robert Ross (Cornell University and the Palentological Research Institute), Kathy Brasier, Tim Kelsey, Fern Willits, and Ted Alter (The Pennsylvania State University)

Investigators: Jeffrey Jacquet and Richard Stedman

HDRU Contact: Richard Stedman
(rsc6@cornell.edu)

The second year of this project continues to look at regional impacts of energy development on the social, economic and ecological well-being of rural communities in the Northeast. As gas exploration has unfolded in real time during 2008-2010, this project is explicitly comparative across states, given this opportunity for a natural experiment, and as such has involved the formation of numerous partnerships, including involvement on Penn State-

funded projects. This project received funding from CCSF in 2009 to develop an integrative framework for examining the cumulative impacts of gas exploration and other forms of green energy development (wind, biofuels, and carbon sequestration), and to collect primary data on community well being. We have completed 70 interviews with landowners throughout the southern tier of NY and the northern tier of Pennsylvania. Interviews with 15 leaders of landowner coalitions have been completed, a mail survey of approximately 1,500 landowners has been completed, and another survey of 3000 landowners in Northern PA grappling with the simultaneous development of wind and gas is in preparation. These forms of data collection focus on resident attitudes toward development, perceptions of risk and benefits, and other dimensions germane to community well being. Several papers have been published and multiple papers are in preparation based on these data sources and our conceptual work. We have received numerous requests for information and outreach (see <http://gasleasing.cce.cornell.edu> for a summary), and conducted a “Statewide Shale Summit” in Owego, NY (November 2009) that was attended by 200-300 citizens, a new summit is slated for March 2011 in Watkins Glen, NY that will carry the theme of planning for energy transitions. An additional multi-state energy research conference is being planned.

Publications:

Braiser, Kathy, Matthew R. Filteau, Diane K. McLaughlin, Jeffrey Jacquet, Richard C. Stedman, Timothy W. Kelsey, and Stephan Goetz (In Press). “Residents’ Perceptions of Community and Environmental Impacts from Development of Natural Gas in the Marcellus Shale: A Comparison of Pennsylvania and New York Cases” *Journal of Rural Social Sciences*.

Jacquet, Jeffrey. 2010. *Workforce Development Challenges in the Natural Gas Industry* Cornell City and Regional Planning Working Paper Series: A Comprehensive Economic Impact Analysis of Natural Gas Extraction in the Marcellus Shale December 2010.

Jacquet, Jeffrey and Richard Stedman (In Press). “Natural Gas Landowner Coalitions in New York State: Emerging Benefits of Collective Natural Resource Management” *Journal of Rural Social Sciences*.

Kay, D.L., Geisler, C.G., and R.C. Stedman. 2010. What is cumulative impact assessment and why does it matter? Research & Policy Brief Series, Community and Regional Development Institute. 37.

Stedman, Richard, Bunny Willits, Kathy Braiser, Diane McLaughlin, and Jeffrey Jacquet (in Press) *Natural Gas Development: Views of Pennsylvania and New York Residents in the Marcellus Shale Region* CaRDI Research and Policy Brief.

Presentations:

Filteau, M., K. Brasier, S. Goetz, D. McLaughlin, R. Stedman. 2010. Trust During Rapid Community Change: Residents’ Experiences in the Early Stages of Marcellus Shale Natural Gas Development Paper presented at the 2010 *Annual Meetings of the Rural Sociological Society*, Atlanta, GA, Aug 12-15.

Jacquet, J. 2010. “Comparative Impacts of Natural Gas vs. Wind Power” *Energy Transitions and the New York Landscape Presentation Series*, Cornell Dept. of Landscape Architecture.

Jacquet, J. 2010. “Natural gas and wind farm development in the Armenia Mountain region of New York” Poster presented at the 16th *International Symposium for Society and Natural Resources*, Corpus Christie, TX: June 7-10.

Jacquet, J. 2010. “Social Impact Assessment of Natural Gas Drilling in Rural Communities” *Environmental Planning, Cornell Department of City and Regional Planning*.

Jacquet, J. and R.C. Stedman. 2010. The emergence of landowner coalitions in the Marcellus Shale of New York State. Paper presented at the 16th *International Symposium for Society and Natural Resources*, Corpus Christie, TX: June 7-10.

Stedman, R.C. and J. Jacquet. Impacts of Green Energy Development on Rural Community Sustainability (Poster presentation) ACSF Poster Contest (ranked in top 5).

Willits, F. K. , M.R. Filteau, R.C. Stedman, D.K. McLaughlin, K. Brasier. 2010. Residents' Perceptions of Natural Gas Development in the Marcellus Shale Region. Paper presented at the 2010 Annual Meetings of the Rural Sociological Society, Atlanta, GA, Aug 12-15.

Impacts of Second Home Development in the Northern Forest

Funded by: Northeast States Research Cooperative, Texas A&M University

Collaborators: Brian Eiesenhauer, (Plymouth State Univ., NH), Jim Finley and A. E. Luloff (Penn State) Todd Gabe (University of Maine), and Walt Kuentzel (University of Vermont)

HDRU Contact: Richard Stedman (rsc6@cornell.edu)

This NSRC-funded project is examining impacts of second home development in New York, Vermont, Maine, and New Hampshire. This project, initiated in 2007, uses qualitative (interview) and quantitative (survey-based research) methods to examine the wellbeing of forest-based communities in the regions that are undergoing transition to tourism- and/or second home-based economies. In 2010, the research team held a synthesis meeting to discuss major themes unveiled during qualitative interviews. These themes are guiding development of a mail survey instrument to be implemented in the spring of 2011. Survey data will be paired with secondary quantitative indicator data for linked social-ecological analysis of case study communities.

Sense of Place

Sense of place, or the meanings and attachments that individuals and/or groups hold for a spatial setting, has become a useful construct in resource management. Sense of place is based on experience with a setting that is based on a certain level of ecological quality of the setting, as well as direct provision of experiential opportunities by resource managers. The goal of this research is to understand the ecological and community-based factors associated with the local meanings of landscape, understand how these meanings are tied to local attachment, how this attachment potentially predicts human behavior, and how these relationships are similar or different across a wide range of socio-ecological settings. A mix of qualitative and quantitative methods has been utilized for discrete studies under this subject.

Diverse Methods for Exploring Sense of Place

Funded by: Sustainable Forest Management Network Centres of Excellence (Canada); United States Forest Service, Pacific Northwest Station

Collaborators: Ben Amsden (Plymouth State University), Linda Krueger (U.S. Forest Service), and Tom Beckley (University of New Brunswick)

HDRU Contact: Richard Stedman (rsc6@cornell.edu)

High amenity communities, such as those that are gateways to national parks and protected areas, face a unique set of challenges and opportunities around maintaining local sense of place, or the preferred sets of local meanings that underpin attachment and place protective behavior. We are utilizing a qualitative, "resident-employed photography" approach to elicit respondent community meanings and attachment in high amenity communities in Canada and Alaska (and with a sample of natural resource-based volunteers in the latter). In 2010, three manuscripts were accepted for publication from this work.

Publications:

Amsden, B.L., R.C. Stedman, and A.E. Luloff. Mixing methods to explore contexts of place in Alaska. Manuscript forthcoming at *Tourism Geographies*.

Amsden, B.L., R.C. Stedman, and L.E. Kruger. 2011. The creation and maintenance of sense of place in a tourism-dependent community. *Leisure Sciences* 33(1): 32-51.

Brehm, J., B. Eisenhauer, and R.C. Stedman. The Nexus of Place Attachment and Environmentally Responsible Behavior in Diverse Lake Environments. Manuscript under review at *Human Ecology*.

Bushway, L.J., J. Dickinson, R.C. Stedman, L.P. Wagenet, and D.A. Weinstein. Benefits, motivations and barriers related to environmental volunteerism for older adults: Developing a research agenda. Manuscript forthcoming at *Journal of Aging and Social Policy*.

Jorgensen, B., and R.C. Stedman. Measuring the spatial component of sense of place. Manuscript forthcoming at *Environment and Planning B*.

Matarrita-Cascante, D., Stedman, R., & Luloff, A.E. (2010). Permanent and seasonal residents' community attachment in natural amenity-rich areas: Exploring the contribution of landscape factors. *Environment and Behavior* 42: 197-220.

Stedman, R.C. 2010. Liberty Hyde Bailey: Essential Agrarian and Environmental Writings. Forthcoming in *Rural Sociology*.

Presentation:

Matarrita Cascante, D., Woosnam, K., and R.C. Stedman. 2010. Second Home Development: Understanding Residents, Context, and Implications. Paper presented at the 16th International Symposium for Society and Natural Resources, Corpus Christie, TX: June 7-10.

Sense of Place and Environmental Education in Urban Areas

Funded by: Cornell Center for Sustainable Future

Investigators: Alexey Kudryatsev, Marianne Krasny, and Richard Stedman

HDRU Contact: Richard Stedman (rcs6@cornell.edu)

This project explores the mechanisms by which urban environmental education initiatives “teach sense of place” through a variety of mechanisms. Sense of place theory suggests that attachment may be a function of direct experience with a setting, and/or developing a key set of meanings for the setting. In the New York City metro area, work is underway evaluating the approach and efficacy of six environmental education programs via these causal pathways: does environmental education directly promote a certain set of meanings, or is attachment resulting from these programs more a simple function of increased experience with the setting? In 2010 we implemented narrative interviews and two surveys of youth that explore the mechanisms by which sense of place may be linked to environmental education.

Publication:

Kudryavstev, A., R.C. Stedman, and M.E. Krasny. Sense of place in environmental education. Manuscript under review at *Environmental Education Research*.

Presentations:

Kudryavstev, A., M. Krasny, and R. Stedman. 2010. The impact of urban environmental education on sense of place in youth. Presented at the 2010 Annual Meetings of the North American Association for Environmental Education, Buffalo, NY, Sept 28-29.

Krasny, M., L. Kalbecker, A. Kudryavstev, and R. Stedman. 2010. Development of an instrument to measure social capital in youth. Presented at the 2010 Annual Meetings of the North American Association for Environmental Education, Buffalo, NY, Sept 28-29.

Sense of Place and Environmental Quality

Funded by: National Science Foundation

Collaborators: Joan Brehm (Illinois State University) and Brian Eisenhauser (Plymouth State University)

HDRU Contact: Richard Stedman (rcs6@cornell.edu)

Understanding the relationship between sense of place and perceived environmental quality is crucial if managers are serious about recent enthusiasm for “managing for a sense of place.” Work in 2010 included an analysis of the relationship between environmental perception, sense of place, and environmental behavior from data collected in lake districts in New Hampshire, Illinois, and Wisconsin. The team submitted one manuscript from this database.

Summary of Consultations, Outreach, Honors, Awards, and other Scholarly Activities

The HDRU has traditionally made consultation and outreach a part of its research partnership with NYSDEC. The HDRU also provides consultation and conducts workshops for other resource management agencies. In addition, Unit faculty and staff are active in a wide variety of professional activities. Examples of activities for 2010 are summarized below.

Atkinson Center for a Sustainable Future

HDRU Associate Director Barbara Knuth serves on the Faculty Advisory Committee for the Cornell Atkinson Center for a Sustainable Future, and is a Faculty Fellow, as are Rich Stedman, Shorna Allred, and Dan Decker.

National Academies Service and Impact

HDRU Associate Director Barbara Knuth serves on the Ocean Studies Board (OSB) of the National Academies. In that capacity, she brings a social science perspective to the deliberations of that body. She was recently appointed to a 3-year term on the National Research Council Committee on the Effects of the Deepwater Horizon Mississippi

Canyon-252 Oil Spill on Ecosystem Services in the Gulf of Mexico.

University of Guelph

HDRU Associate Director Barbara Knuth serves as a member of the Special Graduate Faculty, Department of Family Relations and Applied Nutrition, at the University of Guelph, contributing to oversight and advising for a graduate student focused on ethnic minority understanding of and response to fish consumption health advisories.

Small Game and Furbearer Harvest Surveys: A Cooperative Effort with NYSDEC

HDRU staff worked with Bureau of Wildlife staff in a collaborative effort to implement DEC’s annual small game and furbearer harvest surveys. HDRU staff assumed responsibility for implementation of survey mailings (i.e., sample sizes of 5,000 and 4,500). DEC assumed responsibility for data entry and analysis.

Professional Training and Outreach: Integrating Human Dimensions in Wildlife Management

Dan Decker, Bill Siemer and Shawn Riley (MSU), with assistance from Tim Breault and Ann Forstchen (Florida Fish and Wildlife Commission), offered a mini-version of their workshop *Thinking Like a Manager* at the 2nd international conference on human dimensions in fish and wildlife management, held in Estes Park, CO in early fall 2010. Twenty people participated in the workshop, representing agencies and NGOS from several countries worldwide.

In January, Dan Decker and several colleagues from the Florida Fish and Wildlife Commission co-taught a four-day *Thinking Like a Manager* workshop in Florida. Dan, Shawn Riley and John Organ also led an *Adaptive Impacts Management* workshop for leaders in the Florida Fish and Wildlife Commission in January.

Related Publication:

Decker, D.J., W.F. Siemer, S.J. Riley and K.M. Leong. 2010. *A Guide to Developing a Manager's Model from Scratch* (3rd edition). Human Dimensions Research Unit, Department of Natural Resources, Cornell University, Ithaca, NY. 59pp.

Associate Editors

Bill Siemer served as an Associate Editor for the journal *Ursus*.

Shorna Allred served as an Associate Editor for *Society and Natural Resources*.

Leadership and Advisement in Professional Societies

Shorna Broussard Allred served as the Chair of the Society of American Foresters Committee on Forest Policy and is Vice-Chair of the Society of American Foresters Private Forestry Working Group.

Dan Decker was elected a Fellow of The Wildlife Society.

Environmental Education Leadership Roles

HDRU PhD Student Ashley Dayer continued to serve in regional, national and international bird conservation leadership roles, including Chair of the Bird Education Alliance for Conservation (www.birdedalliance.org); Chair of the Education and Communications Working Groups of Partners in Flight (www.partnersinflight.org); Chair of the Communications Team for Partners in Flight's Tri-National Vision for Landbird Conservation (www.savingoursharedbirds.org); Communications Team member for the U.S. State of the Birds (www.stateofthebirds.org); and Communications Committee member for the North American Bird Conservation Initiative (www.nabci-us.org); Steering Committee Co-Chair for the Bird Conservation Conference in the Northeast (www.birdconservationconference.org).

Related Publications:

Berlanga, H., Kennedy, J.A., Rich, T.A., Arizmendi, M.C., Beardmore, C.J., Blancher, P.J., Butcher, G.S., Couturier, A.R., Dayer, A.A., Demarest, D.W., Easton, W.E., Gustafson, M., Inigo-Elias, E., Krebs, E.A., Panjabi, A.O., Rodriguez Contreras, V., Rosenberg, K.V., Ruth, J.M., Santana Castellon, E., Vidal, R.M., Will, T. (2010). *Saving Our Shared Birds: Partners in Flight Tri-National Vision for Landbird Conservation*. Ithaca, NY: Cornell Lab of Ornithology.

North American Bird Conservation Initiative, U.S. Committee, 2010. *The State of the Birds 2010 Report on Climate Change, United States of America*. U.S. Department of Interior: Washington, D.C. 36 pages.

Service on Boards

HDRU Director Dan Decker continued service on the Board of Governors for the New York Sea Grant Institute. He also served on the Great Lakes Fishery Commission Board of Technical Experts, including the core group for GLFC research funding recommendations.

Shorna Broussard Allred was appointed to the American Forest Foundation's Board of Trustees for a 3-year term beginning in 2009.

Service on Committees

HDRU PhD Student Ingrid Biedron was appointed as a committee member of the American Fisheries Society Resource Policy Committee.

Shorna Allred serves on the "Early-Successional Habitat Management Communications Strategy for the Northeast" Subcommittee of the Northeast Habitat Technical Committee. This subcommittee is developing a communications strategy for encouraging behavior change with key stakeholders regarding early successional habitat conservation.

Dan Decker served as chair of the search committee for the Associate Director for Extension, New York Sea Grant/Assistant Director for Coastal Programs, Cornell Cooperative Extension.

Pathways to Success: Integrating Human Dimensions in Fish and Wildlife Management

HDRU Director Dan Decker was co-organizer of the 2nd international conference on human dimensions in fish and wildlife management, held in Estes Park, CO in early fall 2010. Planning is underway for the 3rd conference, slated for 2012. At the 2010 conference, Dan organized and moderated a panel session and discussion of the North American Model of Wildlife Conservation.

Watershed Management Specialist

HDRU PhD student Micah Ingalls led a team of national and international staff in the development of the pilot watershed management programming in Afghanistan's eastern region toward the development of the National Watershed Management Program of the Ministry of Agriculture, Irrigation and Livestock in second half of 2010.

Related Publications:

Ingalls, M.L. (2010) *Pachir Wa Agam Watershed Management Framework*. DAI, United States Agency for International Development (USAID)- Afghanistan and the Ministry of Agriculture, Irrigation and Livestock (MAIL). Kabul, Afghanistan.

Ingalls, M.L. (2010) *Dar-e-Mazar Watershed Management Framework*. DAI, United States Agency for International Development (USAID)-Afghanistan and the Ministry of Agriculture, Irrigation and Livestock (MAIL). Kabul, Afghanistan. 182 pages.

Fellowships

HDRU PhD Student Ashley Dayer was selected as one of four in the first cohort of CALS Land Grant Graduate Fellows in spring 2010. She will serve as a Land Grant Graduate Fellow from Fall 2010 – Spring 2012, incorporating her extension activities to support private landowners in forest management for wildlife habitat, particularly early successional forest habitat, with her dissertation research. Her extension fellowship advisor is Dr. Shorna Broussard Allred.

HDRU students Micah Ingalls (Ph.D.) and Andrew Roe (M.S.) were Doris Duke Conservation Fellowship recipients for 2010-2011. Ingalls and Roe were also awarded National Science Foundation Graduate Research Fellowships.

Society for Conservation Biology Conference

Bruce Lauber and Dan Decker co-organized a session on collaborative conservation at the 2010 conference of the Society for Conservation Biology. They also are serving as guest co-editors for a special issue of *Human Dimensions of Wildlife* drawing upon the papers presented at the conference.

North American Wildlife and Natural Resources Conference

HDRU Director Dan Decker, Dr. Cindi Jacobson (former HDRU doctoral student, currently USFWS Assistant Regional Director for Reg 7--Alaska), and Dr. John Organ (Chief for Federal Aid USFWS Reg 5--Northeast) organized and presented in a day-long workshop on transformative change needs of state fish and wildlife agencies during the 2010 North American Wildlife and Natural Resources Conference in Milwaukee, WI. This workshop was assisted by the Organization of Wildlife Planners. The workshop was attended by approximately 120 agency and NGO leaders, who requested a second workshop in 2011, which Dan, Cindi and John followed up on.

Field Analyst

HDRU PhD Student Micah Ingalls was a field analyst in 2010 for Pennsylvania State University, under funding from the United States Department of Agriculture. He carried out field research amongst USDA staff, local elected officials and county employees in Otsego and Broome Counties, New York, into the nature and perceived causes of agricultural and ecological change since 1930s.

Natural Resources Specialist

HDRU PhD Student Micah Ingalls was a natural resources specialist for CARE International and Ecoagriculture Partners in 2010- for the development of CARE International's global strategy. He carried out literature review of major trends in global natural resources management policy and produced documentary material as a component of the Global Agricultural and Natural Resource Review of CARE International.

Teaching in Natural Resources

HDRU Associate Director Barbara Knuth continued to teach Environmental and Natural Resources Policy Processes (NTRES 4300).

Bruce Lauber continued to teach Natural Resource Planning and Management (NTRES 3300), a core course in the Department of Natural Resources curriculum required of all Natural Resource Majors. The course focuses on the principles of planning as applied to natural resource issues. The 55 students enrolled in the course in 2010 worked together in case study groups throughout the semester to develop management plans for current controversial natural resource issues. Each student played the role of a stakeholder involved in an issue, researched the interests of the stakeholder, and advocated that those interests be reflected in the final plan developed.

HDRU Associate Professor Richard Stedman taught Society and Natural Resources (NTRES 2201) and Human Dimensions of Coupled Social Ecological Systems (NTRES 4940) in 2010.