The All-Bird Bulletin

Bird Conservation News and Information

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Exploring the Human Dimensions of Bird Conservation

Jerome Ford, Assistant Director, Migratory Bird Program, U.S. Fish and Wildlife Service and Gordon Meyers, U.S. NABCI Committee Chair and Executive Director, North Carolina Wildlife Resources Commission

Since 1999, the U.S. North American Bird Conservation Initiative (NABCI) Committee (Committee) has brought partners together to advance coordination and facilitate information sharing on topics of continental significance to bird conservation. NABCI has been the home for discussions that led to the development of tri-national Bird Conservation Regions, expanded all-bird Migratory Bird Joint Ventures, and key advancements in coordinated bird monitoring. In a similar spirit, the Committee invited partners to join in a recent workshop, *Exploring the Human Dimensions of Bird Conservation,* to learn about the science of human dimensions and discuss the shared challenge of engaging a broad and supportive constituency to participate in and support our work.

Birdwatchers at Santa Ana National Wildlife Refuge, Texas. / Steve Hillebrand, U.S. Fish and Wildlife Service

Participants left the workshop impressed with the opportunities before us, but fully incorporating social science information into bird conservation efforts will take time, patience, and require new ways of thinking. Yet, future conservation successes and the relevancy of our organizations depend on our ability to rise to this challenge. We must work cooperatively as a bird conservation community to find innovative ways of applying the tools and knowledge that the human dimensions specialties offer. Beginning with this issue of *The All-Bird Bulletin*, the Committee looks forward to continuing these important conversations and working together to use the science of human dimensions for the benefit of birds and their habitats.

The NABCI Human Dimensions Workshop

Allison Vogt, Migratory Bird and U.S. NABCI Coordinator, Association of Fish and Wildlife Agencies and Ashley Dayer, Cornell Laboratory of Ornithology

Recognizing the growing interest among many bird conservation partners in integrating the science of human dimensions into the business of bird conservation, the U.S. NABCI Committee (Committee) hosted a workshop for 50 leaders in bird conservation on February 12-13, 2013, in Arlington, Virginia. The workshop

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brought together human dimensions research experts, who vary in their theoretical approaches, with agency leaders, who use human dimensions information to achieve their conservation goals. This issue of *The All-Bird Bulletin* presents articles given at the workshop from both research and applied perspectives.

The goals of the workshop were to:

1. Inform bird conservation leaders on the breadth of human dimensions research as it relates to bird conservation constituencies;
2. Develop a collective understanding of the varying levels of public engagement in bird conservation—from supportive attitudes to financial support and advocacy—and what drives these levels of commitment;
3. Learn how human dimensions research has been successfully applied to bird conservation programs;
4. Use real-world examples of decisions made by bird conservation professionals to share ideas on how human dimensions information can influence policy, program design, and messaging among bird conservation agencies and organizations; and
5. Develop recommendations to guide future collaboration between the human dimensions research community and bird conservation agencies and organizations.

The workshop was organized by the Committee, along with planning team members (in alphabetical order): Mike Anderson, Brad Bortner, Ashley Dayer, Cal DuBrock, Dale Humburg, Kacie Miller, Dean Smith, and Allison Vogt. Leaders were invited from the Committee, the NAWMP Plan Committee, and the National Flyway Council. Participants included 22 federal partners from 7 agencies, 11 state partners from 7 state agencies, and 15 non-governmental organizations, consulting, or academic partners from 7 organizations. After hearing from presenters, participants took part in breakout sessions to work through conservation case studies that required the use of human dimensions information, and developed recommendations for how to gather and use this information to help address the issue.

According to post-workshop evaluation survey results, all participants found the workshop to be valuable and agreed that it increased their knowledge of human dimensions research. In addition, nearly all participants, who were not human dimensions experts themselves, reported that they are more likely to collaborate with human dimensions researchers in the future. Finally, 85 percent of workshop participants believed it is "very important" for the bird conservation initiatives to enhance linkages between bird conservation biologists and human dimensions researchers.

Where do we go from here? The NABCI workshop was designed to spur conversation on how partners might apply social science tools and knowledge to enhance bird conservation efforts. Workshop participants brainstormed a variety of next steps to enable partners to continue to broaden their understanding of human dimensions and its application to bird conservation, including:

- Foster collaboration among major bird conservation NGOs to identify shared needs and develop a joint survey to assess how to better engage their membership in conservation action.
- Promote the creation of a task force (through AFWA or other organization) to develop recommendations for furthering the integration of human dimensions into wildlife conservation.
- Host a webinar series that highlights case studies where human dimensions research has been successfully integrated into wildlife conservation program development and decision making.
- Identify or develop a forum to share the state of human dimensions understanding with wildlife conservation administrators.
- Create and share a directory of human dimensions professionals working within bird conservation agencies and organizations.

According to the evaluation survey following the workshop, each of these five next steps were thought to be "useful" by at least 90 percent of the workshop participants. The U.S. NABCI committee welcomes broad involvement in these continued discussions and looks forward to collectively moving ahead. For more information, contact Allison Vogt at avogt@fishwildlife.org.

The Human Dimensions of Bird Conservation

Ashley Dayer, Cornell Laboratory of Ornithology & Cornell University Human Dimensions Research Unit

While discussions about the importance of studying the human dimensions of bird conservation are becoming more common, if you do not quite understand this term, you are not alone. This *All-Bird Bulletin* issue aims to build on a recent NABCI workshop that brought together human dimensions experts and bird conservation leaders to build our shared understanding of the human dimensions of bird conservation. After reading this issue we hope that you will join the workshop participants in better understanding human dimensions and the role research in this field might play in the future of bird conservation.

What is human dimensions? Human dimensions, defined broadly, is: "everything in conservation that is not about wildlife and habitats" (adapted from Decker, Riley, & Siemer, 2012). Or, more specifically, human dimensions includes what people think and do related to conservation, an understanding of why, incorporation of that understanding into decision making policies and programs, and evaluation of results. In other words, it includes the same strategic habitat conservation elements that the biological side of conservation includes, from research and planning to design, delivery, and evaluation.

Volunteers talk with Refuge employee while planting trees on the Ankeny National Wildlife Refuge, Oregon. / George Gentry, U.S. Fish and Wildlife Service

Thereby, human dimensions research is social science research related to natural resources or conservation. The research pulls from many disciplines, including psychology, sociology, anthropology, economics, communications, education, geography, social marketing, recreation and leisure, political science, and planning. Much of the research in human dimensions is interdisciplinary within the social sciences. Additionally, human dimensions researchers are collaborating on research teams with both social and biological scientists to address conservation challenges.

Human dimensions research is often thought of as only conducting surveys or polls to acquire necessary data and information about the people or issues of interest. Indeed, human dimensions researchers employ mail, phone, web, and face-to-face surveys. But interviews, observation, document or web review, and focus groups are also commonly used. Mixed methods, incorporating both quantitative and qualitative research, are growing in popularity to allow for both breadth and depth of results. (For more information on these methods, see Decker et al., 2012).

Human dimensions research is used to inform the practical applications of education, outreach, and communications. For example, strategic communications and social marketing use human dimensions research results as the basis for recommendations and strategies. The practical applications also extend to conservation planning (e.g., developing ecologically and socially informed goals), stakeholder engagement, conflict management, monitoring and evaluation, and collaborative conservation, as exemplified in the phases of adaptive resource management.

Why is human dimensions relevant to bird conservation? While the field of human dimensions of natural resources emerged in the 1970s and 1980s, it initially focused primarily on recreationists, wildlife conflict, and harvest management by agencies. Broader applications of human dimensions to bird conservation have been more recent. Within the past few years, the national bird conservation initiatives have released conservation plans that call for more extensive human dimensions research. Partners in Flight's *Saving Our Shared Birds* highlights social science research needs and the 2012 North American Waterfowl Management Plan (NAWMP) Revision (entitled *People Conserving Waterfowl and Wetlands*) refers to the three–legged stool of conservation as including people, habitat, and birds. To implement the NAWMP revision's goal of "Growing the number of waterfowl hunters, other conserva-

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tionists, and citizens who enjoy and actively support waterfowl and wetlands conservation," the NAWMP Plan Committee and the National Flyway Council are jointly organizing a Human Dimensions Working Group to address the human dimensions research needs in waterfowl and wetlands conservation.

A group of volunteers work together on a habitat restoration project in the Mobile Bay area of Alabama. / George Gentry, U.S. Fish and Wildlife Service

This growing interest in human dimensions is largely due to the recognition of three important aspects of bird conservation:

1. *The solutions to our conservation challenges don't require changes in bird behavior, they require changes in human behavior.* For example, to address habitat loss, it may be our goal to have more land under conservation easement (an action by landowners) or change land use policy (an action by local planning boards). In order to affect positive changes in human behavior, we must understand the behavior and what causes it, just as we aim to understand bird behavior or population dynamics to inform our conservation design strategies.
2. *Conservation isn't something we do to people, it's what we do for and with people.* This idea is familiar to government agencies that manage land and wildlife for the public and also to non-profit organizations that undertake activities supported by their boards and members. In order to serve our publics or our members, we must understand their interests.
3. *Everyday we make numerous conservation decisions based upon our assumptions of what people think and how they behave.* As we understand people better, our assumptions, and thus our decisions, are better informed. Science-based decision making for conservation must be informed by both the biological and social sciences.

Human dimensions offers theories, methods, and information to better understand people's perceptions and behaviors, the driving forces behind them, and how people's behaviors can benefit or serve as barriers to conservation success. Thus, human dimensions can inform conservation strategies best suited to address the breadth of perceptions and behaviors influencing conservation.

How do we move forward? As we are increasingly realizing, biological science alone will not reverse bird population declines. Given the complex and ever-increasing challenges facing bird conservation, the time is now to gather interdisciplinary teams of social and biological scientists and practitioners, to solve what are inherently interdisciplinary problems involving humans and their interactions with birds and the environment, to secure a bright future for birds and people. For more information, contact Ashley Dayer at aad86@cornell.edu.

Human Dimensions and Bird Conservation: Where Have We Been? Perspectives from Partners in Flight

Terry Rich, Partners in Flight National Coordinator, U.S. Fish and Wildlife Service

In April 1966, a symposium entitled *The Avifauna of Northern Latin America* was held at the Smithsonian Institution. This was one of the foundational conferences for the landbird initiative Partners in Flight (PIF). In the proceedings of that symposium, L. R. Holdridge (of Holdridge Life Zone fame) wrote, "Somehow all people must be induced…to maintain a significant portion of their rich natural heritage for future generations to know at first hand and to enjoy. To do this we have to do more than continue to say some nice words for conservation or create parks on paper."

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2012 North American Waterfowl Management Plan: People Conserving Waterfowl and Wetlands

Dale D. Humburg, Chair, Interim Integration Committee

The 2012 revision of the North American Waterfowl Management Plan (NAWMP or Plan) integrates goals for waterfowl populations, for habitat sufficient to support ducks and geese, and for people who enjoy the birds and the landscapes required by both waterfowl and waterfowlers.

These are not new features of wildlife conservation in general and certainly not to waterfowl management. As modern waterfowl conservation was in the formative stages, Fredrick Lincoln, in testimony to the 75th Congress (1937) observed the key elements of populations, habitat, and waterfowl hunting:

> **Populations:** *"It is my opinion at the present time that we have about a third of the number of ducks and geese that we had 10 or 15 years ago."*
>
> **Habitat:** *"Furthermore, I am not satisfied that we can have the population we had 10 or 15 years ago, as I am not sure we could accommodate them all."*
>
> **People:** *"Nevertheless, I am satisfied that we are steadily progressing toward the time when we can enjoy reasonable sport."*

The 2012 NAWMP revision includes an explicit goal related to people who enjoy and actively support waterfowl and wetlands conservation. / Dale Humburg

Lincoln's observations of the status of waterfowl and habitat acknowledged the depressed conditions of the day but also expressed optimism for waterfowl's future. An expectation for improvement was also apparent in the 1986 NAWMP when the Plan's authors projected that meeting the Plan goals *"would provide the opportunity for 2.2 million hunters in Canada and the United States to harvest 20 million ducks annually. The harvest would include 6.9 million mallards, 1.5 million pintails and 675,000 black ducks. It would also provide benefits to millions of people interested in waterfowl for purposes other than hunting. An overall objective of management agencies is to accommodate the diverse public interests in waterfowl and to assure that all citizens can benefit from abundant waterfowl populations."*

Green-winged Teal in flight. / Dale Humburg

Objectives for habitat needed to support average breeding populations from the 1970s and a fall flight in excess of 100 million provided benchmarks for the Plan. Numeric population objectives, along with landscape-level Joint Ventures to deliver habitat conservation with resources leveraged through partnerships, were unprecedented approaches to conservation planning that have since become the model for wildlife conservation.

"People" objectives were also implied in the 1986 Plan. Harvest levels, hunter numbers, specific mention of species like mallards, pintails, and black ducks, and benefits to millions of people beyond waterfowl hunting were assumed to be important outcomes; however, specific strategies for achieving them were not outlined. Even as the NAWMP was updated to broaden the partnership (Mexico added in 1994), to include wetland-dependant species other than waterfowl (1998), and to strengthen the biological foundation (2004), human dimensions goals were not front and center.

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Thus, the fundamental goals of the 2012 NAWMP revision are notable in two important ways: (1) continued emphasis on the traditional strengths of healthy waterfowl populations and habitat to support them and (2) an explicit goal for waterfowl hunters, other conservationists, and broad support for conservation.

Goal 1: Abundant and resilient waterfowl populations to support hunting and other uses without imperiling habitat

Goal 2: Wetlands and related habitats sufficient to sustain waterfowl populations at desired levels, while providing places to recreate and ecological services that benefit society

Goal 3: Growing numbers of waterfowl hunters, other conservationists, and citizens who enjoy and actively support waterfowl and wetlands conservation

Waterfowl habitats provide important places for people to recreate as well as ecological services that benefit society. / Dale Humburg

Despite recent years' breeding duck populations at or above record levels, concern for the future of waterfowl resources remains. Wetlands in several key landscapes are being lost at a high rate, and grasslands essential for breeding ducks on the prairies also are declining much faster than nesting cover is restored or protected. And threats to these landscapes are growing as human populations increase, water quality and quantity continues to erode, energy issues often predominate land use decisions, and a changing climate presents long-term pressures that only exaggerate current threats. The traditional support base from waterfowl hunters has declined to half the level of the 1970s, and overall, budgets are not keeping pace with the challenges facing waterfowl resources.

Fundamentally, the 2012 NAWMP revision brings particular focus to the need to integrate waterfowl management efforts. The singular strengths of habitat delivery and harvest management, accomplished through Joint Ventures and Adaptive Harvest Management, were notable advances in waterfowl conservation during the last few decades. However, further specialization in these areas without efforts to integrate objectives and strategies can lead to inefficient use of limited human capital and budget resources. Explicitly aligning objectives for traditional and expanded constituencies with those for habitat and population management is needed to complete the integration among fundamental goals of the 2012 NAWMP revision.

Key actions planned for implementation of the 2012 NAWMP include "re-visioning" waterfowl population goals and developing measurable objectives for waterfowl hunters, waterfowl viewers, and conservation supporters. These in turn will be stepped-down to regional habitat objectives. Landscape priorities will be based on integrating knowledge of the biological needs of waterfowl with the roles of landscapes to support human dimensions objectives. Obviously, there will be tradeoffs, and a deliberate assessment of the value the waterfowl community places on each objective will determine the initial balance of resource allocation.

A Human Dimensions Working Group, chartered by the NAWMP Committee and the National Flyway Council, will bring social science to bear on the challenge of integrating people into population and habitat management. The 1.3 million active waterfowl hunters in the U.S. and Canada combined with the more than 13 million people who travel to view waterfowl—and the potential for even broader public backing—represent the present and future base of support for waterfowl conservation. Growing that support, through programs that are well-informed by human dimensions research and actively adapted to a changing social landscape, will be essential.

For more information, contact Dale Humburg at dhumburg@ducks.org.

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Forty-three years later, we have still not fully figured out the "somehow." Our natural human tendency is to do things how we've always done them. But as traditional ways of attracting Americans to wildlife appreciation and conservation action are clearly no longer working as well as they used to, it's time to figure out how to "induce," if not all people, at least *a lot more* people to help maintain their rich natural heritage.

For Partners in Flight, the various agreements, documents, and brochures that helped launch the partnership in 1990 were focused on biological science objectives—research, monitoring, and habitat management. Education, outreach, and communications were typically last in a given list of priorities and objectives. Human dimensions research to better understand our audiences was nowhere to be seen. Certainly, International Migratory Bird Day, created in 1993, has been hugely successful in getting our messages out to people across the Western Hemisphere. PIF has also had some form of an Education Working Group over all these years. But we have not often asked people what they value, want, or need to do bird conservation. And we've not closely explored or defined the "somehow." Although there are a few exceptions as described below.

In April 2005, PIF organized a meeting among Oregon-Washington PIF, California PIF, and a number of public land managers and biologists from those three states. PIF asked them what information and tools they needed to do a better job of bird conservation on public lands. This most basic dialogue was hugely informative, easy, and very exciting. That meeting was a real turning point for PIF, especially in the West. The Decision Support Tool movement and the Avian Knowledge Alliance emerged from this meeting as well as an appreciation for the tremendous value of simply asking people what they need.

PIF and the Council for Environmental Education convened the first-ever conference among bird conservationists and educators—*Bird Conservation Through Education: A National Gathering*—near Austin, Texas, in April 2007. For most of the ornithologists who had been involved in PIF from the outset, this was our first exposure to the theories, ideas, and methods of human dimensions. It made so much sense. I recall thinking, "Of course, this is how you go about working with people to achieve conservation."

One immediate result of this seminal conference was the formation of two new partnerships—the Bird Education Network, or BEN(http://www.birdeducation.org/), and the Bird Education Alliance for Conservation, or BEAC (http://www.birdedalliance.org/). PIF is part of both of these partnerships. BEN is led by the Council for Environmental Education, creators of Project WILD, Flying WILD, and Growing Up WILD. This partnership focuses on educational activities for K-12 students that are implemented through teachers, nature centers, aquaria, and other local environmental educators. BEAC is closely aligned with PIF's conservation activities and is focused not only on promoting bird education, but also developing effective ways to implement bird conservation through education, defined broadly. As we now understand it, human dimensions is much more than education. But, if done well, education can be an effective means of reaching certain of our target audiences.

The 2007 conference also motivated PIF to require human dimensions content in every one of its 48 sessions in the February 2008 PIF conference, *Tundra to Tropics: Connecting Birds, Habitats and People*, in McAllen, Texas. For the first time, these issues were discussed on the same level as research, monitoring, and habitat management. A specific outcome was a paper synthesizing the 144 needs entitled, *Partners in Flight Education, Outreach, and* Communication Needs Assessment (Dayer et al. 2009).

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Also in 2008, PIF surveyed users of the *PIF North American Landbird Conservation Plan* (2004) that asked them various questions about what they found most and least useful in that document. This was done to inform the content of the 2010 plan, *Saving Our Shared Birds: PIF Tri-National Vision for Landbird Conservation* (http://www.savingoursharedbirds.org/). We learned that users preferred information in concise and clear formats such as maps, color-coded tables, and graphs, and that text boxes, examples and case studies were better than long runs of text. In the *Saving Our Shared Birds* chapter entitled, "Human Dimensions and Bird Conservation," we wrote quite simply, "We know very little about how and why people relate to birds and bird conservation issues."

Also in 2008, the Klamath Bird Observatory created a survey for public land managers in the Pacific Northwest to discover what bird conservation information and tools they needed to better carry out conservation actions on public lands. The U.S. Forest Service (USFS) provided a particularly good response. A subsequent presentation of results to USFS leadership resulted in agreement that this survey was valuable enough to apply across the agency. U.S. Fish and Wildlife Service leadership supported a similar survey of their agency. Both surveys will hopefully be implemented by mid-2014.

Children birdwatching on a tour through John Heinz National Wildlife Refuge, Pennsylvania. / La Vonda Walton, U.S. Fish and Wildlife Service

PIF also is proposing a series of participatory workshops that (1) demonstrate how science-based bird conservation tools can be applied to improve ecosystem management, adaptive management, and strategic habitat conservation, and (2) engage conservation scientists, natural resource managers, and policy makers to collectively identify actions to resolve ecological stewardship challenges.

In 2010, PIF, BEAC, Cornell Lab of Ornithology, and the Association of Fish and Wildlife Agencies surveyed state wildlife agency biologists to discover what bird conservation information and tools they needed that could be delivered via webinars. This informed a series of eight webinars during 2010-2012. Visit http://www.partnersinflight.org/AFWAwebinars.cfm for information on topics covered during this series.

Environment for the Americas (EFTA) is helping organizations reach the growing Latino population through the results of its four-year research project on the barriers to participation by Latino audiences in public nature and science programs. Using International Migratory Bird Day as the focus of the research, EFTA identified tools that are critical to motivating participation and is making this information available on the web at http://www.birdday.org/connecting cultures.

One final recent development has been discussions between the American Birding Association and PIF on the question, "How do we get more birders involved in bird conservation?" This will almost certainly lead to additional scientific surveys of American birdwatchers, which is greatly needed, as other authors in this issue of *The All-Bird Bulletin* attest.

PIF has slowly but steadily come to realize that we must understand the values and needs of the diverse communities of people who affect birds. These include professionals engaged in bird conservation through their day-to-day jobs, landowners managing and using the habitat birds also need, and wildlife viewers watching and feeding birds in their spare time. Undoubtedly, these groups are not monolithic—their values, needs, and motivations are more varied than we might guess, as described in several articles in this newsletter. Human dimensions methods promise to help us gain the understanding we—all NABCI partners—need. We truly are all in this together. The only thing more exciting than being more effective in our work is having more birds in the world in the end.

For more information about Partners in Flight and its work in human dimensions, contact Terry Rich at terry_rich@fws.gov

Human Dimensions for Wildlife Management in Canada

Dean G. Smith, North American Waterfowl Management Plan (NAWMP) Coordinator/Wildlife Liaison, Association of Fish and Wildlife Agencies

The concept of human dimensions in wildlife conservation has been defined by Manfredo et al. (1998) as the assessment and application of social information in fish and wildlife decision making. Canadian wildlife policy and management decisions by provincial and federal agencies, have been traditionally driven by constituent opinions on an issue-by-issue basis. Aboriginal rights and values also have been a key element of wildlife management on treaty lands. The more preemptive approach to understanding the social aspects of wildlife management through human dimensions research, especially for bird conservation, has had limited application in Canada. Formal human dimensions research has more traditionally been employed in the forestry and tourism sectors. This paper presents a brief summary of approaches used by Canadian wildlife management agencies to incorporate social issues into decision making.

The Prime Minister of Canada announced in May 2012 that, "The Government of Canada recognizes that hunting, angling and trapping are central to the livelihood, traditions and recreational choices of many Canadians, and that they are central to local and regional tourism industries." He also announced the creation of the new Hunting and Angling Advisory Panel to help ensure that future conservation practices—including the protection of endangered species—are based on input from Canadians who have a long tradition of conservation. These statements indicate there is a clear commitment to incorporate social information into the federal government's future management and conservation of wildlife resources.

Canadian Prime Minister Stephen Harper. / Office of the Prime Minister

The Value of Nature to Canadians project, a federal-provincial-territorial study currently underway, has identified that nature is important because it is considered to be part of Canadians' self-identity and history. Canadians consider nature to be important because it is the basis of their society's functioning in terms of resource and energy needs. Furthermore, nature is important for spiritual, aesthetic, recreation, economic, artistic, business, tourism, quality of life, and other reasons. There has, however, been a decline in regular contact and experience with nature by Canadians.

Aboriginal rights and values are a key element of human dimensions in Canada. Aboriginal hunting and fishing rights are protected under the Indian Act of 1876, the Constitution Act of 1930, and the Constitution Act of 1982. The Natural Resources Transfer Agreement (part of the 1930 Constitution Act), states that, "Indians shall have the right, which the Province hereby assures to them, of hunting, trapping and fishing game and fish for food at all seasons of the year on all unoccupied Crown lands and on any other lands to which the said Indians may have a right of access." Modern-day agreements or treaties inextricably link wildlife management to human dimensions. For example, in the Yukon, an objective within Chapter 16 of the First Nations Umbrella Final Agreement is "to ensure equal participation of Yukon Indian people with other Yukon residents in fish and wildlife management processes and decisions."

Participation in territorial wildlife management is by means of public bodies (i.e. Yukon Fish and Wildlife Management Board) and for each Traditional Territory, a Renewable Resources Council. Processes have evolved to integrate science, local, and traditional knowledge to inform wildlife management. The Arctic Borderlands Ecological Knowledge Co-op, for example, has assembled and used local and traditional knowledge, thus people now have a longer seasonal encounter with waterfowl on their nesting grounds, and they are more in-tune with annual trends and anomalies. The Inuit people of Nunavut are conferred harvesting rights through the Nunavut

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Land Claims Agreement. The agreement requires wildlife management systems to incorporate human dimensions to serve the economic, social, and cultural interests of Inuit harvesters and must invite public participation and promote public confidence.

The University of British Columbia recently surveyed the attitudes, beliefs, and opinions of residents about species at risk. The majority of citizens surveyed were concerned or very concerned about the loss/extinction of animals and plants in British Columbia (Fig. 1). They also believe more opportunities are needed for input into natural resource management decisions (Harshaw, 2008).

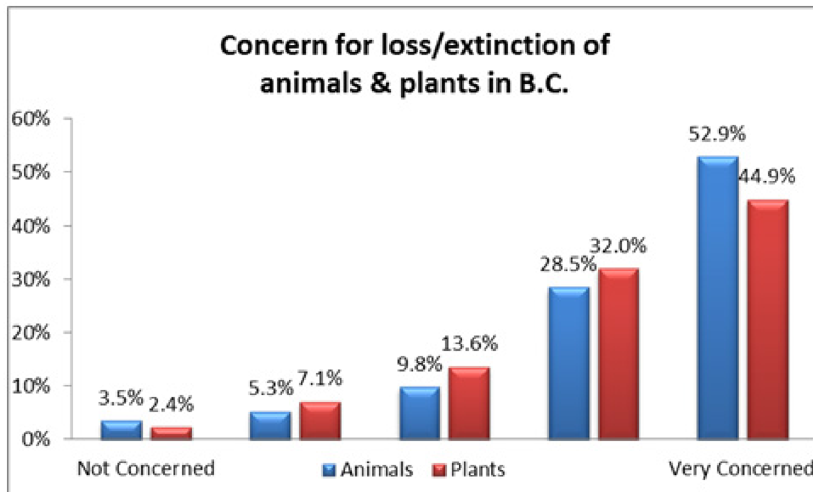

Figure 1. Source: adapted from Harshaw (2008)

In Manitoba, the government administers the Crop Damage Prevention Program to encourage landowners to protect crops from waterfowl damage. It is strongly believed that the program enhances farmers' involvement in the conservation of waterfowl. As a result, non-government organizations and the government are better able to secure, enhance, and manage habitat under the North American Waterfowl Management Program.

The Ontario Ministry of Natural Resources has undertaken human dimensions research centered on understanding relationships between outdoor recreation, nature-based tourism, and forest management. They have focused on understanding and predicting behaviors, primarily related to recreational fishing. Coupled social-ecological systems have been developed to formally account for the fact that recreationists affect resources (such as wildlife) and changes to resource conditions affect recreationists' behaviors.

Wildlife management in Canada tends to be reactive toward stakeholder input. For example, the Department of Natural Resources in New Brunswick does not routinely undertake human dimensions research in their program or policy efforts. They do, however, consider social issues related to nuisance wildlife to effectively guide management strategies and actions (e.g. nuisance Canada Goose populations). Newfoundland & Labrador's moose management activities are highly influenced by moose vehicle collisions. The province has employed a process involving facilitated public engagement sessions, an open web survey, a random web-based survey, and the opportunity for the public to make written submissions. A qualitative assessment of the results will help inform the development of a long term moose management plan.

In recent years, most provincial governments have used public/stakeholder consultations for wildlife issues, Crown forest management, and expansion of Protected Natural Areas. Overall there is growing interest in adopting more structured and strategic human dimensions research.

For more information, contact Dean Smith at dsmith@fishwildlife.org.

Understanding Conservation Activities among Birdwatchers Using the Recreational Specialization Framework

David Scott, Professor, Department of Recreation, Park and Tourism Sciences, Texas A&M University

Popular media sometimes portrays birdwatchers as highly driven to identify rare birds and add new birds to large life lists. In reality, these activity orientations are representative of a very small fraction of people who enjoy watching birds. Kellert (1985) estimated that only three percent of the birdwatching population could identify 40 or more birds. He also reported that only 30 percent of people who watch birds use binoculars and only 4 percent used a field guide. As a point of departure, I argue that birdwatchers are a heterogeneous group of recreationists, exhibiting a diversity of skills, interests, and commitments. Understanding this diversity yields insight into the potential conservation activities of birdwatchers.

Birdwatching participants can be categorized as casual, interested, active, and listers, according to Scott, Lee, Lee (2009). / David Scott

A useful framework for understanding diversity among birdwatchers is *recreational specialization*. Hobson Bryan (1977) defined recreational specialization as "a continuum of behavior from the general to the particular, reflected by equipment and skills used in the sport, and activity setting preferences." More simply, recreation participants can be arranged along a continuum of involvement from "casual" to "serious" as reflected by their behavior, skills, and commitment. Bryan observed there are characteristic styles of participation. These styles of involvement tend to reflect typical stages of involvement through which people progress the longer they participate in an activity. Researchers have documented that as people progress from one stage to another, their motivations, resource preferences, and attitudes about management practices change as well.

A modest number of studies have used the recreational specialization framework to understand the attitudes and behaviors of North American birdwatchers. A major contribution these studies have revealed is that only a small fraction of people become highly committed to birdwatching and very few regard birding as a central life interest. In a study of birdwatchers in Alberta, Canada, for example, McFarlane and Boxall (1996) reported that only 7 percent of birdwatchers could be described as advanced participants. Intermediate birdwatchers made up 12 percent of their sample, while the rest were either what they referred to as novices (38 percent) or casual participants (43 percent). Scott and Thigpen (2003) likewise reported that visitors to a popular birdwatching festival in Texas were overwhelmingly on the casual end of the recreational specialization continuum.

Significantly, birdwatchers' conservation activities change as they become increasingly committed to the activity. One mechanism driving change in conservation attitudes and behavior is that birdwatchers increasingly take on the values and attitudes of other participants. Another mechanism driving change is that involvement in birdwatching leads to greater knowledge and affinity for natural resources and bird habitat. All of this suggests that progression in birdwatching entails heightened understanding of environmental degradation and resource impacts, increased interest in protecting natural resources, and a greater tendency to engage in conservation-related activities.

McFarlane and Boxall (1996) provide compelling evidence of how specialization impacts conservation attitudes and behavior. They reported that advanced and intermediate birdwatchers were far more likely than causal or novice birdwatchers to keep notes about bird activities. For example, 63 percent of advanced birdwatchers re-

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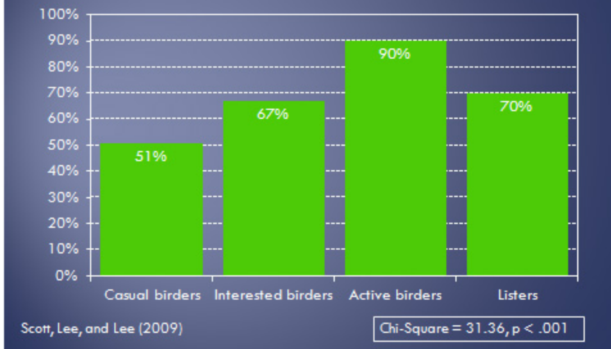

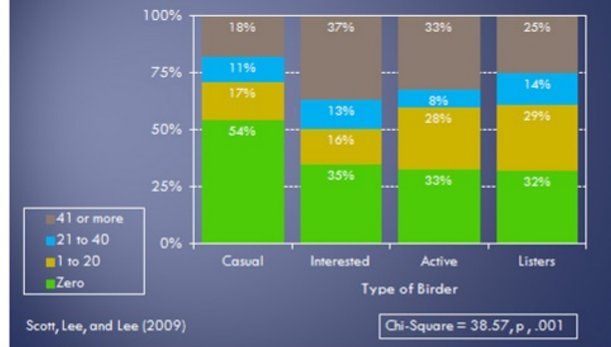

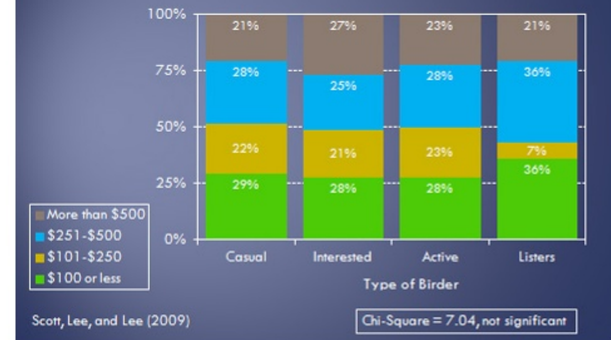

ported keeping notes about birds, compared to only 9 percent of casual participants. An advanced style of participation was also positively related to taking part in bird censuses, photographing, drawing or painting birds, and leading bird walks and/or giving presentations about birds. McFarlane and Boxall also reported that specialization among birdwatchers in Alberta was associated with the number of organizations to which they belonged, the number of hours they volunteered for conservation, and the amount of money they donated to conservation organizations and preserving wildlife habitat.

Results from a study of the American Birding Association (ABA) extend our understanding of how specialization is related to conservation attitudes and behavior. Historically, the organization has attracted birders who evince keen interest in listing and chasing birds. Using the recreational specialization framework, colleagues and I collected data (Scott, Lee, Lee, 2009) from a cross-section of members and found that they can be categorized as causal birders (37 percent), interested birders (53 percent), active birders (6 percent), and listers (4 percent). We found that specialization was strongly related to conservation behavior *but only to a point.* In this case, active birders were the most likely to participate in conservation activities, followed by interested birders, then listers and finally casual birders. For example, 33 percent of active birders reported they had served as an officer of a local bird club or Audubon chapter, compared to 24 percent of interested birders, 20 percent of listers, and 13 percent of causal birders. Similar patterns were evident for other conservation activities, including giving presentations about birds, taking part in a breeding bird survey, and keeping notes about bird activities.

Here are some general conclusions about conservation activities among birdwatchers. First, as birdwatchers become increasingly specialized, they tend to develop a conservation ethic as reflected by their attitudes and behavior. Second, simply getting people interested in watching birds may be sufficient in inculcating a conservation ethic. The point here is people do not need to become serious or fanatical birdwatchers to acquire a heightened awareness and interest in bird conservation. Finally, hard core listing may be antithetical to bird conservation. Birders who are interested in simply adding birds to a life list may not be focused on short-term or long-term habitat needs of birds. A general study of birdwatching and conservation behavior in the United States is needed to further explore these issues to better inform bird conservation outreach and education programs.

To learn more, visit http://people.tamu.edu/~dscott/601/musings.shtml or contact David Scott at dscott@tamu.edu.

Using Identity Theory to Explore Birders' and Waterfowl Hunters' Connections and Disconnections with Conservation

Jody W. Enck, Research Associate, Human Dimensions of Natural Resource Conservation, Cornell Laboratory of Ornithology

We all have heard the adage: "If we just can connect more people to birds, more people will become passionate about helping birds and getting involved in bird conservation." As conservation practitioners, though, we need to understand whether this adage really is true. And even if people are willing to get involved in bird conservation, what do they think that means?

Children watching birds with binoculars. / BirdSleuth K-12 Education program at the Cornell Lab of Ornithology

These kinds of things matter to conservationists because "doing conservation" can involve several different kinds of activities: supporting conservation policy, participating in conservation science, and helping with conservation practice. Supporting conservation policy pertains to getting birders and hunters to help fund and participate in advocating for bird-friendly policies and laws. Participating in conservation science is all about helping to gather data about birds, bird habitat, and bird migration, perhaps through various citizen science programs or by engaging in bird banding efforts, or running breeding bird surveys. Helping with conservation practice is about getting your hands dirty in habitat management efforts or by harvesting overabundant snow geese. In other words, there are many different actions that birders and waterfowl hunters can take to support bird conservation. The question is: Do any of these possible ways of getting involved in conservation actually resonate with birders or waterfowl hunters? And if not, why, and how do we as conservationists motivate them to participate?

As Ashley Dayer already pointed out elsewhere in this issue (Pages 3-4), human dimensions inquiry can help conservationists determine what birders and hunters think and do and why they think and do those things. This information then can be used to improve conservation education and communication as well as opportunities for people to get involved in bird conservation. Human dimensions experts rely on a broad suite of social science theories and methods as a foundation for inquiry. One social science theory that is helpful in the context of understanding birders' and hunters' connections and disconnections with conservation is identity theory.

Identity theory is particularly useful for exploring two questions. First, what does it mean to be a birder (or a waterfowl hunter)? Second, how does someone become a birder (or waterfowl hunter)? In practical terms, a person develops an identity as a birder (or a waterfowl hunter) through a relatively long recruitment process involving a combination of individual motivation and group socialization. In general, people may know about the activities of birding or waterfowl hunting, but they start out unaware that "being a birder" (or waterfowl hunter) can be an identity rather than simply an activity that they might do. Potential birders (or hunters) are aware that "being a birder" is defined more by who you are—what you think and feel about birding (or hunting)—rather than whether you go bird watching (or hunting), but they have not yet started to develop the traits associated with being a birder. People who are actively engaged in developing those traits, along with the technical skills, knowledge, and understanding of the social norms associated with being a birder, can be referred to as apprentice birders. If people complete the process of developing the traits associated with being a birder, and cross over that identity threshold where both the individuals and others know they are birders, then they can be considered recruited into a population of birders.

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Note that people who participate in birding (or hunting) could fall into any of these stages because the activity does not define the person from an identity theory perspective. Further, identity theory also helps us understand that some people may be identity resisters because the traits they have come to associate with "being a birder" (or waterfowl hunter) are very different from their own personal motivations for interacting with birds.

How do people become potential birders or waterfowl hunters and how do they progress through the identity development process? Some answers have emerged from three studies of waterfowl hunters which I helped conduct in New York (2006), Louisiana (2009), and throughout the Mississippi Flyway (2011), and from the first ever study of birder identities currently being conducted at the Cornell Lab of Ornithology These studies have determined that, among waterfowl hunters and birders, more than 200 identity-defining traits exist. Most identity types (regardless of whether you are talking about hunters or birders) have a core set of about a dozen traits, and some of these traits overlap among identity types. Importantly, the conservation trait occurs in a minority of waterfowl hunter identity types, and an even smaller proportion of birder identity types.

Hunters (and birders) are produced through activities or events that may be referred to as "rites of passage."/ Jody W. Enck

Whether you are talking about birders or waterfowl hunters, characteristic traits are produced through activities or events that may be referred to as "rites of passage." When individuals refer to physical hardships as "character building," they are designating those experiences as rites of passage that might build particular traits like perseverance, tenacity, or some level of skill. Birding in a hurricane or winter storm, recognizing a rare bird in a flock of more common species, or helping others identify birds by sound all could be rites of passage.

From an identity development perspective, the most important finding is that rites of passage and the behaviors associated with them are facilitated by specific combinations of groups, individuals, and institutions. These include: (1) state and federal wildlife agencies; (2) manufacturers and retailers of hunting/birding equipment; (3) outdoor press; (4) family members; (5) hunting/birding companions; (6) local hunting/birding clubs; (7) state and national hunting/birding organizations; (8) professional guides; and (9) hunters/birders themselves.

We still are analyzing data from the birder identity study, but we have determined that about a dozen different identity types occur among waterfowl hunters using a hierarchical cluster analysis. Here are a few examples.

One type of waterfowl hunter might be labeled as a Politically-connected Hunter. This type of hunter is skilled and experienced and gets actively involved in doing conservation work and being conservation leaders themselves. They think of conservation leadership in terms of political support for hunting, public recognition of the role of hunters as conservationists, and the establishment and enforcement of standards for hunting safety, ethics, and competency. Of all the types of waterfowl hunters, these are the folks most likely to participate in the emergency conservation actions aimed at reducing the populations of mid-continental Light Geese because they believe that waterfowl hunters are by and large, conservationists. Perhaps many people reading this article think about conservation and conservation leadership in similar ways. However, most rank-and-file waterfowl hunters do not. In fact, these Politically-connected Hunters think about conservation leadership quite differently from most waterfowl hunters, and they represent less than 10 percent of all waterfowl hunters.

Another type of waterfowl hunter might be called a Close-knit Community Hunter. This kind of hunter operates within a social hierarchy of family members, hunting companions, and themselves. Within this social hierarchy, the more experienced and skilled members teach and encourage the less experienced. There is quite a bit of local control by the people at the top of the hierarchy over what it means to be a hunter and how people become

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hunters. Close-knit Community Hunters might do habitat work locally. They think of conservation leadership as facilitating their efforts to make decisions about what it means to be a hunter and what they do as hunters within the group and at the local level. For example, dads and grandfathers show conservation leadership by setting informal rules about which ducks can be taken (e.g., only "green heads" or "bull sprig") or how they can be taken (e.g., only shoot at ducks coming into decoys, don't shoot at birds flying away because they are more likely to be crippled). Close-knit Community Hunters are not looking for some centralized set of standards. They only want general conservation guidelines within which they can operate. This groups accounts for about 10-15 percent of all waterfowl hunters.

A third kind of waterfowl hunter might be called a Highly-Dependent Hunter. Persons in this type rely on a combination of many different groups so that they can be hunters. They rely on others because they do not want to have to work hard at becoming hunters themselves. Developing shooting skill or the ability to know how and where to set out decoys or how to identify ducks in flight all take time and commitment, but these hunters rely on wildlife agencies or their hunting companions for access, the outdoor press for how-to information, professional guides or companions for specifics about where and how to set up in the field, and the hunting industry for the best possible hunting equipment. These Highly-dependent Hunters believe all hunters are about equal, and they want to have equal opportunities even if they don't have the skill, knowledge, or time to take advantage of those opportunities. For example, they think that access to private land should not be restricted to people the landowner knows and trusts, rather it should be open to anyone who is willing to pay for it, and that opportunities to shoot at ducks shouldn't have to be earned by playing the role of retriever for a season or two.

The Politically-connected Hunter is skilled and experienced and gets actively involved in doing conservation work and being conservation leaders themselves. / Jody W. Enck

These Highly-dependent Hunters are apt to donate money to conservation causes, but are not very likely to get involved in conservation in other ways. They think about conservation leadership in terms of somebody else setting the standards and defining what it means to be a hunter. They have no expectation of becoming a hunter through a social hierarchy like Close-knit Community Hunters. They have no expectation that they will help develop the standards for other hunters like Politically-connected Hunters. They simply want to be able to meet the standards—as long as they are not too high—whenever they chose to be hunters (e.g., if they have a license and a duck stamp, they should be able to hunt). This group makes up about a fifth of all waterfowl hunters.

Two take-home messages emerge from these findings. First, hunters think of conservation leadership in broader terms than just ensuring the political survival of hunting as an activity and in terms of making sure they have a place to hunt. Second, hunters think of conservation leadership in broader terms than just things that happen during the hunting season. In fact, ensuring that seasons are as long as possible and bag limits are as big as possible are not even part of the conservation leadership expectations for most hunters.

Preliminary analysis of our survey of audiences from the Cornell Lab of Ornithology reveals that the development of birders' identities may differ from the development of waterfowl hunters' identities in some important ways. First, family members seem to be less important overall in the development of birders' identities. Obviously, the tradition of birding is passed down from one generation to the next for some birders just as it is for some hunters, but this mode of transmission is relatively rare among birders we surveyed. Similarly, the birding industry (e.g., manufacturers and retailers of optics, clothing, feeders, and other birding equipment) plays much less of a role in the development of birders' identities than the hunting industry plays in the development of hunters' identities. A relatively small percentage of birders seems to look to the birding industry for guidance about what it means to be a birder. For example, few birders buy into the notion that "real birders" need to have certain kinds of equipment.

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On the other hand, a majority of birders seem to rely on some combination of state/national birding organizations and birding media for guidance about what it means to be birders. The messages they seem to be picking up are that being a birder means having memberships in multiple birding organizations, buying shade-grown coffee, feeding birds as a way of "giving something back to the birds we love so much," and going on local bird walks. We received feedback from about 2,000 birders about how important the idea of bird conservation is to birders and how they think about conservation. Somewhat surprisingly, and despite articles in national birding organization magazines about the importance of conservation policy and actions at the local level, most birders do not seem to associate a conservation trait with being a birder. The minority of birders who do, seem to think about conservation in terms of conservation science—that is, participating in citizen science projects to help monitor bird populations and movements.

Identity theory can reveal some important insights about birders that can help increase their involvement in conservation. / David Scott

In terms of conservation leadership, most birders (like most waterfowl hunters) want to play no role. A minority of birders enjoys participating in conservation science projects, but this minority expects "the experts" to use data collected through those projects to do conservation work. A different minority of birders believes that participation in conservation science actually is antithetical to their idea of what a birder is—for these birders, collecting data is like "selling my soul" because "I interact with birds for me, not for somebody else to use my interaction as data." These surprises are leading us to ask new questions about why so few birders seem to have a conservation trait and why those who do seem to think of conservation so narrowly.

The application of identity theory can uncover important insights about waterfowl hunters and birders for increasing involvement in bird conservation. In particular, identity theory increases our understanding of how broadly waterfowl hunters and birders think about the term 'conservation' and where they look for conservation leadership. This information can be used to craft messages, strategies, and programs that resonate with audiences and to identify the most effective organizations to deliver them.

With this improved knowledge base, conservationists can communicate better with other segments of the population who are not involved in hunting or birding. For example, we can communicate better with the non-hunting and non-birdwatching public about what hunting or birding means from very personal perspectives. How many times have you heard birders say, "all that duck hunters do is have fun shooting as many ducks as they can—what's that got to do with conservation?" How many times have you heard waterfowl hunters say, "all birders want to do is chase after rare birds they've never seen before—what's that got to do with conservation?"

Overall, identity theory can help us better understand why some people support the conservation-related activities of government agencies and NGOs while others do not support those activities. Many waterfowl hunters and many birders are looking for conservation leadership to help them to be hunters or birders e.g., (how to think about the activity and what the traits are), not how to go hunting or birding. Yet the conservation leadership messages heard by many people who don't hunt or bird has more to do with the latter than the former. Further, since we know that hunters and birders look to a broad array of groups for conservation leadership, opportunities exist to enter into new kinds of conservation partnerships with groups and institutions that play important roles in the identity development of these recreationists.

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Integrating Human Dimensions into Bird Conservation: Theory and Practice

Andrew Raedeke, Resource Scientist, Missouri Department of Conservation

Take a moment to think about the strides the bird conservation community has made in addressing large-scale threats to bird populations and the habitats they require. Bird conservation has advanced because it is grounded in ecological science theory and methods, it is guided by plans that provide a framework to link objectives, actions, and monitoring, and it is coordinated across scales to affect landscape-level change. Now take a moment to think about how the bird conservation community addresses participation in bird-associated recreation such as hunting and viewing and support for conservation. The connection between bird conservation and the social sciences or human dimensions is limited, the efforts that do exist are often not coordinated, and a framework to link objectives, actions, and monitors is missing.

In 2007, the National Flyway Council (NFC) and the Wildlife Management Institute (WMI), in partnership with the U.S. Fish and Wildlife Service (USFWS), convened an ad hoc Human Dimensions Working Group and initiated an effort that used a structured decision making approach to address participation in bird-associated recreation, in this case, waterfowl hunting and support for conservation. Although not complete, the effort resulted in an initial draft Waterfowl Hunter Recruitment and Retention Plan. In this article, I describe the approach, which can be applied to broader efforts to strengthen the connection between people and nature. The approach was similar to that used in continental bird plans and by many Migratory Bird Joint Ventures that employ Strategic Habitat Conservation. The major difference is that it is grounded in human dimensions science rather than the natural or ecological sciences. This effort consists of developing a model-based approach to integrate human dimensions theory and practitioner knowledge into a framework to guide hunter recruitment and retention efforts.

Mallard flock at Dalton Bottoms in Chariton County, Missouri. / Glenn D. Chambers

Similar to Migratory Bird Joint Ventures that utilize demographic models to guide habitat conservation, the draft Hunter Recruitment and Retention Plan includes a hunter participation model. It is a generic model depicting social processes and structures that contribute to participation in and support for conservation. Although the model was developed for waterfowl hunting, it could be applied more generally to a variety of outdoor recreation and conservation activities. The hunter participation model draws from the social science disciplines of psychology, sociology, and anthropology and includes three sub-models that focus on: (1) individual decisions to participate; (2) the socialization process that leads to identify formation; and (3) the social processes and structures that create the institutional capacity for hunting and conservation.

At the finest scale, the decision sub-model incorporates recreation motivation-constraints theory to depict the role motivations and constraints play in an individual's decision to participate in hunting and conservation. Examples of motivations for participation include enjoying nature, achievement, and learning, whereas examples of constraints include lack of time, family commitments, or lack of access. Strategies based on the decision-model focus on providing opportunities to fulfill motivations, reduce constraints, or negotiate constraints.

At an intermediate scale, the identity sub-model draws from theory regarding socialization and emphasizes the role social relationships play in hunter or conservationist identify formation. With regard to waterfowl hunting, it is based on the premise that hunting is more than just an activity, but rather an emotional enterprise based on an almost unbreakable psychological and cultural attachment to waterfowl and wetlands. Mentors play a key role in moving individuals through the stages of identity formation. As individuals develop an identity, they play a greater

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role in shaping the very characteristics of the communities or institutions of hunting and conservation. Strategies based on the identity sub-model focus on developing the long-term apprentice/mentor relationships necessary to move individuals through the process of identity development.

At the coarsest scale, the capacity sub-model draws from sociology theories that focus on organizations, institutions, community, and social movements. This sub-model focuses on the social organizations and socio-cultural processes that make hunting and conservation possible. This sub-model assumes that the characteristics of the social organizations, the formal and informal rules and resources that enable hunting, and the culture of hunting are continually redefined as people participate in hunting. Strategies based on the capacity model focus on increasing the economic, social, political, and cultural capital necessary to maintain the institution of hunting.

Young hunter at NISKA Duck Club, Dalton Bottoms in Chariton County, Missouri. / Glenn D. Chambers

Together, the three sub-models provide a holistic perspective of what drives participation. It is assumed that individual decisions to hunt are closely tied to longer-term processes of identify formation. Similarly, as individuals develop an identity, they contribute more to the characteristics of the activity itself through their participation. Many hunters now consider participation in conservation as an important element of what is means to be a hunter. In turn, hunters with this type of identity engage in actions that include both the taking of waterfowl but also giving back to the system by providing social, economic, political, and cultural capital necessary to support hunting and conservation. As the nature or characteristics of hunting continue to evolve through the nature of participation in the activity, it is quite possible that the connections between hunting and conservation could change. For example, it is possible that hunting could become mainly a consumer activity with participants making few contributions back to the institution of hunting (e.g., participate but do not contribute to conservation). As a result, it will be necessary to develop a suite of strategies that not only address elements within each strategy but strengthen the connections between decisions to hunt, identity development, and capacity building.

After developing the models, the draft Hunter Recruitment and Retention Plan proposes conducting a gap analysis to examine current participation trends and the current suite of management activities partners are employing, and to identify the limiting factors that need to be addressed. Through an analysis of license sale data and other long-term data bases, it would be possible to determine the key “vital rates” associated with individual decisions to participate in hunting. For example, in some regions participation dynamics may be influenced by the rate at which new hunters are entering the system. In other regions, dropout rates or “churn” rates may be more important. Similarly, factors limiting identify formation may vary among population segments or geographic regions. Potential examples include a lack of mentors, ineffective mentors, a lack of individuals recognizing the opportunity to become apprentices, or other similar factors that preclude individuals moving through all stages of identity formation. An initial assessment regarding the capacity model should include a review of the current amount and types of capital that maintain the institution of hunting. Through the assessment, strategies could be developed to target specific segments of the hunting or conservation community to generate specific types of capital and to strengthen the connections between participation, identity formation, and capacity formation to ensure they are mutually-reinforcing. The key point of this model-based assessment is to facilitate strategic implementation of actions targeting specific limiting factors rather than taking a more random approach to developing strategies with the hope that some will work.

The overall participation model provides the foundation to link objectives, management actions, and monitoring efforts. The implementation framework proposed in the Waterfowl Hunter Recruitment and Retention Plan suggested using a series of workshops with partners at the regional level to coordinate the following tasks:

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1) To create a shared understanding of what drives participation based both on theory and experience, it will be necessary to adapt the sub-models to incorporate experiential knowledge of partners. This shared understanding would be fostered by first describing the models to partners and then having them adjust the models as appropriate to reflect additional factors that they believe influence participation and support for conservation;
2) Populate the sub-models with available data to quantify current vital rates and limiting factors associated with individual decision making, identify formation, and capacity building;
3) Use an adaptive framework to strategically implement strategies that target limiting factors and address uncertainties associated with individual decision making, identify formation, and capacity building;
4) Implement monitoring to determine the effectiveness of the actions and improve understanding of system dynamics.

Monitoring would likely include two components. First, it would include outcome-based metrics to determine the impacts of specific management actions or programs. Second, it would include metrics to determine changes to key elements in the three sub-models. The initial draft Hunter Recruitment and Retention Strategy proposed tracking changes in numbers of individuals making the decision to hunt through the Harvest Information Program (HIP), tracking the status of identify formation through the addition of an identity question to existing HIP survey, and tracking capacity through Duck Stamp sales plus membership and funding of national conservation organizations.

Young hunter with elder at NISKA Duck Club, Dalton Bottoms in Chariton County, Missouri. / Glenn D. Chambers

This approach will set the stage for the adaptive implementation of recruitment and retention strategies. Through a coordinated approach, key uncertainties could be addressed through the implementation and monitoring of recruitment and retention strategies at multiple scales. Partners could implement adaptive strategies within regions or develop experimental designs across regions. Using a common framework at the continental scale would greatly accelerate learning about what drives participation and ultimately lead to more effective strategies.

At the beginning of this article, I had asked you to reflect on the great strides that have been made in bird conservation. Now think back to where the bird conservation community was before the North American Waterfowl Management Plan, Partners in Flight, the U.S. Shorebird Conservation Plan, Waterbird Conservation for the Americas, other bird conservation partnerships, and the creation of Joint Ventures. State and federal agencies and conservation organizations were all engaged in habitat and population conservation, but there was little shared vision or coordination across scales to affect ecological change at the landscape level. And there was little recognition of the need to address people directly and formally as an integral component in the bird conservation framework.

Today, we are in a similar position with our attempts to address the changing social-ecological landscape. Changes in information technology, globalization, and population growth continue to transform how we interact with each other and the environment resulting in greater environmental pressures than ever and a growing disconnect between society and nature. The conservation community is facing serious declines in hunting and the imperative for more support for conservation activities, which are challenged by complex and ever-increasing threats, including climate change and energy and food consumption for an expanding human population. Many organizations are implementing recruitment and retention strategies and trying new approaches to garner support for conservation, but there is little shared vision or coordination across scales to address these societal changes. The efforts of the NFC, WMI, and USFWS provide one example of how the bird conservation community may coordinate its efforts to use human dimensions science to strategically implement management actions to affect recreational participation and support for conservation, and thus address both the changing social and ecological landscapes.

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Relating Human Dimensions to Conservation: What It Means for the National Wildlife Refuge System

Natalie Sexton, Human Dimensions Branch Chief, Natural Resource Program Center, National Wildlife Refuge System, U.S. Fish and Wildlife Service

Achieving effective management requires an intimate understanding of ecological processes and coordinated monitoring of populations and habitats. Equally important is an understanding of the societal landscape systems that both affect and are affected by management decisions. Thus, comprehensive management of wildlife and their habitats demands the integration of scientific information from several disciplines.

A family enjoys being in nature watching wildlife. / U.S. Fish and Wildlife Service

This plays out on the 561 National Wildlife Refuges, 38 wetland management districts, and 3,000 waterfowl production areas that comprise the U.S. Fish and Wildlife Service's (Service) National Wildlife Refuge System (Refuge System). The Refuge System is the leading network of protected lands and waters in the world dedicated to the conservation of fish, wildlife, and their habitats for the benefit of present and future generations of Americans. As such, refuges play an important role in conservation through habitat management and providing wildlife-dependent recreation to the public, including wildlife/bird watching and photography, hunting, fishing, and interpretation and environmental education.

Twenty-first century conservation efforts face complex and unprecedented challenges and widespread threats such as drought, climate change, invasive species, and large-scale habitat fragmentation and loss. These challenges are overlaid with the demographic, societal, and cultural changes of population growth, urbanization, and a shift in the way people value wildlife and other natural resources, with a large contingent being distanced from wildlife altogether. These coupled threats require habitat protection and management at landscape scales, and close coordination with traditional and non-traditional partners to ensure relevant and efficient conservation planning, design, and delivery. Relevancy also involves connecting with the American public to nurture and mature an appreciation for wildlife and their habitats and a strong conservation ethic.

> *"We used to feel that the way to keep wildlife first on refuges was keeping people out. We've learned that when people can use and enjoy wild places and wildlife, they're going to become stronger supporters of the conservation movement."*
> *- Jim Kurth, Chief, National Wildlife Refuge System (NWRS)*

To address these issues, the Refuge System is moving toward "conservation in HD" ("high definition" human dimensions) with a growing emphasis on integrating the social sciences into conservation efforts. *Conserving the Future: Wildlife Refuges and the Next Generation* (http://www.americaswildlife.org) outlines a 21st century strategic vision for the Refuge System, acknowledging the broad social, political, and economic changes that have made habitat conservation more challenging since the agency last set comprehensive goals in 1999. Today, it is widely recognized that the Service must not only meet the minimum requirements, laid out in the National Wildlife Refuge System Improvement Act of 1997, but that it must embrace this approach and truly integrate social science data and information into those decision processes. The question is no longer "if," but "how" does the agency accomplish this integration.

This is not without its challenges. The Refuge System currently has limited expertise within the social sciences to address the human dimensions of conservation. Additionally, while many are eager for the information, some worry that use of this type of information may muddy the waters and complicate efforts to achieve the Refuge System mission of protecting wildlife and their habitats. As a result of these hurdles, very few refuge

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case studies exist to highlight this integration. However, opportunities are overcoming the barriers, and the Refuge System is beginning to build more social science capacity and integrate this information into conservation planning and delivery and visitor and community engagement. Some of these examples are highlighted below.

The recently established Human Dimensions Branch in the Refuge System's Natural Resource Program Center seeks to provide social science expertise and build capacity through connecting staff with tools and resources, providing training, and establishing a community of practice to facilitate sharing, collaboration, and social networking. Current activities of the branch include a needs assessment of expertise, resources, and training; development of a web-based tools and resources site; and community-based research in support of the Urban Refuge Initiative (see below).

Stakeholder points of view were evaluated to bolster planning efforts at Canaan Valley National Wildlife Refuge. / U.S. Fish and Wildlife Service

Relevant and efficient wildlife and habitat conservation, the goal of the Service's Strategic Habitat Conservation (SHC) effort, has influenced the direction of the Refuge System's Comprehensive Conservation Planning. The SHC approach demands a greater emphasis on landscape-scale conservation, collaboration with external partners, meaningful stakeholder engagement, and integration of the social sciences to inform the process.

Planning efforts at Canaan Valley National Wildlife Refuge highlight innovative approaches informed by social science research. Faced with protecting unique glacial wetland habitats in West Virginia and a high demand for increased public access to the refuge, exacerbated by poor community relations, the refuge staff began their planning process with several questions: Who were the stakeholders of interest? What were their main concerns? What were the conflicts/common ground that existed among stakeholder groups? And how could they increase trust and legitimacy with local community residents through this process?

The U.S. Fish and Wildlife Service's National Wildlife Refuge System provides recreational opportunities to over 45 million visitors each year. / U.S. Fish and Wildlife Service

To answer these questions, a stakeholder evaluation, using a systematic approach called Q Method, was employed to quantify different stakeholder points of view (http://pubs.usgs.gov/of/2009/1030/). The research identified collaboration opportunities across a disparate array of stakeholders that was previously unrecognized. Specifically, water quality was a primary concern for all stakeholders, whether they held an ecological preservationist, economic development, or recreational perspective, and provided an area of common interest for engaging in dialogue. This stakeholder evaluation also identified recreational access points of interest to stakeholders where habitat degradation could be minimized. Refuge staff indicated that this social and biophysical science-informed planning process resulted in a richer understanding of stakeholder preferences and areas of common ground, which led to a more meaningful public engagement process and improved community relations and refuge credibility.

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In addition to ensuring relevant habitat conservation, the Refuge System provides wildlife-dependent recreational opportunities to over 45 million visitors each year. Refuges are fertile ground to connect the public with wildlife and their habitats, and refuge visitors are a captive audience for education about conservation issues such as climate change. To communicate effectively about a topic such as climate change, it is important to understand how individuals think about climate change, including their basic beliefs, behaviors, and policy preferences. This information can be used to develop message frames (or ways to communicate) for a broad coalition of visitors. Framing science-based findings does not alter the overall message, but places the issue in a variety of contexts for a variety of different audience groups. For instance, the need to mitigate impacts of climate change on refuges could be framed as a quality-of-life issue (e.g., preserving the ability to enjoy fish, wildlife, plants, and their habitat) or an economic issue (e.g., maintaining tourist revenues, supporting economic growth through new jobs/technology).

The 2010/2011 National Wildlife Refuge Visitor Survey (http://pubs.usgs.gov/ds/685/) asked visitors to 54 refuges across the country about their experience on refuges and their opinions about climate change. Specifically, visitors were asked about their level of concern and personal involvement in climate change as it relates to fish, wildlife and their habitats, and their beliefs regarding this topic. Seventy-one percent of visitors were personally concerned about the effects of climate change on fish, wildlife, and habitats, while 54 percent of visitors indicated they stay well-informed and 52 percent take actions to alleviate the effects of climate change. Visitors were in agreement that quality of life could be improved and future generations would benefit if climate change effects were addressed, and that it is important to consider the economic costs and benefits to local communities when addressing climate change.

Ninety percent of people in the U.S. are predicted to be living in urban environments by the year 2050. / U.S. Fish and Wildlife Service

So one may wonder why it's so difficult to engage visitors on this topic. A simple answer is that not all visitors are the same and it is important to know which messages resonate with different audiences. Survey results identified different audience categories based on their level of concern and level of involvement. This information is informing the development of the Refuge System's climate change engagement strategy, which aims to foster greater awareness of the effects of climate change on refuge resources and garner public and partner support for mitigation and adaptation strategies to address climate impacts.

With 80 percent of the United States living in urban environments and a predicted 90 percent by 2050, the National Wildlife Refuge System has focused on engaging with these audiences through the Urban Refuge Initiative, an outcome of the Refuge System strategic vision mentioned above. This initiative has employed the social sciences to better understand barriers and identify strategies to connecting urban audiences with wildlife-dependent recreation. This effort also includes the establishment of standards of excellence for urban refuges and an emphasis on partnering with other organizations to have a greater presence in urban areas where there are currently no refuge units. This effort will culminate with an Urban Refuge Summit at the National Conservation Training Center in Shepherdstown, West Virginia, in fall of 2014.

Effective conservation today demands that the Refuge System engage partners and other stakeholders at landscape scales by working collaboratively to define and carry out effective management strategies, and by better understanding stakeholder interests related to management actions. It also requires increasing participation in wildlife-related activities to foster a conservation ethic. The Refuge System's activities highlighted herein serve as examples of a growing emphasis on integrating the science of human dimensions into conservation practice. This momentum will pave the way to more comprehensive and successful wildlife and habitat conservation in the future.

For more information, contact Natalie Sexton at natalie_sexton@fws.gov.

The Nature of Our Changing Public

Loren Chase, Human Dimensions Program Manager, Arizona Game and Fish Department

Our Public is Changing. Two decades of Arizona Game and Fish Department (AGFD) recreational trend data show a general decline in consumptive activities, with a concurrent growth of nonconsumptive activities. Although AGFD Human Dimensions Program has documented a modest rebound in the latest data, waning patterns continue independent of external economic and biological forces. This change in participation can be attributed to a broad societal shift in the way people perceive wildlife. Earlier in this century, people saw wildlife from a domination standpoint where human needs supersede those of wildlife. As the United States grows increasingly into an urban, modernized society, a larger percentage of people will begin to view wildlife from a mutualistic perspective where wildlife are seen as potential companions that are capable of relationships of trust. This shift is particularly evident in the younger generations (top right graph). An individual's value orientation is relatively static over time; therefore, as younger mutualists replace older domination oriented individuals in the population, the complexion of our constituencies will continue to change.

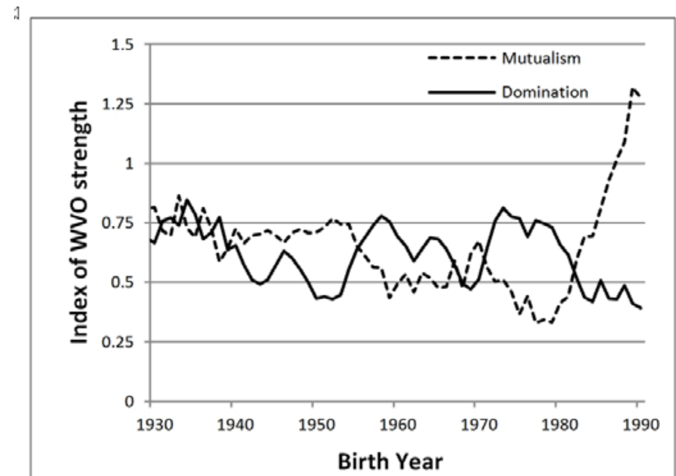
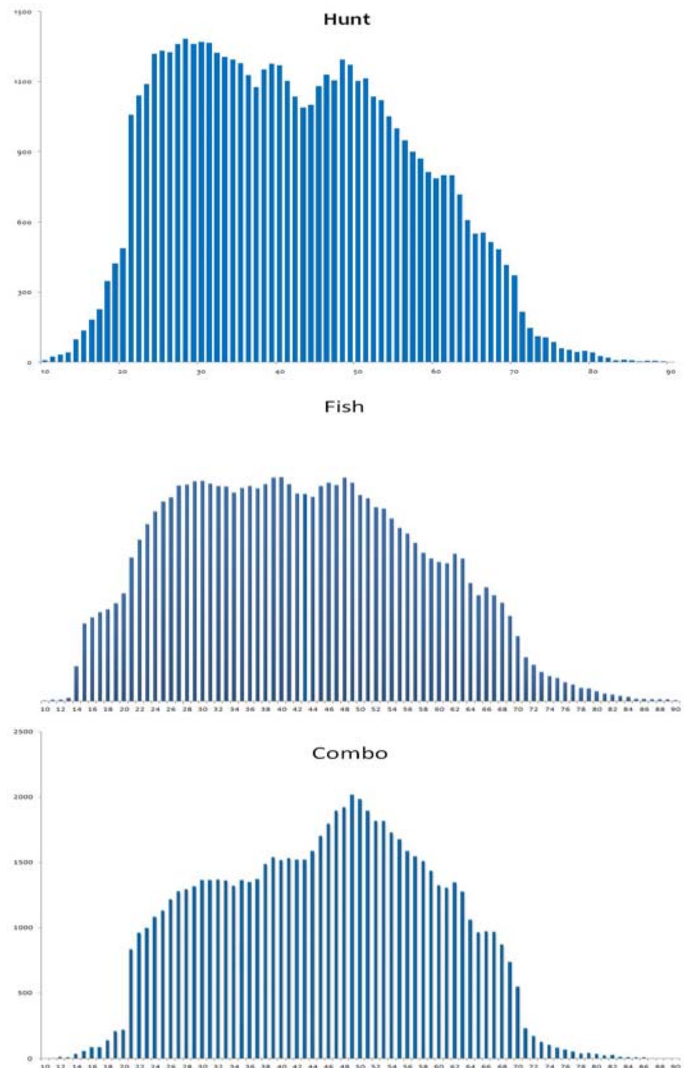


Figure 2 WVOs of Arizonans according to birth year.

Real World Implications. If you have been in wildlife conservation for some time, you may have anecdotally observed this shift away from consumptive uses of nature. Many in the wildlife profession have sensed that young people are not as interested in hunting and fishing as they once were. This shift away from traditional wildlife recreation is quantified by the graph on the top of this page. Although the concepts of mutualism (dashed) and domination (solid) feel a bit academic, they have real world impacts. The graphs to the right illustrate how value orientations impact the sale of hunting, fishing, and combination licenses in Arizona. For example, the millennial generation tends to be highly mutualistic, and people that age correspondingly buy fewer hunting and fishing licenses. Conversely, there is a crest of the domination Wildlife Value Orientation in people who are currently in their early fifties. Finally, the large drop in customers over 65 corresponds both to the availability of senior licenses and recreationists becoming physically unable to participate in their chosen activities.



Conservation Revenue May Diminish. Occasionally, wildlife professionals observe that the traditional client-base of hunters and anglers consists of middle-aged individuals. The graphs on this page confirm Arizona's peak license purchases are made by individuals in their early fifties. This pattern emerges within nearly all resident AGFD licenses.

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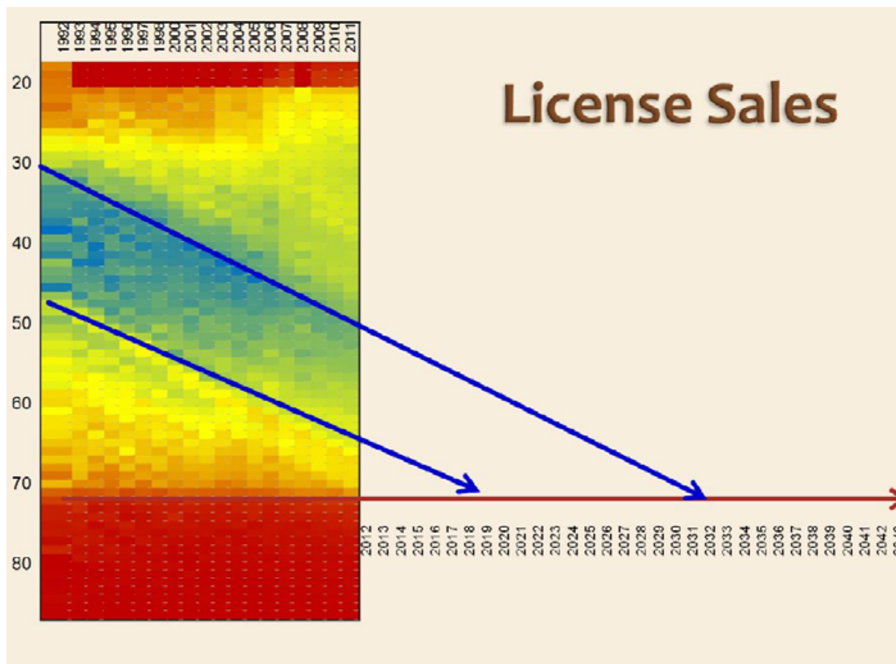
Because state wildlife agencies largely depend on funding related to hunting and fishing, the change in wildlife value orientations directly affects our bottom line.

However, as demonstrated by the color-coded graph on this page (blue represents more licenses purchased), the peak has not always occurred at 50 years of age. In fact, a decade ago, the peak appeared at about 40 years of age, and in 1992, the peak was approximately the early thirties. These data demonstrate hunting and fishing are not necessarily tied to a specific life stage wherein as individuals mature they integrate into these activities. Rather, the downward blue smudge across the page illustrates that the peak of license sales is synchronized with this cohort moving through different life stages, and they just happen to be in their mid-fifties at this point in time.

People tend to stop hunting and angling in their late sixties or early seventies. This trend is depicted by the increasingly red section towards the bottom of the graph. This trend is artificially more distinct because of a senior license that AGFD offers. Yet, on licenses that do not have a senior option, the early seventies is still a major point of attrition.



When our main cohort meets the attrition phase (i.e. when the blue smudge meets the red line), our fiscal virility will be severely diminished. Most states witnessed a brief preview of this issue during the most recent market contraction. However, the duration and magnitude of the impending budgetary crisis for state wildlife agencies will be unparalleled by anything seen in the past. If future generations are going to hunt, fish, and enjoy wildlife like their predecessors, state agencies are going to have to do business differently. It is time to diversify client-bases and wildlife conservation revenue sources to meet the challenges of the future head on.

A Final Point of Optimism. The Long-term Recreation Trends project, the Wildlife Value Orientation research discussed at the Western Association of Fish and Wildlife Agencies midwinter meetings, and the License Purchase Patterns data each confirm a broad societal shift in the way people perceive and interact with wildlife. This societal shift has considerably affected wildlife management and will continue to do so far into the future, shaping wildlife management practices and their relative acceptability to the general public.

Although there is less interest in hunting and fishing as a means of recreating, the public still has a passionate interest in wildlife. AGFD's Human Dimensions Program has documented that the mere existence of wildlife is important to 97 percent of all Arizonans. Additionally, nine out of ten Arizonans believe that wildlife contributes to their quality of life. Constituents are now beginning to relate to wildlife in different ways. This is encouraging news, although it indicates that the current model of wildlife conservation will likely need to adapt and evolve. Wildlife conservation is best accomplished if it is salient to a broad constituency, therefore, the long-term success of state wildlife agencies is contingent upon our ability to engage and provide services relevant to all constituencies.

Questions/Comments? Contact Loren Chase, lchase@azgfd.gov.

What Drives Public Engagement in Bird Conservation: Messaging that Motivates Our Supporters

Liz Pomper, Director of Online Outreach, National Audubon Society

Coming from a non-government background, I hadn't heard of human dimensions before being invited to speak at the North American Bird Conservation Initiative workshop in February. In reviewing the background materials, though, I realized that Audubon was being asked to speak to something we struggle with every day: How to motivate our supporters to take action in support of bird conservation. As the Director of Online Outreach, I am fortunate that I can see—in real time—what messaging drives the most response from our network of "e-activists," people who have signed up to respond to electronic action alerts.

The subject of our highest-performing email alert ever was "ALERT! Thousands of birds dying in Pacific Northwest," sent in May 2012. With 27 percent of our list opening the message and 12 percent of recipients actually sending a letter, it remains to this day our most successful alert in terms of the absolute and relative (to our list size) number of participants. For comparison, the newly released 2013 eNonprofit Benchmarks Study found that for groups in our sector ("Wildlife and Animal Welfare"), action alerts had a 14 percent open rate and 3.3 percent participation rate.

We know that disaster motivates. People turned to us during the 2010 Gulf of Mexico oil spill. Within days of the spill, with horrifying images of oiled birds saturating the news cycle, 35,000 new people had signed up to volunteer with us. Because we had the contact information of thousands of people in the Gulf, we were the go-to organization as rescue operations mobilized.

The question, of course, is how to motivate people when disaster isn't imminent—our day-to-day work at Audubon focuses on long-term conservation. Four elements seem to be critical in helping to keep our supporters engaged and active:

Urgency. In June 2012, we planned a fundraising campaign around our work to save Arctic birds. We planned it for over a month, got the text vetted, and even had Jane Alexander as our spokesperson. The campaign performed adequately, but below the goals we had set. At the same time, Shell was pre-emptively suing us and other environmental groups because we were opposed to opening new areas of the Arctic Ocean to drilling. Immediately following the planned campaign, as we prepared to counter-sue, we sent an email asking people to donate to support our efforts. In terms of dollars directly attributable to a single email, this one email outperformed all fundraising emails we had sent to that date, and this was right after they had just received several emails in the other fundraising campaign.

People delivered petitions to the Department of Justice urging them to impose maximum penalties on British Petroleum for the Gulf Coast oil spill. / Mississippi River Delta Restoration Campaign

The key is not to invent urgency, but to have a plan in place—we call ours the "Rapid Response Plan"—so that you can respond to breaking events and engage your supporters when they happen.

We know the same is true for action alerts. By last November, we had spent two years working on the RESTORE Act legislation, which directs the Clean Water Act penalties from the oil spill towards Gulf Coast restoration, and our list was somewhat fatigued on the issue. When we sent yet another alert on the issue, this time ask-

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ing people to write to the Department of Justice urging them to impose maximum penalties on BP, we saw somewhat disappointing results. In February, our coalition planned an in-person delivery of people's letters to the Department of Justice. We wanted to have the maximum number of letters to deliver, so we sent out an alert to people who had not responded to the original alert. This time, the alert included a deadline to respond and the reason for the deadline (to have their letters included in the delivery). We increased participation on the alert by 50 percent—from 10,000 to 15,000.

Close to home. Alerts that are local outperform "national" alerts. We have a network of state offices, and the alerts they send out about state issues generally have significantly higher open rates and response rates than our nationwide alerts.

In January, we surveyed the readership of our flagship newsletter to find out their opinions about that publication. We had introduced regional versions the previous year, and sending out five editions every month takes a lot of effort. We wanted to find out if all this effort was worth it. As it turns out, 78 percent of respondents expressed a preference for local content.

Issues individuals care about. Our job is to figure out what issues people want to engage in, and communicate to them about those issues, while refraining from sending e-mails about issues they don't care about. We had off the chart open rates of over 30 percent for a newsletter on Alaska issues, which was sent to people who self-identified through various ways that they were interested in our work in Alaska.

Due to limited staff capacity, we are not able to do segmentation like this as much as we would like, but it will be an area of focus for 2013.

Audubon Advisory
Summer 2011
Vol 2011 Issue 7

Credit: Kim Hubbard

Good News for Gulf Restoration

Good News! After nearly a year of negotiations, Audubon and our partners have been instrumental in a historic first step toward what could be one of the largest conservation efforts our nation has ever seen. Read more.

The Endangered Species Act helped to prevent the extinction of the iconic Bald Eagle. *Credit: Gerry Ellis*

Victory for Endangered Species

Good News! With support from Audubon advocates like you and our partners in conservation, we scored a major victory for the environment when the "Extinction Rider" was removed from one of the most anti-environmental bills ever to come before the United States Congress, the recently-considered House Interior spending bill. Read more.

Celebrate victories. We need to remember to celebrate victories. We get fantastic, personal responses whenever we send out "good news updates." Those of us that work in bird conservation are always gearing up for the next battle or writing the next grant. We at Audubon struggle with finding the time to send out these "congratulations" messages, but they are so critical for keeping the troops energized, refreshed, and engaged.

As we seek to engage people in bird conservation, our campaigns should, to the greatest extent possible, convey urgency, make the issue relevant to a person's sense of place and interests, and include follow-up messages so that people know how their participation helped.

For more information, contact Liz Pomper at lpomper@audubon.org or visit http://www.audubon.org.

National Audubon Society: 100 Years of Human Action for Birds

Connie Mahan, Grassroots Outreach Director, National Audubon Society

Audubon is more than 100 years old and was founded when large numbers of plumed birds were being killed for their feathers to adorn women's hats. A small group of citizens banded together to form what is now the National Audubon Society.

With 465 chapters in every state and one million members and supporters, Audubon uses science, education and policy to accomplish its mission to protect birds, wildlife, and habitat.

Our chapter network and education centers are the human face of Audubon in communities across the country. The commitment and dedication our volunteers bring to Audubon's work doesn't happen by accident. While the love of birds and wildlife and appreciation for the habitat they need to survive is a big motivator for our folks, it's not enough to make a bird lover into a bird activist.

Young boy participates in the Christmas Bird Count. / Peter Salmansohn

Audubon uses both online and on-the-ground tools to connect and empower our activists and chapter volunteers. It's all about taking seasoned leaders and new activists and moving them up the ladder of activism.

Certainly love of birds and appreciation for their habitats is a big motivator for Audubon members and volunteers. But what makes them into activists?

Sometimes you just need to define it for them. In many cases, they already advocate for birds and their welfare but wouldn't consider it "activism." We help them understand that being an advocate for birds can cover a wide range of behaviors and includes educating their communities about why birds matter, getting up early in the dead of winter to count birds for Audubon's annual Christmas Bird Count, or taking their passion to their local leaders, district offices, and Capitol Hill.

Sometimes it's outside forces that radicalize a chapter into action. Their favorite wetland area for watching birds gets bulldozed for a housing development. A favorite tree for nesting eagles is subject to development. Sometimes they are too late to save the places they love, but if they get some help early—from our state offices or from the DC office or each other—they can and do win these David and Goliath battles.

Speaking Out for Endangered Species. One of the great things about Audubon is our widespread chapter network. We have people everywhere and in both urban and more remote parts of the country. Several years ago under the Bush Administration, a series of listening sessions were planned to explore partnerships under the Endangered Species Act. We knew it was key that the Audubon perspective be represented at these sessions. We sent out email notices about the meetings that were scattered around the country, and gave folks talking points, but the key to getting people to actually show up was to ask them in person.

Case in point was a listening session held in Enid, Oklahoma. Audubon wasn't the only wildlife group getting folks to show up at these sessions, but we were pretty much the only group that could turn someone out in Enid, Oklahoma, and a chapter leader agreed to go and speak on the importance of the Endangered Species Act for protecting our most vulnerable species. Our chapter leader did it because we asked and that relationship between the national policy office and our chapters is one we work hard to create. And he did it because he knew it was important.

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Superactivists Recruited for Gulf Restoration. The Mississippi Flyway Action Network came into being last year as we faced the problem of getting more policy work done in the Mississippi Flyway states.

Audubon has been working hard for some time to restore the Mississippi River Delta. Louisiana is losing a football field of land every hour. Sediments that once flowed downstream are no longer allowed to find their natural path due to heavy (mis)management of the river. The BP oil spill is but the latest in a long list of insults. We needed more activists to write letters to the editor, organize in their communities, attend public meetings, and buttonhole elected leaders on the importance of restoring the Gulf.

Mississippi Flyway Action Network workshop participants learn about which kinds of communications are most effective when contacting their elected leaders. / Alia Mckee

We decided to reach out directly to our activist base and see if we could pull together a core group of people from throughout the flyway, and bring them together to help move the dial on Gulf restoration. We sent an email to activists in the region who had taken two or more actions in the past year and teased them with this subject line: *You're Already Our Hero. Wanna Get a Cape?*

The open rate went off the charts (43 percent) and the enthusiasm to become part of this campaign to advocate for the Gulf—specifically the RESTORE Act, which would direct BP oil spill penalties directly to the region—was definitely out there.

Seventy-five people from around the flyway wanted to come to New Orleans for a workshop on how to be better advocates for the Gulf. The 25 who were able to make the trip (on their dime) went back to their communities and engaged their chapters, met with their Members of Congress, wrote letters to the editor and organized other parts of their communities to help. They kept in touch through a simple piece of technology—a list serve—and we helped feed it with news, information, and "take action" items. Their work helped us bring along a number of key members of the Senate and the House to get the RESTORE Act signed into law and start moving that money down to the Gulf. Now they are chomping at the bit to work on other projects.

These are two examples of how Audubon volunteers and chapter leaders get out and do the work that is so crucial to birds, wildlife and their habitats. We can spend a lot of time quantifying the volunteer hours they give so generously, but the commitment and passion they bring to our work is irreplaceable.

For more information, contact Connie Mahan at cmahan@audubon.org or visit http://www.audubon.org.

Kachemak Bay Shorebird Festival Birdwalk in Beluga Slough, Alaska. / Karen Laubenstien, U.S. Fish and Wildlife Service

Support for Waterfowl Conservation: An NGO Perspective

Dale D. Humburg, Chief Scientist, Ducks Unlimited, Inc.

Non-governmental organizations (NGOs) can play critical roles in aligning conservation supporters with fish and wildlife management. Membership organizations in particular provide an important linkage between hunting and fishing and engagement in conservation activities. Although hunters and anglers are required to purchase a permit to participate, involvement in conservation organizations represents a voluntary and personal commitment to natural resources. Just as fish and wildlife agencies have struggled to maintain permit sales, many NGOs are also challenged to recruit and retain supporters. Outcomes include loss of funding, reduced policy support, and eroding connections with the outdoors.

Money from the sale of "Duck Stamps" is used to for conserve important habitats, such as prairie potholes, needed to sustain waterfowl populations. / Dale Humburg

Ducks Unlimited, Inc. (DU) is a non-profit conservation organization dedicated to conserving North America's waterfowl habitats. With growth from less than 50,000 active adult members in 1970 to well over a half million during the last couple of decades, DU represents the strength of aligning supporters with conservation outcomes. In collaboration with its waterfowl conservation partners, DU has conserved more than 13 million acres and has also emerged as an influential voice for conservation policy.

Analyses of waterfowl hunter and DU membership trends provide important insights into the relationships between hunting and conservation support and the challenges ahead. Initial evaluation indicates that DU members, on average, participate in waterfowl hunting at a more sustained rate than waterfowl hunters who are not members. Additionally, waterfowl hunters who are most avid are also those who are more likely to be involved with DU. Thus, collaborations to engage sportsmen and sportswomen in conservation organizations such as DU may also be key to sustaining hunters and their support through license sales and in the case of waterfowlers, "Ducks Stamps" (Migratory Bird Hunting and Conservation Stamps). Human dimensions research and program evaluation will be needed to determine the linkages and associated strategies related to hunting (license purchase) and conservation (membership).

General trends, however, do not reflect the diversity of hunting participation and DU membership. For example, segmenting patterns of waterfowl hunting participation indicates that there are about twice as many potential waterfowl hunters than participate in any single year. Many hunters are sporadic waterfowlers with a relatively small proportion of potential waterfowl hunters (less than one-fourth) hunting for several consecutive years. Likewise, DU membership shows considerable year-to-year "churn" as well. About half of each year's members lapse the following year, and do not re-engage.

Reducing the rate of turnover may well be an important strategy to increasing both hunter participation and organizational membership if an assumption that greater retention yields increased waterfowl conservation support holds true. In the case of DU, grassroots members who are engaged over several years contribute at an annualized rate that is three times higher than short-term members. Survey data further indicate that more engaged members are more than twice as likely as less engaged members to support DU's involvement in policy issues affecting waterfowl. Determining the primary motivations for continued commitment to hunting and conservation will be important to perpetuating engagement.

Importantly, support for waterfowl conservation is not limited to waterfowl hunters. And DU members include both active hunters and those who support waterfowl conservation but do not hunt waterfowl. About 15 percent

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The North American Bird Conservation Initiative (NABCI) is a coalition of organizations and initiatives dedicated to advancing integrated bird conservation in North America.

The vision of NABCI is to see populations and habitats of North America's birds protected, restored, and enhanced through coordinated efforts at international, national, regional, state, and local levels, guided by sound science and effective management.

The goal of NABCI is to deliver the full spectrum of bird conservation through regionally based, biologically driven, landscape-oriented partnerships.

The All-Bird Bulletin is a news and information-sharing publication for participants of NABCI.

For subscription or submission inquiries, contact the Editor, Roxanne Bogart, U.S. Fish and Wildlife Service, 413-253-8582 or Roxanne_Bogart@fws.gov. To download back issues, visit http://www.nabci-us.org/allbirdbulletin.htm.

The All-Bird Bulletin publishes news updates and information on infrastructure, planning, science, funding, and other advancements in the field of integrated bird conservation and management. Include author's name, organization, address, telephone and fax numbers, and e-mail address. Pictures are welcome but not necessary.

of DU members identify themselves as waterfowl conservationists but not as waterfowl hunters. And their sup port for DU's mission, reflected in their level of giving and duration of membership, is comparable to more "traditional" members. The waterfowl conservation community will be challenged to maintain strong support among traditional waterfowlers while striving to broaden the base of waterfowl conservation support.

Clearly, the community of waterfowl support is diverse. Overall take-home points include:

- Waterfowl supporters are not all alike. Evaluation of membership and hunting participation data can increase understanding of this diverse community.
- Participation in waterfowl hunting and DU is dynamic; a relatively small proportion is consistently engaged for several consecutive years. Those who are provide considerable support.
- "One-size-fits-all" strategies for recruiting and retaining hunters and waterfowl conservation supporters will not be as effective as those tailored to specific segments.

Perpetuating waterfowling traditions and support for waterfowl conservation will require that we account for changes in the social landscape. An aging population, increasingly urban lifestyle, disconnect from the outdoors, and competition for time and resources present important challenges to the conservation community. Collaborative efforts between natural resource agencies and conservation organizations present opportunities that can lead to outcomes of shared value.

For more information, contact Dale Humburg at dhumburg@ducks.org.

The waterfowl conservation community is challenged to broaden the base of waterfowl conservation support by reaching out to other potential conservation constituencies such as birders. / Dale Humburg