

## **NH *Listens***

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Bringing people together for  
engaged conversations and  
informed community solutions

# Statewide Community Conversations on Outdoor Recreation in New Hampshire

## Final Report

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NH Office of Energy and Planning  
NH Department of Resources and Economic Development

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## Introduction

The state of New Hampshire is required to maintain a comprehensive strategic plan that identifies critical needs for improving outdoor recreation and parks. This strategic plan is known as the Statewide Comprehensive Outdoor Recreation Plan (SCORP). The SCORP satisfies the requirement of the Land and Water Conservation Fund (LWCF) that each state have an approved SCORP on file with the National Park Service (NPS) in order to participate in the LWCF program. It also fulfills the New Hampshire statutory requirement (RSA 12-A:18) that there be an outdoor recreation planning program. The SCORP must be reviewed every five years and completely updated every ten years. The next ten year plan is due to the National Park Service by 2013.

In anticipation of submitting the next SCORP, the NH Department of Resources and Economic Development (DRED) and the NH Office of Energy and Planning (OEP) decided to increase the quantity and quality of citizen input, to be sure that the Plan is based on the views, preferences, and needs of NH residents. This is a new dimension of the planning process, to extend opportunities for input beyond those who have traditionally been engaged in the SCORP process—those individuals and groups who have been frequent users of our parks and recreation facilities such as hikers, hunters, ATV users, fishermen, skiers, and others. For the next plan, DRED and OEP hoped to involve those residents who may not be part of organized groups or who may not be frequent users of parks and recreation facilities. In order to create a system of parks and outdoor recreation, DRED/OEP wanted to hear from a wide range of citizens—young and old, native Granite-staters and newcomers, city and rural residents, and those who come from all socioeconomic levels.

NH Listens is a civic engagement initiative of the Carsey Institute at the University of New Hampshire which brings people together for engaged conversations and informed community solutions. NH Listens was retained by OEP and DRED to gather citizen input and to learn more about citizens' views on opportunities for outdoor recreation at the local and state level. The citizen input from the NH Listens sessions will be used by OEP and DRED in the 2013 Statewide Comprehensive Outdoor Recreation Plan.

The goal of these community conversations was to create an opportunity for citizens to share their thoughts on the challenges, opportunities, issues, and needs relating to local and state outdoor recreation. Special emphasis was placed on hearing citizen's views about unmet needs and innovative approaches to meeting those needs. While the community conversations were open to all, additional outreach was focused on those with limited use of outdoor recreation resources for reasons of access, age, income, or knowledge.

On October 5 and October 6, 2011, NH Listens facilitated small group dialogues at seven sites throughout the state of New Hampshire. A total of 171 community members participated in the conversations and shared their views on the challenges and needs of outdoor recreation at both the local and state levels.

## **Why dialogue and public engagement?**

At a time when many citizens are feeling an increase in partisanship and a decrease in civility, the rules of typical public meetings are often ones that control dissent more than facilitate problem solving. Creating an opportunity for people to talk to each other constructively is a priority for the work of NH Listens. As noted in the 2010 Resource Guide for Public Engagement, *“these engagement techniques strengthen the traditionally distant relationship between citizens and government, mitigate conflict between groups, improve the quality of buy-in for public decisions, and tap into community assets and citizen potential.”*

The 171 people who participated in this project spent three and a half hours of their evening in a discussion about outdoor recreation. This is significant. We asked participants to share their values and experiences with outdoor recreation and to convey their top priorities for action.

Public deliberation is most constructive when differences of opinion are expressed. We work to bring a group of people together in a conversation that normalizes disagreement, encourages curiosity, and yet discourages personal attacks. It is significant that our overall summary of input contains both issues of overlapping concern and issues of unique differences.

When done well, these techniques create the space for real dialogue so everyone who shows up can tell their story and share their perspective on the topic at hand. Dialogue which engages the public can improve relationships, improve institutional decision making, increase civic capacity, and improve community problem solving.

## **How New Hampshire Listens Collects and Reports Citizen Recommendations**

The work of New Hampshire Listens is based on small-group facilitated dialogue that produces specific outcomes, often in the form of concrete recommendations for action on the part of local or state government. Depending on the topic, the outcomes might be at a more general level, articulating broad sets of values or criteria for decision-making. Whether a dialogue is constructed as a one-time event that stretches over several hours or multiple events occurring over several weeks, participants typically move through a four-stage process guided by the facilitator. These stages include:

1. Introductions and personal stories about how participants relate to the focus topic of the dialogue (including their prior experiences with and opinions about the topic);
2. Review of the available data on the topic to assure common, comparable levels of knowledge among the participants
3. Analysis of the topic and its multiple dimensions, leading to selection by the group of a small number of key issues (3-4) that are seen as most important for discussion necessary for generating concrete actions or recommendations;

4. In-depth discussion of the selected key issues and articulation of a final set of views, values, or recommended actions directed at relevant decision-makers.

Throughout the dialogue, facilitators document the conversation and identify recurring statements or themes. That is, the information that is gleaned from each small group is inductively analyzed, moving from the specific comments made by group members to general statements that represent the shared sense of the group. Both agreements and disagreements are recorded, to assure that all points of view are heard and documented. Facilitators work with the group to draft final language reflecting areas of consensus or agreement. The group “owns” the final statements that emerge from this process.

In cases where multiple groups have met and discussed a common topic, the final statements from each group are collected and analyzed by NH Listens staff. Using inductive analytic procedures, similar to those that might be used in qualitative ethnographic research methods; we identify the most frequently stated findings or themes that cut across all groups. Particular finding or recommendations must be identified multiple times (depending on the number of small groups and participants involved) in order to be selected as a final, overarching finding that reflects all of the small group discussions. We do not report that “X number of participants said Y,” or “X number supported Y recommendation” because of our focus on group rather than individual outcomes. The analysis of small group notes and recommendations, clustering the individual group findings into common themes or statements, and generating overall recommendations is similar to that used in the analysis of focus group work, relying on the standards for rigor associated with qualitative social science research. Thus, the final products of citizen dialogue supported by NH Listens are qualitative, aggregated reports of the small group discussions and recommendations.

### **Framing Community Conversations**

In conjunction with the staff at OEP and DRED, NH Listens developed a set of focus questions to guide the discussion on outdoor recreation. These questions were used as the basis for developing the framework for the community conversations.

#### **NH Listens/SCORP Focus Questions**

How can our outdoor recreation areas become the best places for everyone to experience the natural wonders of New Hampshire?

- Are there outdoor recreational opportunities for you in your community and throughout the state?
- What has been your experience in using NH’s outdoor recreation areas including local and state parks?
- What keeps you from using outdoor recreation areas?
- How can competing uses of outdoor recreation areas be managed to assure equal access and enjoyment (e.g., hiking or hunting, bird watching or off-road vehicle use?)



- How can people who don't often use our outdoor recreation areas be encouraged to take advantage of them? What groups of people seem to you to be least likely to use outdoor recreation areas including state parks? Why?
- Think of a park or recreation area, either in NH or somewhere else, that you have especially enjoyed. What was it about that place that should be copied in other parks and outdoor recreation areas?

What improvements would you like to see in local and state outdoor recreation areas?

- Are your outdoor recreational interests being met by local and state areas, parks, and facilities?
- What do you think are the most important parts of outdoor recreation areas to preserve?
- What does not currently exist at our outdoor recreation areas that you would like to see added?
- What would make it easier for you and your neighbors to travel to and use outdoor recreation areas?
- How can outdoor recreation areas be designed to serve specific groups such as people with disabilities, recent immigrants, youth, seniors, and low-income families?

How can state and local outdoor recreation areas help all of us, young and old, natives and newcomers, be healthy and fit?

- What kinds of activities, services, and facilities can be offered to reduce obesity and increase fitness?
- How do we convince young people that playing and exploring outdoors is at least as fun as playing video games and texting their friends?
- How can outdoor recreation facilities partner with schools, community recreation centers, and programs like Scouts, church groups, and others to enhance outdoor experiences?

Who should pay to keep outdoor recreation areas open and functioning? Are you willing and able to pay more for the use of state parks and recreation facilities?

- What kinds of services or facilities would you be willing to pay (more) for, and what would you not pay (more) for?

## **Participant Recruitment**

NH Listens used a variety of methods to recruit participants for the sessions. A database of community contacts was developed with special focus on those who had clients or constituents working with the elderly, youth, new immigrant groups, the physically disabled, and those working to connect health, obesity, and recreation. The database included local recreation departments; high schools; regional planning commissions; senior centers; health agencies; disability groups and those working with new immigrant groups. These contacts were sent a

package of information about the community conversations asking for their participation. Each group was also sent a series of electronic newsletters to inform them of the event and offer an easy access to registration. Members of the NH Listens staff personally reached out to contacts throughout the state to encourage participation from the general public and targeted groups.

A press release was issued and the community conversations received print and online media coverage around the state. There was coverage from Associated Press, Boston.com, New Hampshire.com, Union Leader, Concord Monitor, WMUR, Seacoastonline.com, Newhampshirenews.com, and Heraldglobe.com. In addition, organizations across the state publicized the event on their websites, Facebook posts, and electronic newsletters.

## Participants

NH Listens had a goal of recruiting 120 participants across the state. There was much interest in the topic and over 170 community members came to the sessions. Participants were asked to register for the community conversations so NH Listens could anticipate the number of facilitators needed. Registration was completed online or via telephone. Participants were asked a series of questions through the registration process. Registrants were not required to answer every question. At each site not all registrants attended and walk in participants were welcomed. Below is information about the registrants.

There were a total of 171 registrants. Of those who pre-registered and filled out the registration questions, 105 were female and 60 were male. Of those who reported their age, 69% of registrants were between 45 and 65 years old; 16% were between 31 and 44 years old; 11% were over 65 years old and 4% were under 30 years old.

When asked do you use outdoor recreation facilities:

Yes: 152

No: 4

Number of registrants who use outdoor facilities

Daily 11

Weekly 50

Monthly 32

Several times a year 56

Locations	Registrants	Participants
North Country: Berlin White Mountains Community College Berlin, NH 03570	29	29
Seacoast Region: Portsmouth Portsmouth Library Portsmouth, NH 03801	41	26

Monadnock Region: Keene Keene Parks and Recreation Keene, NH 03431	23	22
White Mountains Region: North Conway Conway Library Conway, NH 03818	5	9
Merrimack Valley Region: Manchester Unitarian Universalist Church of Manchester Manchester, NH	48	31
Dartmouth/Lake Sunapee Region: West Lebanon Kilton Public Library West Lebanon, NH 03784	9	10
Lakes Region: Laconia Laconia Senior Center Laconia, NH 03246	16	43

The outreach was successful in terms of the overall number of participants. There was large turn out from those who have a strong interest or participation in outdoor recreation but may not be associated with a recreation stakeholder group (recreation businesses, recreation educators, local recreation interests, clubs, groups etc.) There was a great deal of interest from those involved in equestrian activities across the state. Representatives of equestrian interests registered for each site and participated in Keene, Portsmouth, Manchester, and Laconia.

### **What did participants discuss?**

Each discussion group consisted of 9-12 participants, led by a trained facilitator. The dialogues ran for about three and half hours each, moving through the five phases summarized below.

#### Introductions and Initial Concerns and Questions:

The first part of the conversation allowed everyone to get to know each other better, develop some basic group agreements to assure a productive conversation, and gain a general sense of initial concerns and questions regarding our topic. We have found it is important to give time to understanding how participants are *personally connected to the topic*.

#### Information and Data Analysis:

In this part of the conversation, participants reviewed relevant data and information about parks and outdoor recreation in NH. We provided data and information to help provide a context for the conversation so that participants

were informed yet not overwhelmed with data. In this part of the conversation, participants are asked to focus on *what matters to them and what they notice* about the information.

#### Key Issues and Priorities:

After discussion and responses to the information provided, the group brainstormed a list of *key issues and priorities* that participants most wanted to discuss in depth. Once named and grouped into themes, each group selected 2 or 3 key topics to explore in greater depth.

#### Topics in Focus:

Each group explored the chosen topics in depth. Initially, participants were asked to name all of the *critical aspects to the topic* (define the problem, what are the barriers, what is working, what others might see as the issue?) At the end of discussing each key topic, groups began to identify areas of interest for *recommended action*.

#### Final Recommendations:

During this final part of the conversation, the participants were asked to identify key recommendations and action steps related to topics in focus. The goal was for participant groups to end with 2-4 *concrete, feasible action statements*.

### **Findings**

NH Listens collected data and transcribed it for each session site. We also surveyed all participants about their experience of the process and received 122 responses back. The findings below are a compilation of the data. The discussions at some sites included local issues and concerns such as economic development in the North Country and oceanfront/beach issues on the Seacoast.

#### **How people are personally connected to the outdoors**

Most participants came to the sessions because they have a strong connection to the outdoors through one or more recreational activities. Participants put a high value on having access to outdoor recreation, open space, and nature. They simply value “being outside.” Often noted was the solitude of being outside and others noted the social aspect of outdoor recreation. There was a desire and commitment to have natural areas permanently protected so future generations might enjoy them. Participants indicated that natural beauty helped to define the state. A common theme when participants talked about their connection to outdoor recreation was a concern for getting children and youth--the next generation--to use the outdoors for recreation purposes. Preserving outdoor recreation areas for future generations was often described as of very high importance.

## **Key issues and priorities for participants**

The data from all sites indicates that participants across the state identified similar key issues and priorities for outdoor recreation. The key topical areas identified by participants fell into the following unranked categories.

- Partnerships
- Stewardship
- Multiple Use of recreation lands
- Education
- Need for Information
- Volunteers
- Access
- Funding
- Youth and Children

All participant groups discussed these key issues and priorities at length. Below, a summary of those discussions is presented, along with key recommendations which the participant groups finalized at the end of their respective sessions.

### **Partnerships**

Participants put a high value on the importance of partnerships, collaboration, and cooperation. This was described as partnerships among user groups; local and state entities; within state departments dealing with lands and recreation; towns, schools, and local organizations; government entities and the business community, federal government, state government, and private conservation groups. Partnerships are viewed as a way to strengthen resources and limit conflict.

### **Partnerships – Recommendations**

- Seek out partnerships to combine resources, talents, and knowledge
- Look to create and strengthen local and state partnerships
- View private sector and business as partners
- Do not duplicate roles and services but create partnerships to enhance access and programming
- Forming partnerships will help provide access for multiple use of lands
- State should take lead in developing partnerships

## **Stewardship**

Stewardship is seen as a critical issue now and into the future. There is concern about resources, both human and financial, for the future stewardship and maintenance of outdoor recreation lands and facilities. There is a strong sense that long-term plans for stewardship must be in place. This plan must include priorities. The use of volunteers was discussed by most participant groups in connection with on-going and long-term stewardship of state and local recreation, open space, and natural lands. There is concern about whether there will be volunteer stewards in the future if the next generation (youth) are not interested, acclimated, or comfortable in the outdoors. Identifying funding for stewardship is seen as a priority.

### **Stewardship Recommendations**

- Create a long range, prioritized plan to maintain facilities
- Develop stewardship plans which address sustainability
- Have a public list of maintenance issues which need to be addressed
- Identify who is responsible for maintenance of recreation land and facilities and ensure they have the proper resources
- Create a state trail signage system which is uniform
- All trail designs should be sustainable and have dedicated volunteers for stewardship
- State should organize trail groups, create partnerships for trail maintenance
- Create endowments for stewardship of outdoor recreation lands and facilities
- Create a “friends” group for each recreation site

## **Multiple Uses**

The issue of multiple uses of land was listed as a key topic at each discussion site. There appeared to be support for multiple uses but the need for better coordination, information sharing, partnership development, and understanding among user groups was stressed. The need for cooperation was stressed by some groups and the need for some dedicated, single use space was stressed by some participants.

### **Multiple Use Recommendations**

- Increase access for all users
- There should be comprehensive information which is easy to access
- Find a comfortable balance of uses that respects the land
- Think strategically about multiple uses in an area
- Address the environmental impact and safety concerns with multiple users
- Establish a code of conduct
- Look at how other states handle multiple use issues and conflicts

- Consider “user days” in specific parks for single use
- Create a map to indicate uses in each area and on each trail

## **Education**

The need for education was discussed in each participant group. According to participants, education should focus on youth and parents, recreation users, and private property owners. It was stressed that many organizations currently focus on environmental education and that these resources should be utilized. Education was also closely linked with developing partnerships - especially with local schools and environmental/conservation organizations. Education was also noted as important among different user groups to help each group understand the other. Education in general is seen as a way to ensure the future appreciation of outdoor recreation.

## **Education Recommendations**

- Include outdoor recreation education in school curriculum
- Develop education program partnership with Scouts, church groups, and parents
- Work with existing programs on environmental literacy
- Provide more information to foster community collaborations for outdoor recreation programs
- Provide landowner liability information to private landowners
- Develop an education program for users to understand their personal responsibility while outdoors
- Host a state sponsored user education day
- Create education materials to address safety issues and required skills for outdoor recreation
- Address the risk aversion of parents to letting kids be outdoors
- Post trail etiquette and rules at all recreation locations
- Provide education on diverse interests and uses of recreation lands
- Incorporate history into educational materials
- Create multiple avenues for education such as signage, online tutorials, television, radio, printed, internet, and social media
- Stress resource protection in materials

## **Information**

The need for more information from the state on all aspects of outdoor recreation was talked about at each site. Many participants noted that they lacked access to information on specific

outdoor recreation areas, programs, and issues. Many were aware of the state websites but had further recommendations about the content.

### **Information Recommendations**

- Update the state website and make it interactive
- Maintain networks through Facebook
- Create a website that is for all state recreation areas regardless of agency – centralize all information – by region or use (better linking across agencies)
- Create a resource page on partnerships and potential partnerships
- Improve the maps on the website for easier use; Include trail maps
- Maintain kiosks at each recreation area with maps and user responsibility
- Better publicize parking information for recreation sites
- Better promote recreation opportunities to NH residents
- Provide a statewide trail inventory
- Use the website to list clubs and user groups contact information
- Volunteer opportunities and recognition should be on website

### **Volunteers**

The importance of existing volunteers and the need for volunteers in the future was a recurring theme. Most groups cited the need for more volunteers, especially among young people. There is a deep concern that the existing volunteer support system will not be maintained unless outreach is done to the next generation of volunteers.

### **Volunteer Recommendations**

- Recognize volunteers
- Give volunteers a free annual pass to recreation areas
- Organize volunteer groups and give them dedicated areas to maintain
- Use volunteers to educate users
- Link High School volunteer programs to recreation areas
- Use college and university students as a source of new volunteers
- Have an annual day of volunteering to clean up parks

### **Access**

Access was discussed throughout the community conversations. Access was presented as meaning a number of different things. Providing access for all users was a common theme. The participants were concerned about access to private lands from landowners, easier access for



seniors and the disabled population, access related to fee structure, providing access close to home and work, access for parking and connections with public transportation, and ensuring permanent access to outdoor recreation lands.

### **Access Recommendations**

- Ensure access for future generations – for all users
- Ensure access for seniors and the disabled
- Ask for more participation from private landowners to expand access
- Provide landowner liability information to landowners
- Encourage towns and cities to dedicate more lands to outdoor recreation
- Provide more parking to access outdoor recreation
- Ask existing recreation groups where to increase access
- Incorporate recreation into transportation corridors (bike, walk)
- Have access to all parks by paying for a universal pass
- Work to keep parks open year round
- Provide landowner liability information to keep lands open
- Support legislation that would permanently guarantee access
- Help community businesses recognize the economic value of access

### **Funding**

Current funding and future funding were tied into each key issue and priority. Participants were fully aware of the state financial situation and expressed concern for outdoor recreation. Recommendations on how to address funding were varied. There is significant concern about having sufficient funding for the future and a concern about lack of funding impacting users' outdoor experiences. Below is a list of recommendations from participants.

### **Funding Recommendations**

- Need targeted, adequate funding source for existing resources
- Need a state policy on the role of private companies in supporting recreation areas, especially for naming rights
- Create ownership and sponsorship opportunities
- Create reasonable fee structure and publicize
- Look to “alternative” funding such as philanthropy, events, estate planning
- Enlist retailers to support outdoor recreation
- Create an annual pass to be used like an ez-pass
- Use volunteers to offset cost of stewardship

- Waive fees for volunteers
- Set user fees for in state and out of state visitors
- Educate users so funds do not have to be spent on search and rescue
- Add food, vendors, merchandise as source of revenue
- Everyone should pay
- Have a dedicated sports equipment fee to go to operations and stewardship or have fee when residents buy boots
- Ticket cars in non-designated parking areas as a source of revenue
- Let public know what fees are being used for
- Balance funds for large parks and small parks
- Set incentives for business to increase access to lands and lakes
- Set specific funds aside for facilities, not just lands
- Need adequate tax structure to support parks

## **Children and Youth**

There is much concern that children and youth are losing touch with the outdoors. This has been reflected in the stewardship, education, information, and volunteer sections of these key issues and priorities. Most participants who talked about children and youth expressed this as a value – “it is just the right thing for kids to know and love the outdoors.” The link between good health and outdoor recreation was also noted. There was concern about the lack of value the next generation of leaders may have for the outdoors if they have not had experiences as youth.

## **Children and Youth Recommendations**

- Explore getting young people outdoors as a leadership development opportunity
- Link with schools and school boards
- Educate parents on the importance (and safety) of being outdoors
- Use social media to get them outdoors and let them use technology outdoors/don’t let them use technology outdoors

## **Regional and Interest Group Differences**

The outdoor recreation conversation was largely framed as statewide and the information listed previously notes all *frequent and significant findings* across sites and groups. In addition, there were a few conversations where participants shared feedback on local issues of concern. As numbers are lower in each local venue, it is more difficult to identify the level of significance. However, the following topics were mentioned locally.

North Country: Berlin (39 participants)

- Participants want to be sure the concerns of upstate are not always mixed in with concerns of downstate.
- Economic development as a key priority in recreation issues.

Seacoast Region: Portsmouth (26 participants)

- Concerns specific to seacoast and beach areas.
- Concerns about Hampton beach needing more diversity of users, mostly teenagers,

Monadnock Region: Keene (22 participants)

- Friends of Pisgah is a model that should be used in other parks; Some noted that Pisgah is the biggest park but not well supported; there is very little access to paths, restrooms; and viewpoints for people with disabilities.
- There was Interest in increased trails for equine use.

White Mountains Region: North Conway (9 participants)

- NA

Merrimack Valley Region: Manchester (31 participants)

- Equestrian concerns included a lack of support for equestrian use on trails and in public parks; lack of understanding about equestrian use and its impact; lack of facilities and parking space, and lack of understanding of the positive economic impact from the equestrian community.

Dartmouth/Lake Sunapee Region: West Lebanon (10 participants)

- NA

Lakes Region: Laconia (43 participants)

- Participants and individual e-mails mentioned concerns about a private yacht club seeking permission to build a club house at Ellacoya state park in Gilford
- Equine concerns noted at this site similar to those at Manchester site.
- Concerns for water quality standards for sewage during big events, such as Fish Derby.

## Conclusion

The NH Listens SCORP project represented a vigorous outreach effort in order to give citizens across the state an opportunity to share their thoughts on outdoor recreation. The strong response from the public to participate at NH Listen conversation sessions was higher than planned. Final evaluations from participants and facilitators indicated that they rated the experience as positive and stated that the most important issues were addressed in the design. Participants also indicated that they increased their knowledge and understanding of issues related to outdoor recreation and that they had an increased understanding of the points of view of others. The experience of the conversations and the substance of the conversations is something participants feel will have a positive impact on outdoor recreation in the future. There was great interest from participants to see the results of the conversations state-wide and be informed about how the recommendations will be reflected in the 2013-2018 SCORP.

Key issues and priorities were easily identified and common across the state. The key issues and priorities from participants include:

- The need for **partnerships** among users and providers in outdoor recreation
- The importance of **stewardship** of existing facilities and recreation lands
- The support of and need for management of **multiple users** of recreation lands
- The need for **education** of users, the general public, potential users, and landowners
- The importance of **volunteers** and the need to increase volunteerism
- Ensuring **access** for all users, including to private lands where allowed
- An overall concern for the lack of **funding** now and in the future for outdoor recreation
- The importance of providing outdoor recreation opportunities for **children and youth**

Outdoor recreation is an important issue in the state. The public has strong connections to outdoor facilities and lands used for outdoor recreation and, therefore, have a stake in future plans. Outdoor recreation supporters would like to see an expansion and strengthening of outdoor recreation opportunities and resources to benefit residents, visitors, communities, economic development, and future generations.

NH Listens expects that the topics, priorities, and recommendations from NH citizens that emerged from the community dialogues will be incorporated into the 2013 SCORP planning process and documentation.

## New Hampshire Recreation and Conservation Leaders Survey 2011



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*NH Parks and Recreation*



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# **New Hampshire Recreation and Conservation Leaders Survey 2011**

## **Overview:**

The State Comprehensive Outdoor Recreation Plan (SCORP) is the comprehensive strategic plan for identifying critical needs for outdoor recreation in New Hampshire. The SCORP satisfies the requirement of the Land and Water Conservation Fund (LWCF) that each state have an approved SCORP on file with the National Park Service (NPS) in order to participate in the LWCF program. It also fulfills the New Hampshire statutory requirement (RSA 12-A:18) that there be an outdoor recreation planning program. The results of the stakeholder survey, presented here in this report, are part of the five year review and update and will be presented in the 2013-2018 SCORP which will be completed in 2013.

The University of New Hampshire Cooperative Extension was commissioned by the New Hampshire Office of Energy and Planning (OEP) to gather stakeholder input for the 2013-2018 State Comprehensive Outdoor Recreation Plan (SCORP). UNH Cooperative Extension developed a list of diverse stakeholders for recreation, natural resource management, public health and planning in the State of New Hampshire. These stakeholders were invited to be a part of the Advisory Work Group which was assigned to work on the development of objectives for the 2013-2018 SCORP. Cooperative Extension developed a web-based survey with input from the stakeholder Advisory Work Group. The survey was widely distributed to recreation stakeholders throughout the state of New Hampshire.

## **Survey Methodology:**

The survey was developed by UNH Cooperative Extension with input from the stakeholder Advisory Work Group and staff at NH Office of Energy and Planning and NH Parks and Recreation. The survey was designed to gather information regarding the outdoor recreation and land conservation planning needs and management priorities for communities throughout the state of New Hampshire. The survey results are intended to inform and update the goals and objectives for the State Comprehensive Outdoor Recreation Plan currently under revision.

This was a web-based survey sent to targeted stakeholders (individuals and organizations) in the recreation, natural resource management, land conservation, public health and planning fields throughout the state of New Hampshire. The survey link was also posted on the NH Office of Energy and Planning website and circulated widely on various targeted lists such as the Recreation Association and Plan Link NH. The survey was available from October 28, 2011 through November 11, 2011. 136 survey responses were received.

## **Overview of Survey Respondents:**







The survey was taken by 136 recreation and conservation leaders throughout New Hampshire. 47% of those taking the survey identified themselves with a title in recreation, most often as director of recreation. Others taking the survey include conservation commission members, conservation organization staff, recreation users and town officials and state personnel. The majority (76%) of respondents have been in their position with a recreation or conservation organization for 10 years or less. Seven respondents have held their position for more than 20 years.



## Respondents Organizations:






Those responding to the survey serve a varied number of constituents ranging from as few as 100 to over 100,000. The majority of respondents serve year- round users and a small number serve seasonal users although most indicated they do not or are unable to track this data. The respondents had a mix of part-time, seasonal and full time staff with volunteers representing a large number of “workers” to help recreation and conservation organizations accomplish their work.

**Table 1 - The type of organizations represented in the survey responses**

Response	% of Total Respondents	%
Recreation Department		27%
Town Conservation Commission		11%
Town Planning Board		5%
Town Select Board		2%
Non-Profit Organization		36%
Other, please specify*		19%

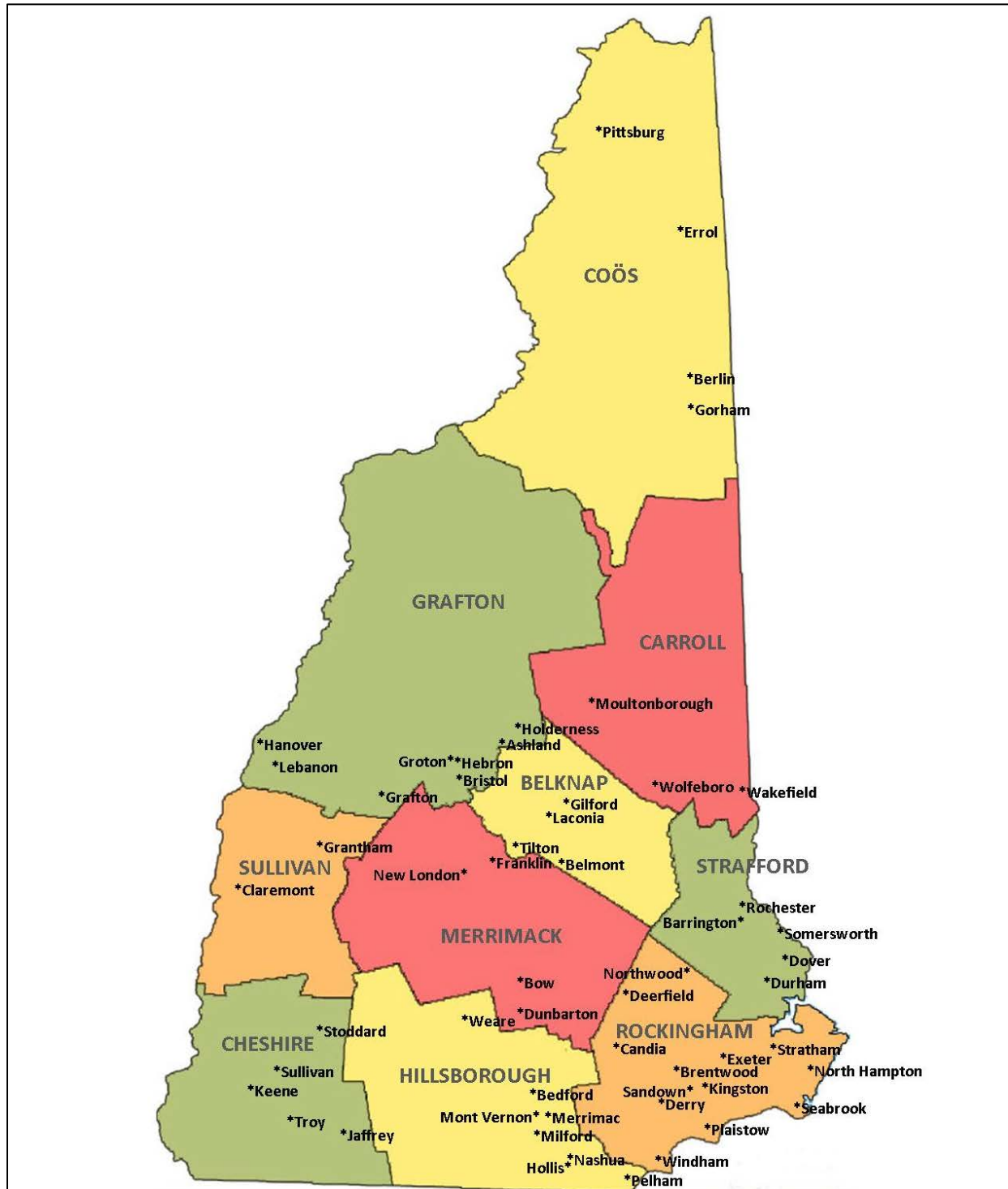
\*This category included state government, regional planning organizations, trail groups, town recreation committees and ATV and snowmobile club representatives.

**Table 2 – Primary purpose or philosophy of the responding organizations**

Response	% of Total Respondents	%
Our primary purpose is the protection and/or conservation of natural resources.		12%
Our primary purpose is the development and/or promotion of public outdoor recreation use on conservation land.		11%
Our primary purpose is to promote a balance between conservation and recreation use of natural resources.		34%
Our primary purpose is to provide community recreation programs		27%
Other purpose (please specify)		16%

## Survey Respondents Service Area

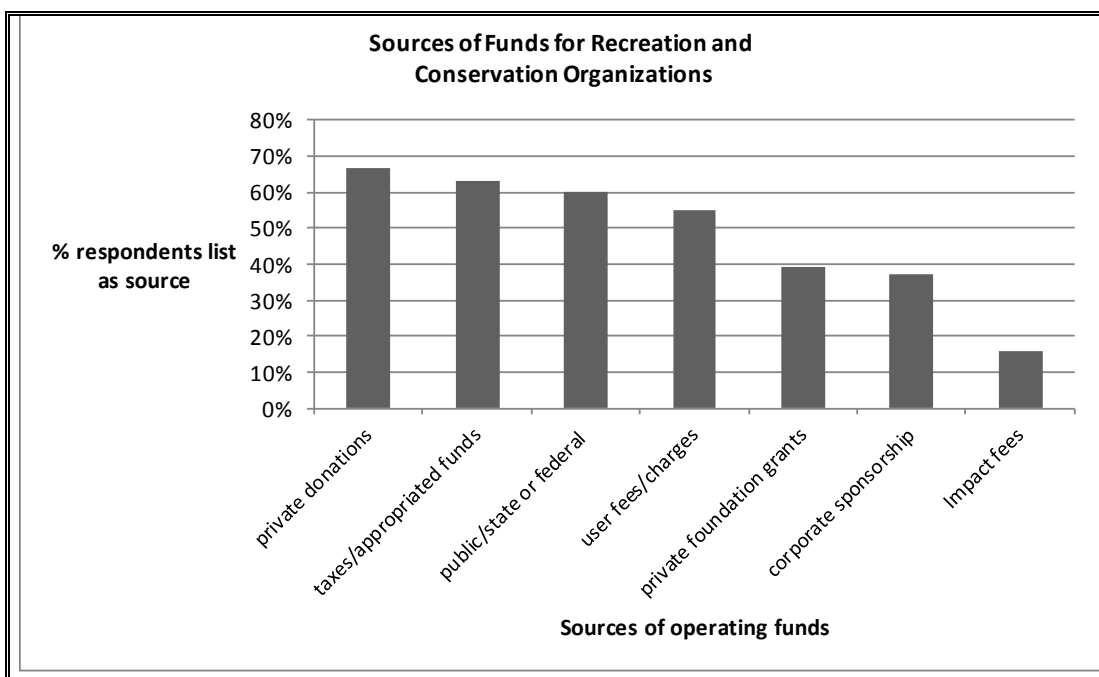
Survey respondents largely represented a city or town as their service area (57%). Other survey respondents represented a region (21%) or they serve the entire state (21%). Some towns, counties, regions or the state were represented by more than one survey response.



## Funding and Support of Recreation and Conservation Organizations

Recreation and conservation leaders were asked to indicate the sources of operating funds for their organizations. In addition to the sources of funds listed here, some respondents also listed endowments, fundraising events and membership dues as other sources of funds. Private donations are listed as a source of funds by 67% of respondents while 63% list taxes and appropriated funds as a source and 60% list state or federal funds as a source.

**Table 3 – Sources of Funds for Recreation and Conservation Organizations**



The majority of respondents indicated funding as a top challenge for their organization. 40% indicated that public funding had “stayed about the same” and 27% indicated it declined.

**Table 4 - Recreation and conservation leaders view of the change in public funding support for outdoor recreation and conservation over the past 5 years:**

Response	% of Total Respondents	%
Remarkably improved		5%
Improved		19%
Stayed about the same		40%
Declined		27%
Remarkably declined		9%

## Planning Priorities for Outdoor Recreation and Conservation

Below are all the planning priorities for outdoor recreation and conservation which were presented in the survey. Table 5 shows the highest to lowest planning priority of those who indicated it as a high or medium priority. See Appendix A for all data.

**Table 5 - Planning priorities for outdoor recreation and conservation**

PLANNING PRIORITIES FOR OUTDOOR RECREATION AND CONSERVATION	High priority	Medium priority	Total
Encourage keeping private lands open to the public for outdoor recreation opportunities	66%	21%	87%
Encourage partnerships and cooperation between diverse users of recreational land	59%	28%	87%
Focus on collaboration, volunteerism and environmental education particularly for youth, in developing and maintaining outdoor recreation areas	42%	44%	86%
Encourage local development that supports connectivity of open space for recreational and cultural uses	56%	28%	84%
Cultivate a new generation of users (i.e. under-served audiences) by increasing awareness of outdoor recreation opportunities	48%	33%	81%
Focus efforts statewide toward development of and access to outdoor recreational opportunities that connect people to where they live and work	40%	41%	81%
Partner with organizations to foster the connection between outdoor recreation, health and wellness	40%	31%	71%
Increase opportunities for under-served groups (seniors, multilingual, youth, disabled) to participate in outdoor recreation	29%	42%	71%
Prioritize renovation/refurbishment of existing recreational facilities over funding new land acquisition	26%	44%	70%
Improve the diversity of outdoor recreational opportunities, particularly in urban areas	28%	34%	62%

## Vision, Challenges and Priorities

### Vision

Survey respondents were asked to share comments and their “vision” for outdoor recreation in New Hampshire. The three most common comments describe outdoor recreation as (1) adding to the quality of life in New Hampshire; (2) being a part of the culture and; (3) having a strong, positive impact on the economy. Respondent’s vision for outdoor recreation had common themes which are described below.

#### Vision for Outdoor Recreation:

- Serving diverse populations across the state
- A mix of resident users and visitors
- An educational component for users and providers
- An expansion of current funding and plan for future funding
- Diverse opportunities for a variety of users
- Trail expansion, maintenance and connecting trails
- Strong partnerships among community organizations, business community and public sector

“We need to improve opportunities for all and connectivity of parcels via trails.” survey respondent on vision for outdoor recreation.

#### Top Challenges for Recreation and Conservation Leaders:

Survey respondents were asked to list their top 3 challenges in the next 5 years. They were not asked to rank their top three challenges just list them. Overwhelmingly, respondents indicated funding and financial support as a top challenge. Of the many challenges identified, top ones included:

Funding:	Current and future project funding and overall financial support for recreation lands, facilities and programs.
Projects:	Initiation and completion of trails, parks, bridges, athletic fields and increasing the amount of conservation lands.
Education:	Educating users, potential users and private landowners on opportunities, rights and responsibilities with recreation lands and facilities.
Volunteers:	The immediate need for volunteers and a larger concern about attracting volunteers in the future.
Government:	The political atmosphere, the need for legislative support and political leadership were cited. All levels of government – local, state and federal were seen as a challenge.
User Conflicts:	Managing and reducing conflict with different user groups on recreation lands.

## **Top Priorities for Recreation and Conservation Leaders:**

Survey respondents were given an open ended question to list their priorities for outdoor recreation and conservation. Responses were given as a short phrase or sentence. Top priorities fell into the following categories.

Trails:	Improving and developing trails (hiking, walking, biking, riding) with a focus on connectivity with existing trails and newly developed trails
Land Conservation:	Additional land acquisition and land conservation efforts
Stewardship:	Stewardship of existing recreation and conservation lands
Education:	Education of outdoor recreation users, potential users and private landowners




Other priorities listed by respondents include project planning; improved access to outdoor recreation and conservation land and overall increased usage of outdoor recreation and conservation lands. Single respondents indicated increased staff, policy issues, tourism, senior citizens, health objectives, minority populations and partnerships as priorities.





## **Key Findings**





### **Key Findings of the Survey:**

- Outdoor recreation is seen as adding to the quality of life in New Hampshire and is a contributing factor in the economic health of the state.
- Funding outdoor recreation is the top challenge for recreation and conservation leaders
- Leaders support a vision which includes increasing access to underserved populations, providing diverse opportunities and bringing in a new generation of users.
- Trail work and making connections between trails is a priority for recreation and conservation leaders.
- There is strong support for keeping private lands open for outdoor recreation opportunities
- Volunteers are important to outdoor recreation and conservation work and there is a concern about developing a volunteer base for the future.
- Education is seen as an important component to outdoor recreation use and land conservation.





## Appendix A: Priorities for outdoor recreation and conservation in the next 5 years:





<b>A. Encourage local development that supports connectivity of open space for recreational and cultural uses</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		0%
Low Priority		16%
Medium Priority		28%
High Priority		56%





<b>B. Prioritize renovation/ refurbishment of existing recreational facilities over funding new land acquisition</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		10%
Low Priority		20%
Medium Priority		44%
High Priority		26%





<b>C. Encourage keeping private lands open to the public for outdoor recreation opportunities</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		2%
Low Priority		11%
Medium Priority		21%
High Priority		66%

**Priorities for outdoor recreation and conservation in the next 5 years (cont'd):**

<b>D. Improve the diversity of outdoor recreational opportunities, particularly in urban areas</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		10%
Low Priority		28%
Medium Priority		34%
High Priority		28%





<b>E. Increase opportunities for under-served groups (seniors, multilingual, youth, disabled) to participate in outdoor recreation</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		3%
Low Priority		26%
Medium Priority		42%
High Priority		29%





<b>F. Encourage partnerships and cooperation between diverse users of recreational land</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		1%
Low Priority		13%
Medium Priority		28%
High Priority		59%



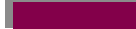

<b>G. Focus on collaboration, volunteerism and environmental education particularly for youth, in developing and maintaining outdoor recreation areas.</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		2%
Low Priority		12%
Medium Priority		44%
High Priority		42%



**Priorities for outdoor recreation and conservation in the next 5 years (cont'd):**

<b>H. Focus efforts statewide toward development of and access to outdoor recreational opportunities that connect people to where they live and work</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		4%
Low Priority		15%
Medium Priority		41%
High Priority		40%

<b>I. Partner with organizations to foster the connection between outdoor recreation, health and wellness</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		5%
Low Priority		24%
Medium Priority		31%
High Priority		40%

<b>J. Cultivate a new generation of users (i.e. under-served audiences) by increasing awareness of outdoor recreation opportunities</b>		
<b>Response</b>	<b>% of Total Respondents</b>	<b>%</b>
Not a Priority		3%
Low Priority		15%
Medium Priority		33%
High Priority		48%

## **Appendix B: Specific projects identified for outdoor recreation and conservation efforts in the next 5 years**

Significant trail work to stop prevent erosion in Purgatory Brook Watershed including installation of water-bars, moving rocks, upkeep of overgrown trails, etc.

We have a small park and pond in town center that needs significant work and are in the process of devising plan for dredging the pond to open up springs, and clean up area around pond, prevention of algae blooms, etc. It's a great place for children to ice skate, fishing derbies, etc. We have enlisted conceptual plan from engineer but needs funds to go forward.

Hebert Town Forest was harvested several years ago, now needs clean up, maintenance and marking of new trails, some bridge work for wet areas. 4) Private land owner wants to donate 20 acres to town for conservation land to be used for public recreation. We are in the process of hiring surveyor to change lot line, and needs funds to find non-profit to hold conservation easement.

Walking track around our town park

Increase year-round outdoor community events

13 mile woods trail, flume brook trail

Access to Headwaters designated roads

Adding service facilities at recreational areas to reduce discharge of untreated waste; supporting watershed groups to engage in direct resource management & protection

All cluster subdivisions

As stated above

Bocce courts

Building an Outdoor Education & Research Facility on summit of Mt Washington

Cain Brook watershed, dredge two ponds, restructure earthen dam to natural rock riffle aquatic passage

Children in Nature

Completed 24 acre development for Recreation usage

Complete athletic field expansion

Complete riverwalk path project

Connecticut Lakes Head Waters ATV trail access to connect with the Errol, NH ATV trail system.

Continue to support FNRT efforts and increase awareness of towns and state that Class VI roads are a legacy to future of NH recreation and should be protected and preserved.

Creating water trails.

Daniell Park - Basketball Court

Odell Park - Fishing Pier

Stone Park - Replace Playground Equipment

Stone Park - Basketball Court

Daniell Park - Picnic Area

Odell Park - Surveillance Equipment

Odell Park - Ice Skating Rink

Developed walking trail system in the Concord Hospital campus area.

Development of regional parks and active recreation facilities

Dover Community Trail.

Forbes on Long Hill Road.

Several confidential projects.

Economic Impact Study

Economic Impact Study

establishment of legacy funding and conservation easements on currently identified private holdings

Exeter River Clean-Up

Buffer and Erosion Control Projects along Exeter River

Land Conservation Projects

Explore sale of carbon credits as income source for NH forest landowners

Extend and upgrade trail systems to connect existing parks, design and build a new facility with bathrooms and storage at an existing park,

Fall Festival

Moonlight Snowshoe Walks

Vernal Pools Workshops

Geocaching Events

Field expansion and recreation trail construction

Friends of Northwood Meadows State Park improvements; Isinglass River LAC management plan; Northwood Area Land Management Collaborative educational activities.

Fully fixing up scoutland in rollinsford, for all to use

Habitat demonstration plantings.

Landowner relations signage.

habitat plantings, education and outreach

I have taken part in many community cleanups along the Sugar River Recreational Rail trail, have cleared many deadfall trees from the Rail trail, and have built bridges over freshwater streams in the woods of Claremont and Newport as part of Sullivan County ATV Club.

Improved numerous trails, built bridges, installed culverts and added trail signage.

Improvement of current trails.

Increase and improve the trail system in and around Northwood Meadows State Park

invasive species control on our preserves

Build new trails

Better interpretation of our conserved lands

Jericho Lake ATV State Park

Lake Winnepesaukee watershed management plan

Land and Water Conservation Fund Grant program

Land protection around Oyster River water supply

Landowner permission & trail building the Seven Islands Bridge location on Rte. 26 between Milan & Errol.

Legislative initiatives to help landowners keep their lands open

Lighting multipurpose fields to increase capacity instead of just building more fields

Linking trail networks

Locate more carriage drive areas

Maglaras Park redevelopment in conjunction with the development of the Cocheco River waterfront and Riverwalk Park.

Maintenance of the Hopkinton-Everett Riding area.

Manchester Airport Access Road path and on-highway bicycle access, Windham Rail Trail, Northern Rail Trail, proposed Memorial Bridge multi-modal connectivity.

mapping, signing, tread improvement, possible bridge construction

Mascoma River Greenway (Rail Trail extension).

Outdoor Adventure programming.

More trails, Land owner permission, building bridges, cutting new trails.

Must keep all land owners update on club trails movement to help keep getting use of their land for today and years ahead

New ballfields

New walking trail, benches, trash receptacles etc. for parks.

Rail trail system work and connections.  
 With SPNHF on Black Mtn (Kearsarge) and Pillsbury-Sunapee Ridge; work with ASLPT on land conservation; work with towns on planning and zoning.  
 OHRV Trail from Rollinsford, NH. to Wakefield NH.  
 Parson Main/Central Square Project  
 Wyandotte Walkway  
 Riverwalk  
 Pat for new groomer being delivered this fall--- Repairs to old groomer---  
 Repair storm damages to 130 miles of trails  
 Pursue purchase of property on Lake Winnesquam  
 Pisgah, Pawtuckaway and Bear Brook State Parks and Conservation Land  
 Planning to Complete the third phase of a three phase playground project.  
 Re-finishing our four tennis courts and one outdoor tennis court.  
 Protection of 20 acres of agricultural land. This is Phase 2 of a project started in 2010.  
 Purchase of fee simple land and easements and donations of same  
 Rebuilding washed out trails and maintaining trail systems.  
 Re-establish trail system formerly maintained by the now defunct Epping Traildusters, re-establish trails on the East side of Rt. 125 that lead to Pawtuckaway State Park as well as re-establish trails in and around Kingston State Park.  
 Refurbish public pools  
 Improve current active parks  
 Improve maintenance of trails  
 Maintain a higher level of service with less staff  
 Renovate and increase our playing fields. Adding a walking trail  
 Revamp field at playground  
 Remove milfoil at beach  
 Connect pathway to road  
 River walk and pavilion grant application with LWCF  
 River Walk and walking trails and OHRV trails.  
 Same as above  
 Setting up programs to familiarize people with the outdoor recreational opportunities here in our community  
 Start a capital campaign and find new funding sources.  
 supporting amendment of SB107  
 CLHW property 5 year plan  
 To widen some of the trails for better access and for safety reasons. To fix bridges add better signage. mapping the trail system with GPS for quicker response to locate an injured person  
 Town owned property.  
 Trail and sidewalk improvements.  
 Trail maintenance  
 Boundary identification  
 We have 37 project to finish from prior grant rounds and will announce awards to about 24 more in December of this year  
 We need another regulation baseball field & a long term plan for a new Rec Complex  
 We would to build a club house for meetings safety course classes a stopping point for our trail users and info area  
 Web site

## **Appendix C: 2013-2018 Advisory Group Work Team**

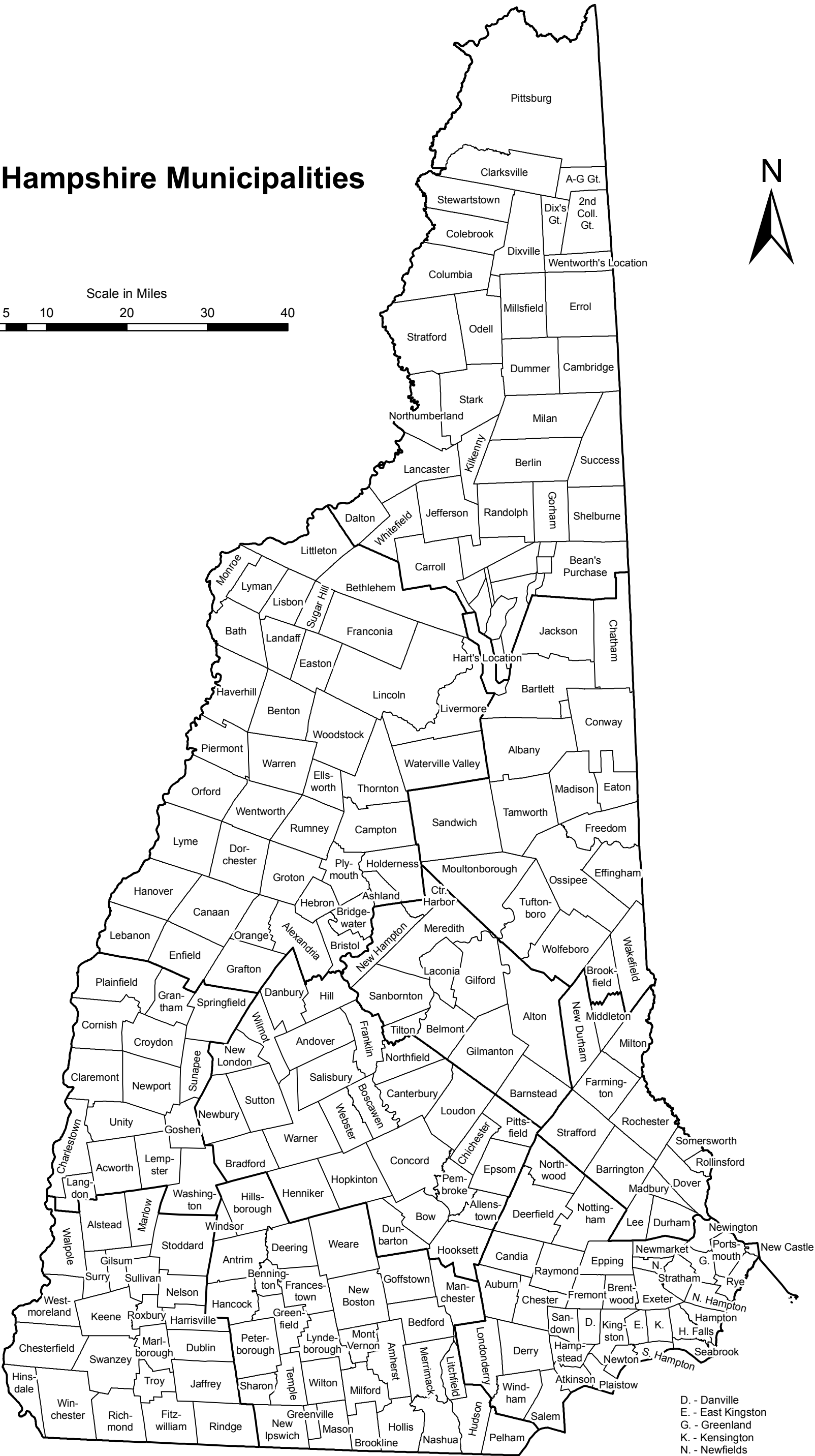
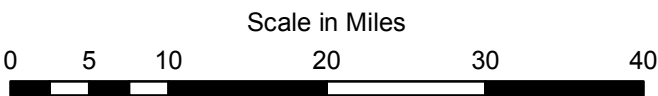
### **Organization**

Granite State Independent Living  
White Mountain Attractions  
Center for Health Promotion  
Department of Transportation  
NH Department of Resources and Economic Development  
NH Fish and Game Department  
NH Office of Energy and Planning  
Town of Moultonborough  
NH Rivers Council  
NH Snowmobile Assoc.  
NH Bureau of Trails - DRED  
NH Department of Resources and Economic Development  
NH Division of Parks and Rec  
Audubon Society of NH  
NH Grand/Northern Community Investment Corporation  
NH Recreation and Parks Association  
Forest Society  
NH Wildlife Federation  
NH Department of Resources and Economic Development  
NH Department of Environmental Services  
NH Department of Environmental Services

### **Contact**

Jeff Dickinson  
Jayne O'Connor  
Jason Aziz  
Tom Jameson  
Johanna Lyons  
Judy Silverberg  
Joanne Cassulo  
Donna Kuethe  
Michele Tremblay  
Gail Hanson  
Chris Gamache  
Gail Wolek  
Jane Carey  
Carol Foss  
Samantha Kenney Maltais  
Herb Greene  
Will Abbott  
Ed Boyle  
Diane Holmes  
Carolyn Russell  
Jackie Colburn

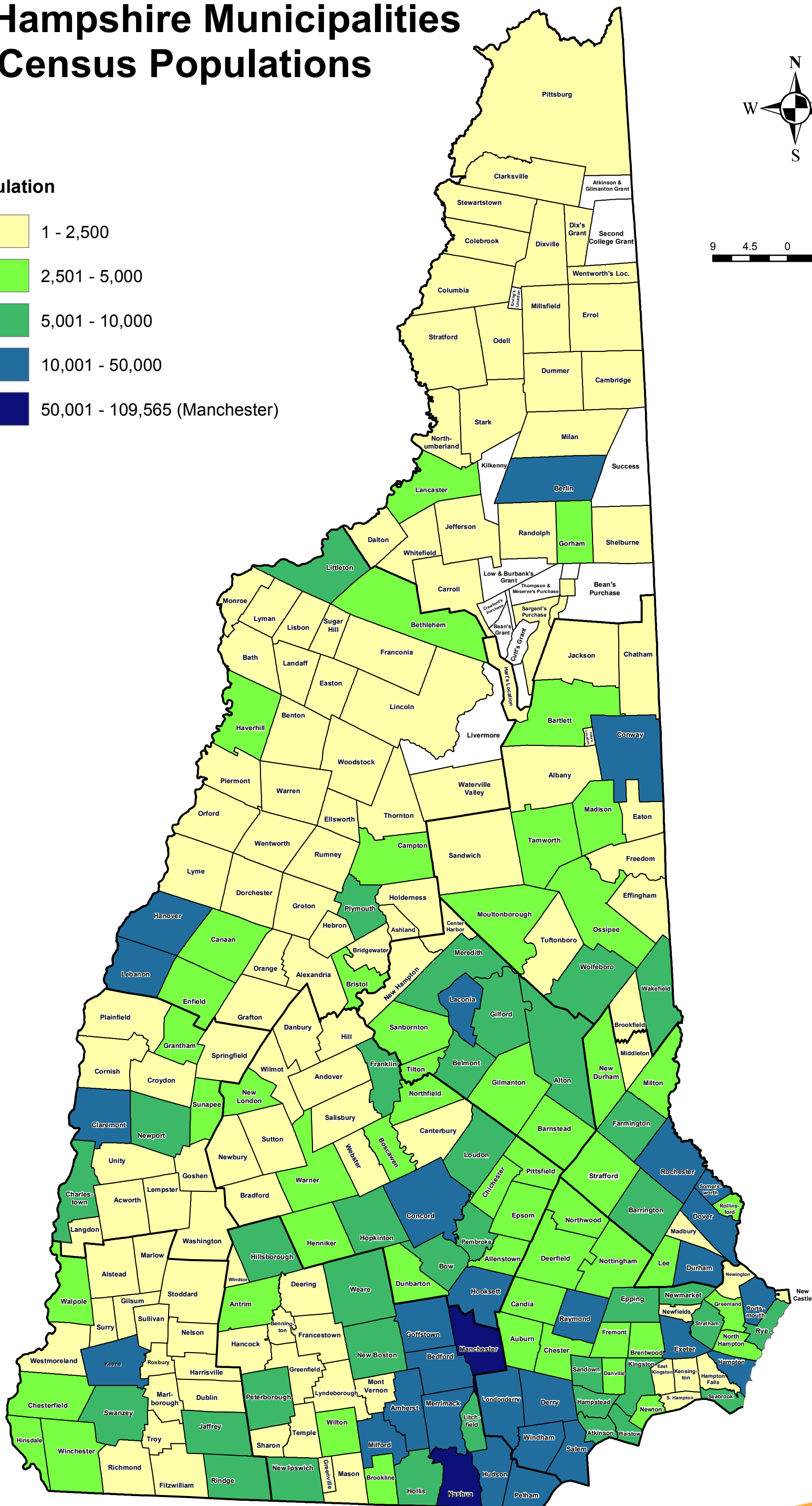
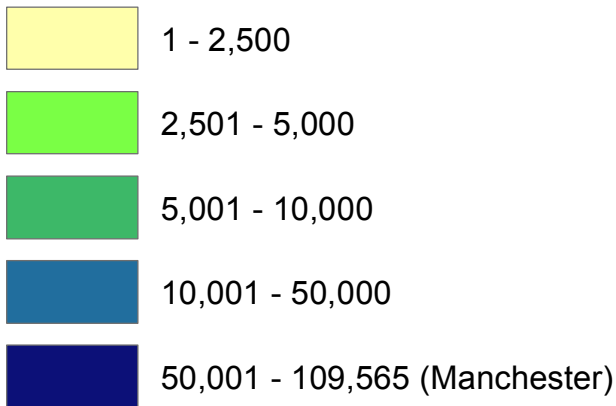
# New Hampshire Municipalities



D. - Danville  
E. - East Kingston  
G. - Greenland  
K. - Kensington  
N. - Newfields



# New Hampshire Municipalities 2010 Census Populations

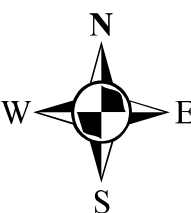




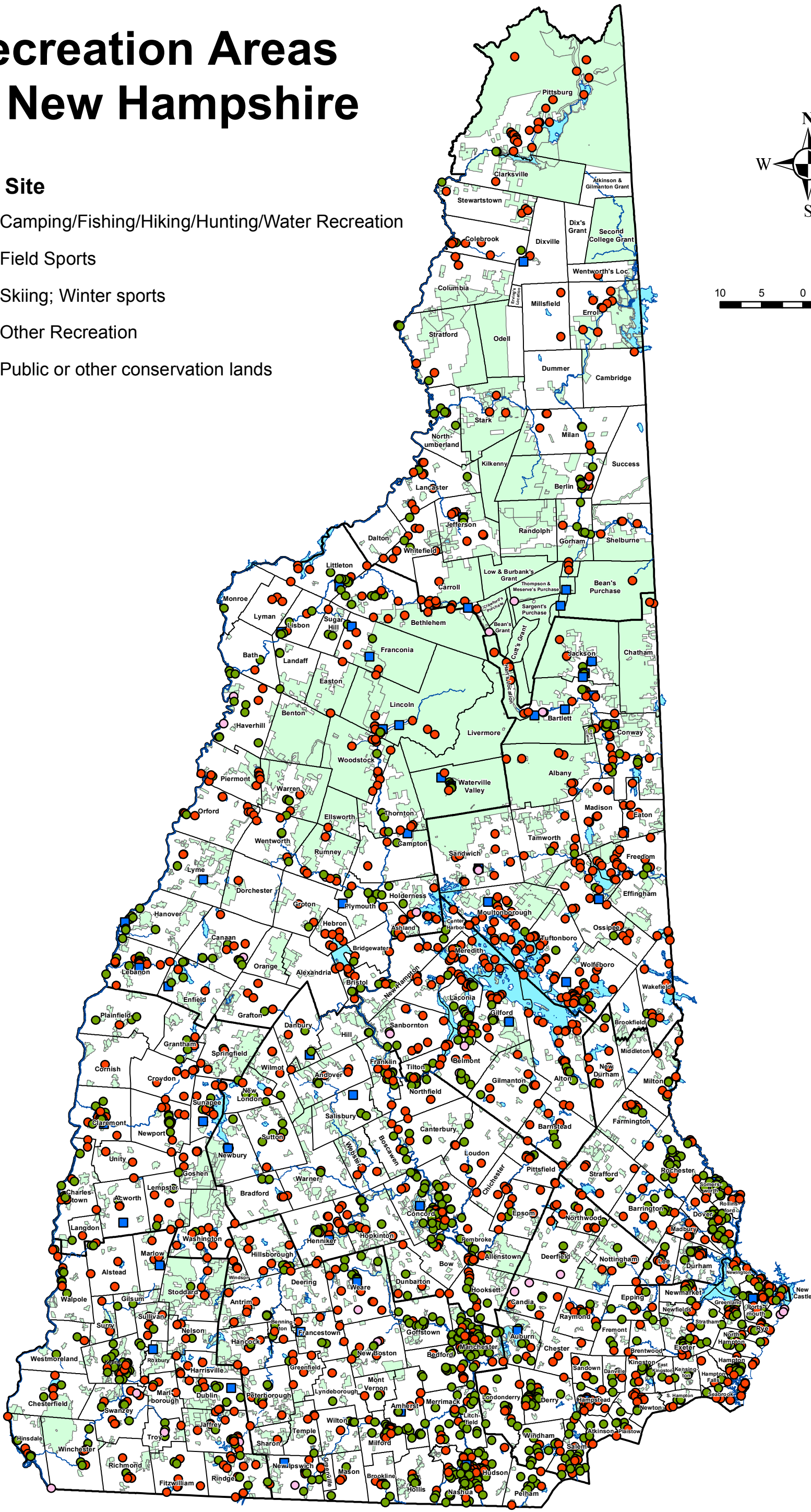
# Recreation Areas in New Hampshire

## Type of Site

- Camping/Fishing/Hiking/Hunting/Water Recreation
- Field Sports
- Skiing; Winter sports
- Other Recreation
- Public or other conservation lands



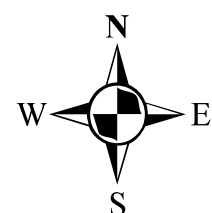
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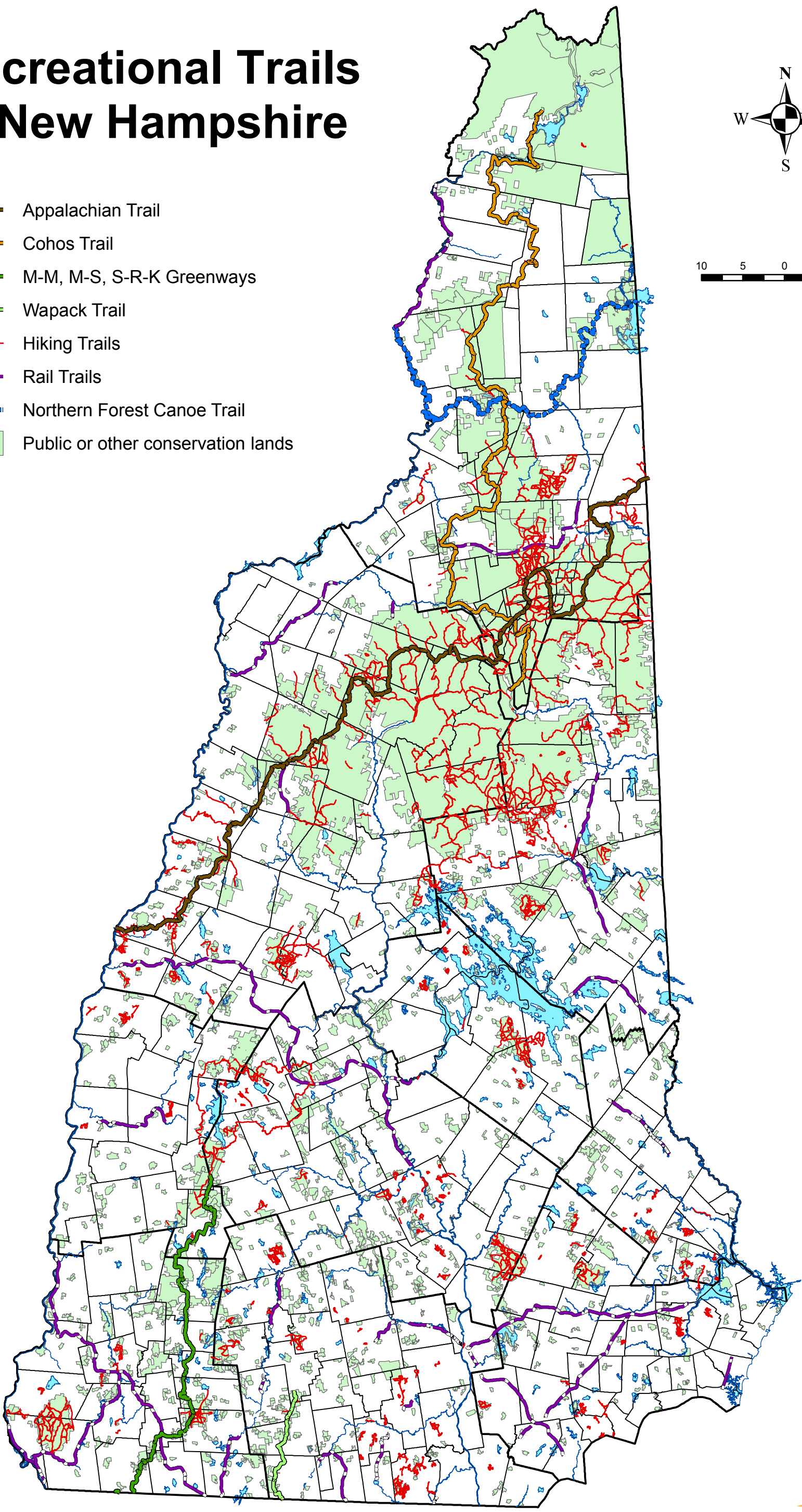


# Recreational Trails in New Hampshire

- Appalachian Trail
- Cohos Trail
- M-M, M-S, S-R-K Greenways
- Wapack Trail
- Hiking Trails
- Rail Trails
- Northern Forest Canoe Trail
- Public or other conservation lands



10 5 0 10 miles

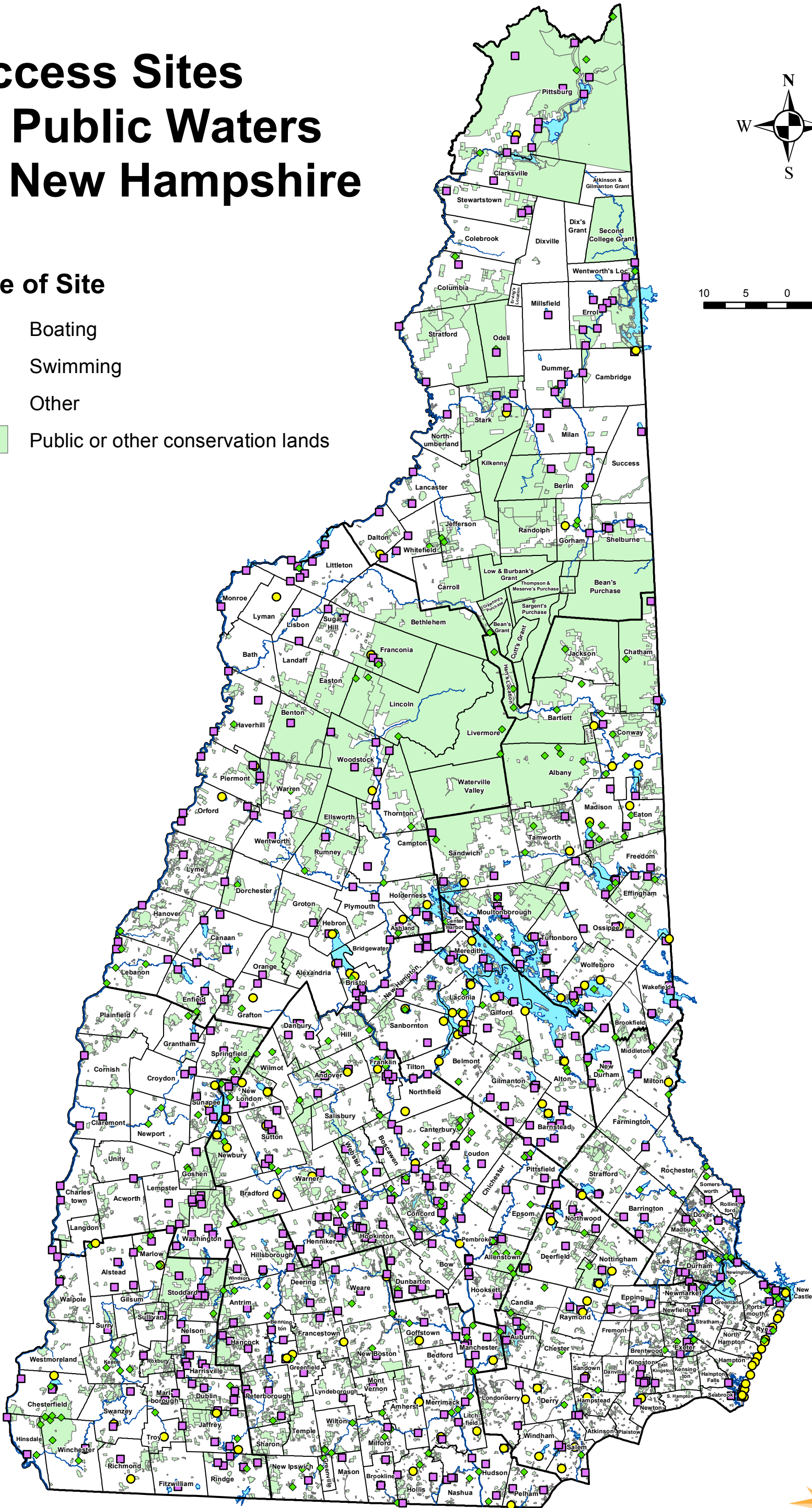
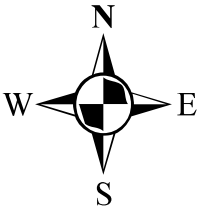




# Access Sites to Public Waters in New Hampshire

## Type of Site




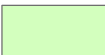




- Boating
- Swimming
- Other
- Public or other conservation lands



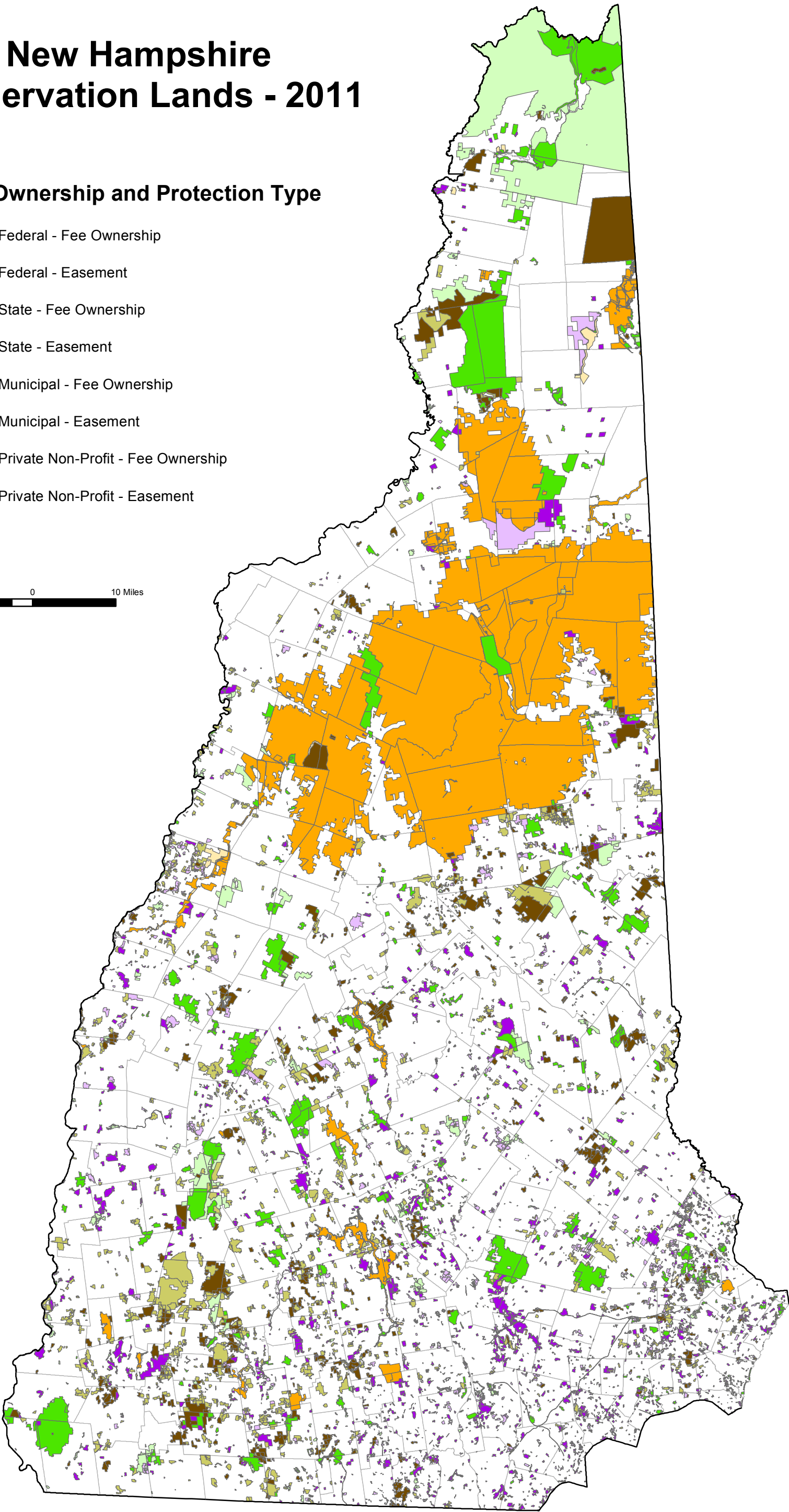


# New Hampshire Conservation Lands - 2011

## Land Ownership and Protection Type

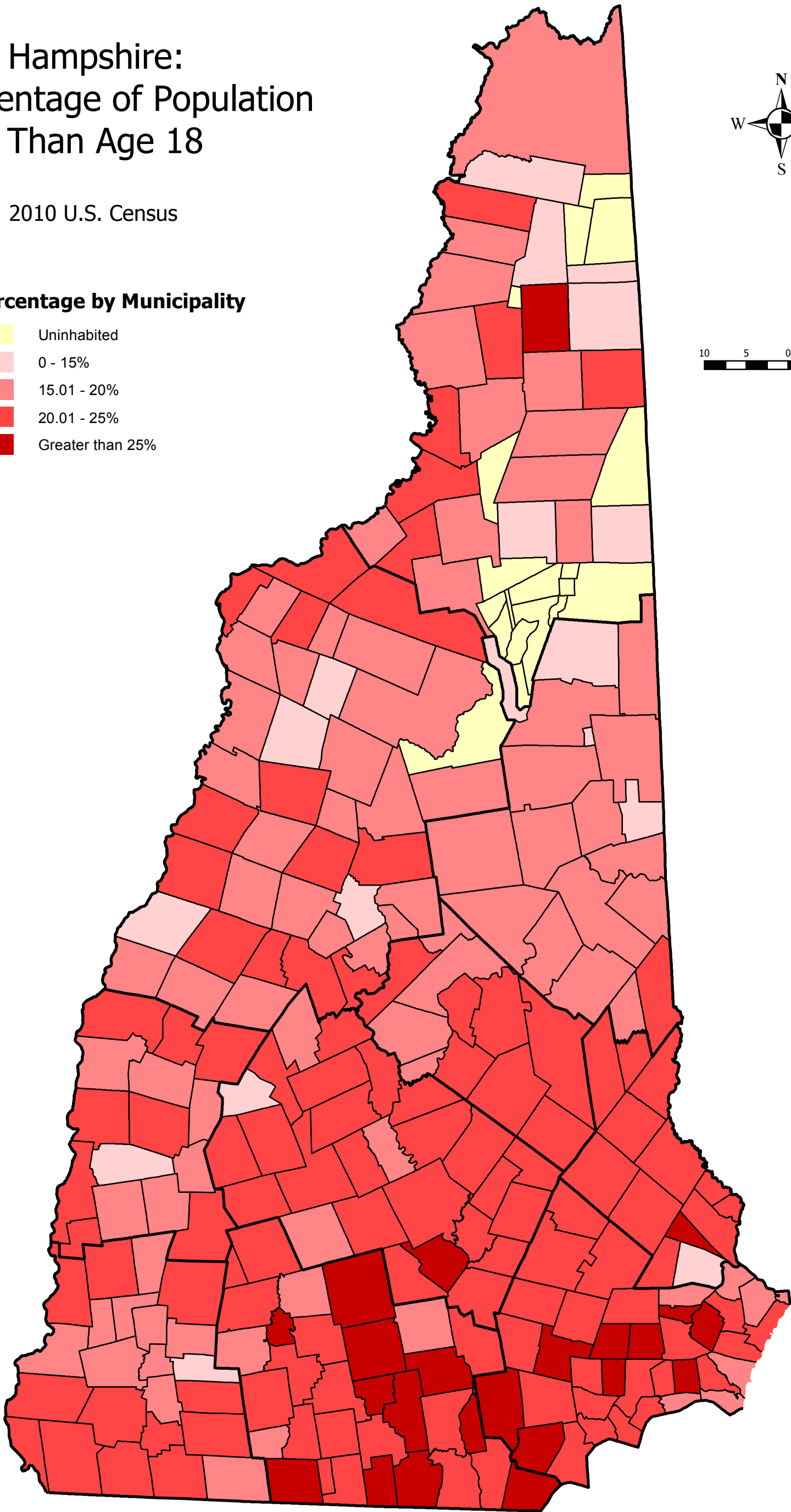
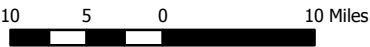
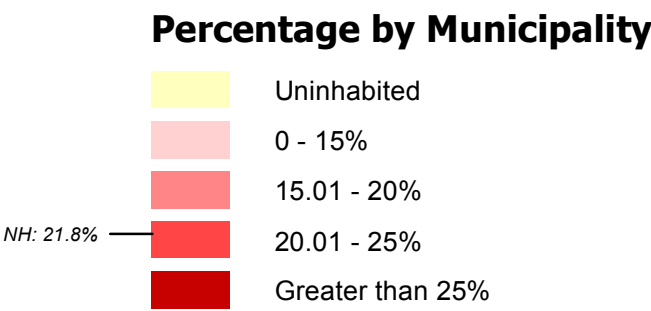
-  Federal - Fee Ownership
-  Federal - Easement
-  State - Fee Ownership
-  State - Easement
-  Municipal - Fee Ownership
-  Municipal - Easement
-  Private Non-Profit - Fee Ownership
-  Private Non-Profit - Easement

10 5 0 10 Miles



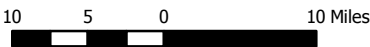
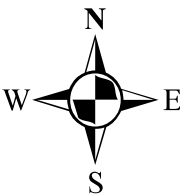
# New Hampshire: Percentage of Population Less Than Age 18

Source: 2010 U.S. Census

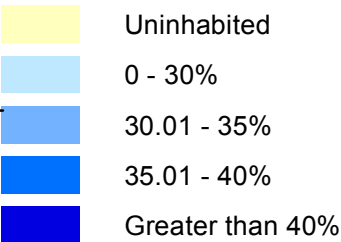


# New Hampshire: Percentage of Population Age 45 to 64

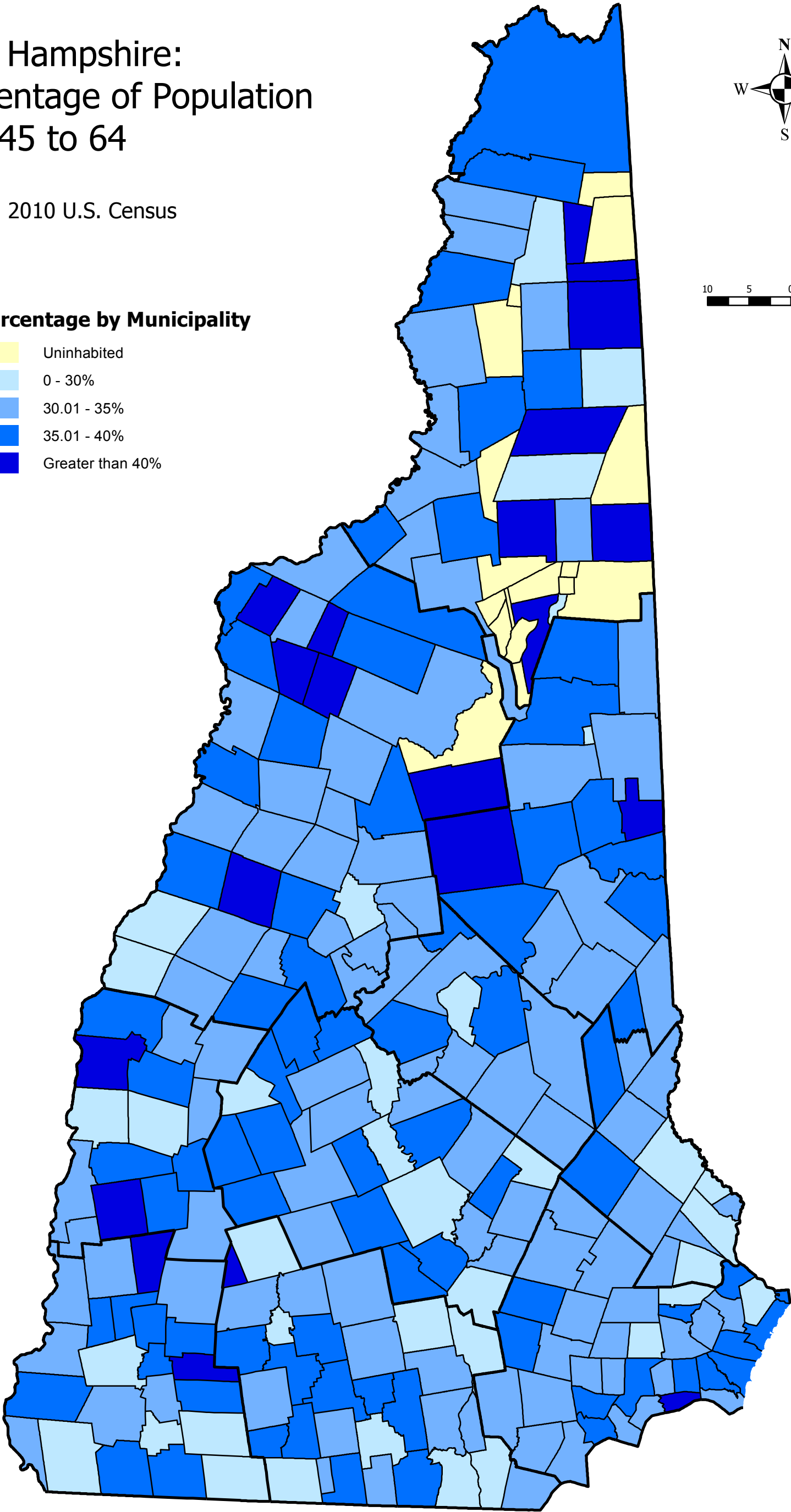
Source: 2010 U.S. Census



## Percentage by Municipality

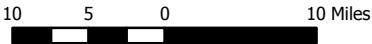
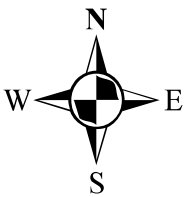


NH: 30.6%

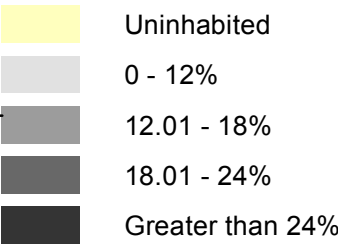


# New Hampshire: Percentage of Population Age 65 or Greater

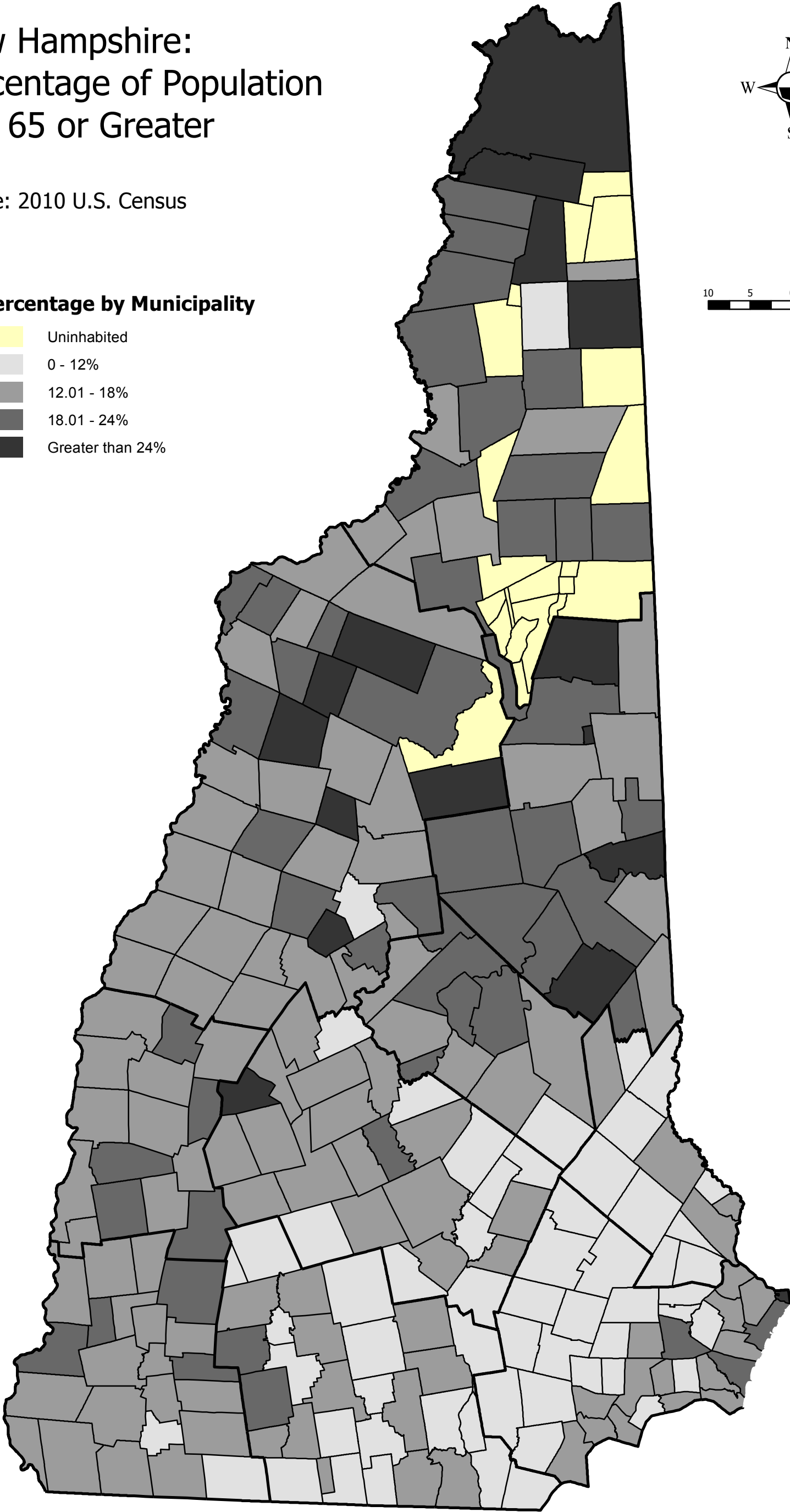
Source: 2010 U.S. Census



## Percentage by Municipality



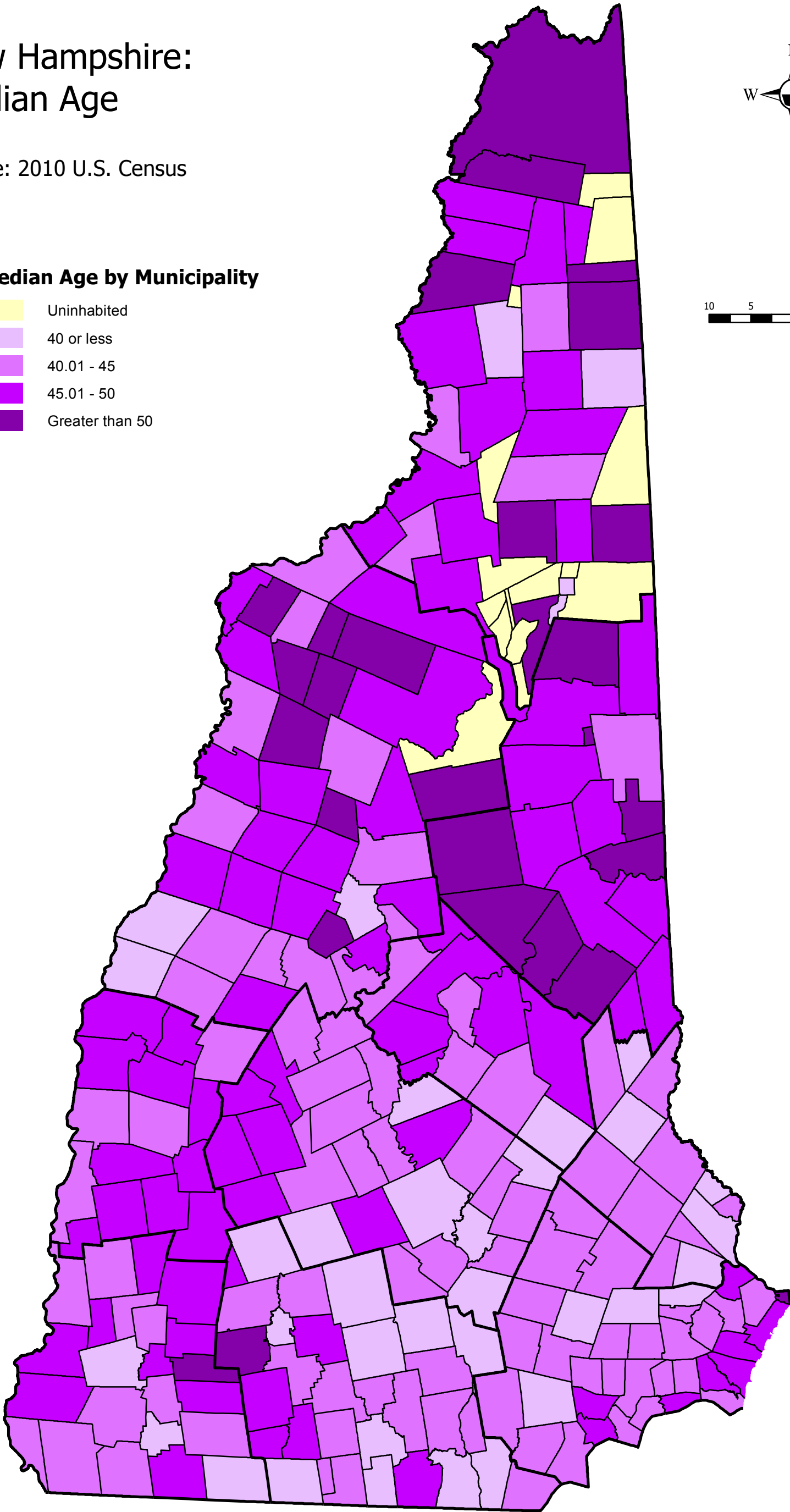
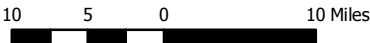
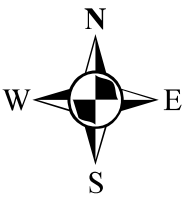
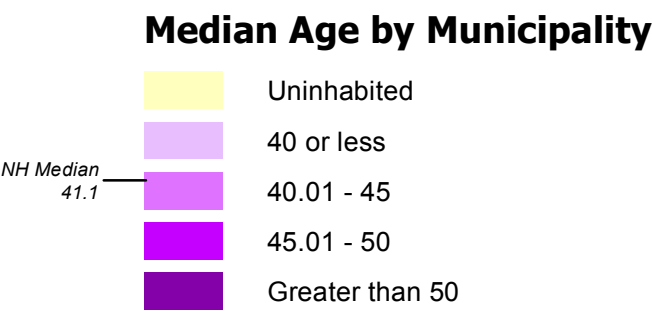
NH: 13.5%





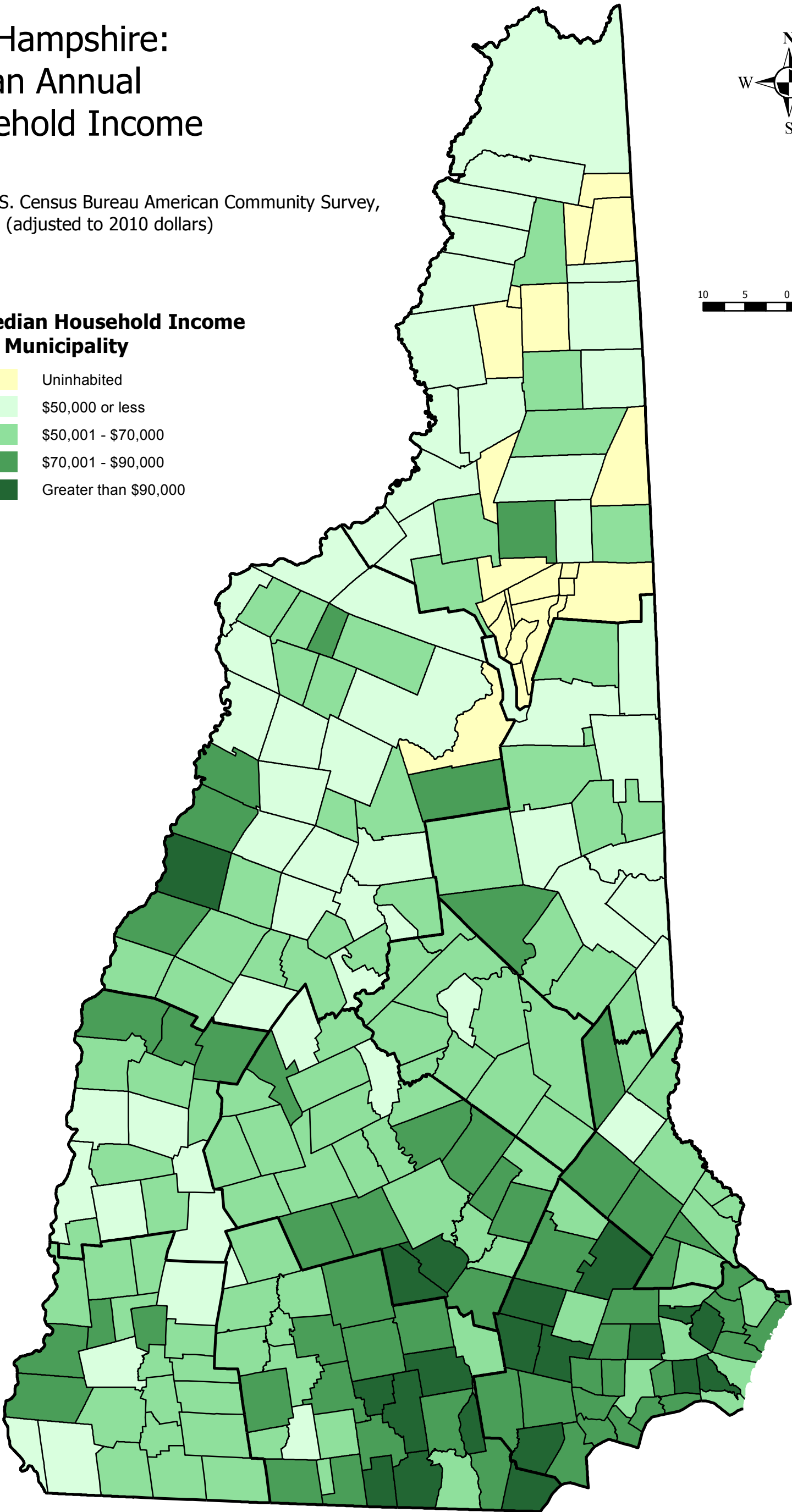
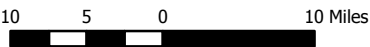
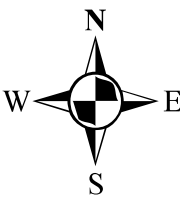
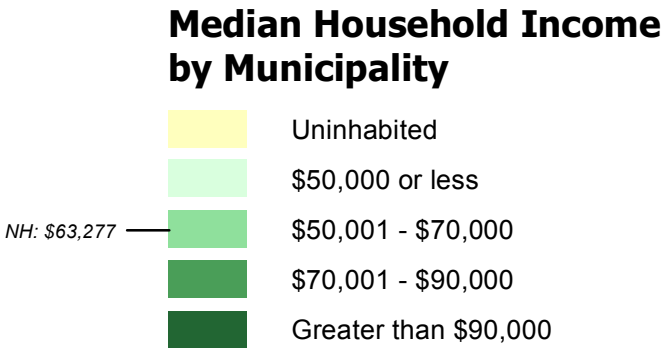
# New Hampshire: Median Age

Source: 2010 U.S. Census



# New Hampshire: Median Annual Household Income

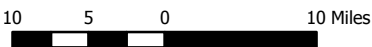
Source: U.S. Census Bureau American Community Survey,  
2006-2010 (adjusted to 2010 dollars)



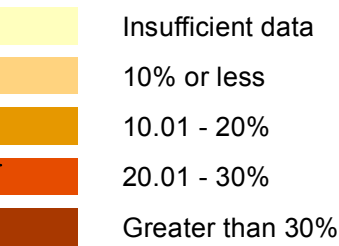


# New Hampshire: Percent of Persons Age 25 and Over with Bachelor's Degree

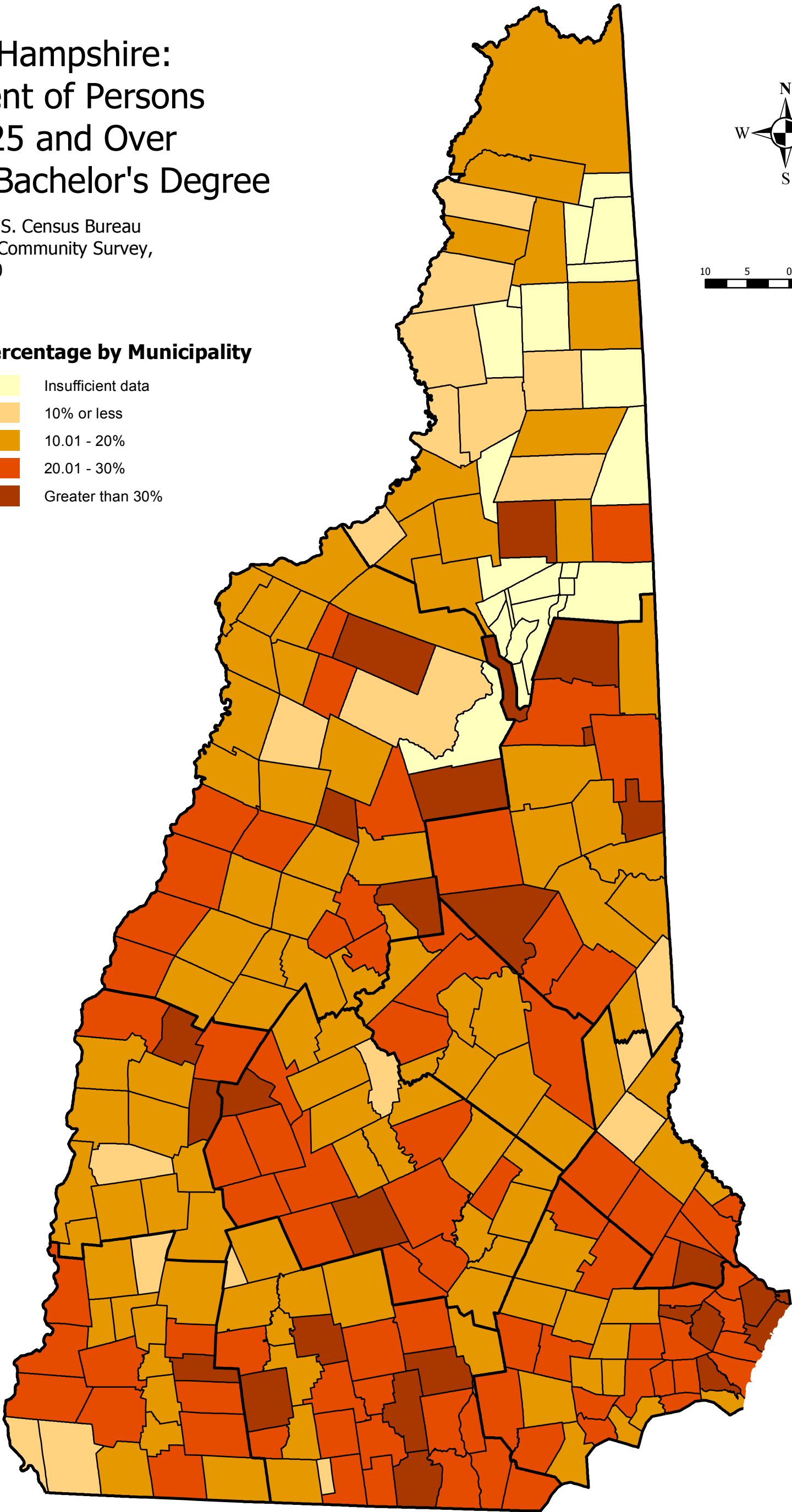
Source: U.S. Census Bureau  
American Community Survey,  
2006-2010



## Percentage by Municipality



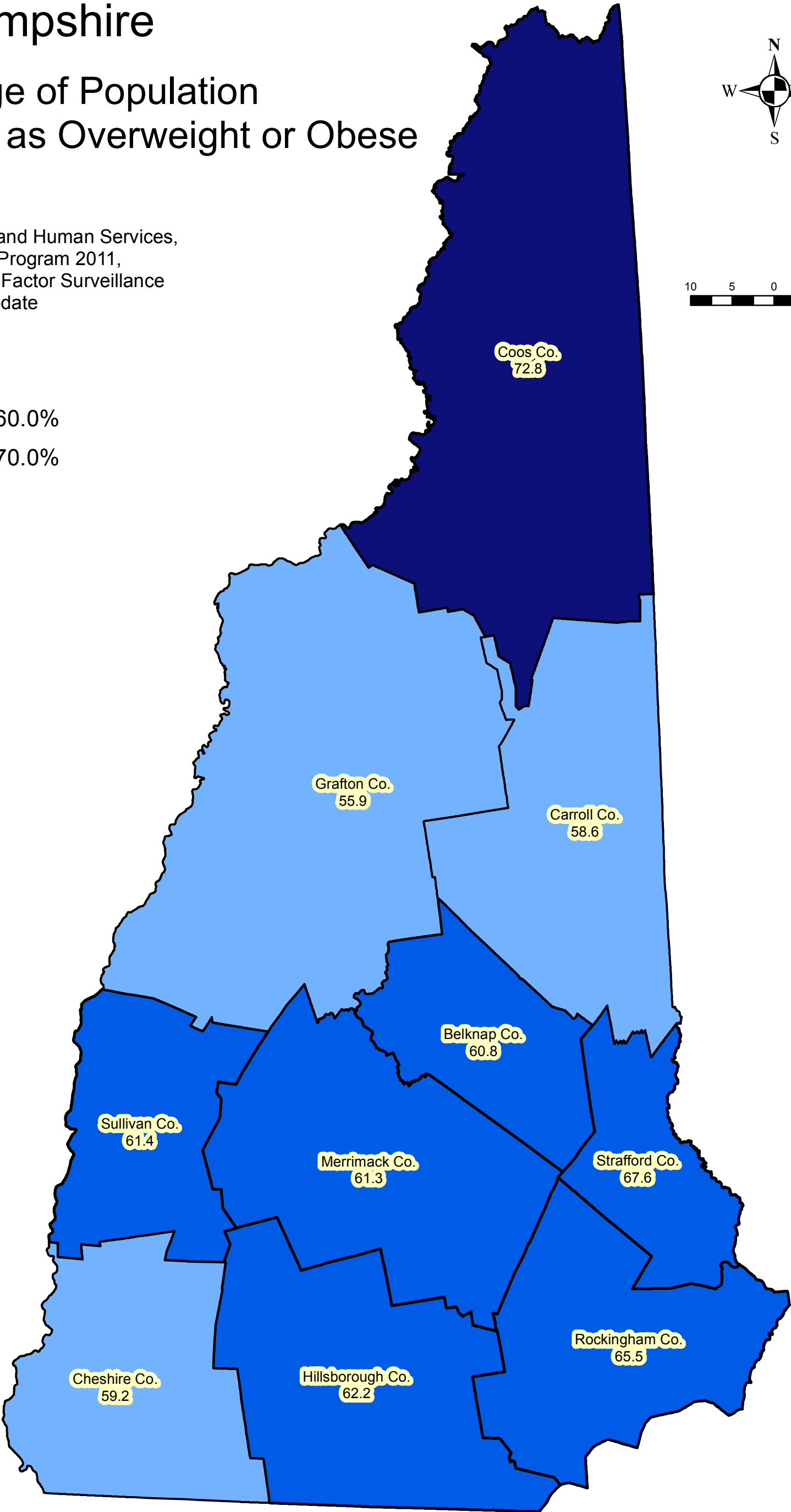
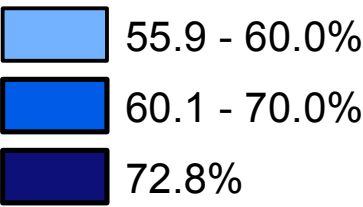
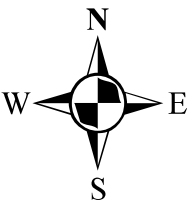
NH: 20.97%



# New Hampshire

## Percentage of Population Classified as Overweight or Obese

Source:  
NH Dept. of Health and Human Services,  
Obesity Prevention Program 2011,  
NH Behavioral Risk Factor Surveillance  
Survey (BRFSS) Update



## **Appendix D**

### **Open Project Selection Process**

#### **Review and Update**

The Open Project Selection Process (OPSP) is an integral part of New Hampshire's administration of the Land and Water Conservation Fund (LWCF) program. The OPSP satisfies state and federal needs for public notification and knowledge about the LWCF program. It ensures the distribution of LWCF assistance in a nondiscriminatory manner as well as a fair and equitable evaluation of all applications. The OPSP provides a measurable link, through published selection criteria, between the priorities established in the Statewide Comprehensive Outdoor Recreation Plan (SCORP) and the LWCF grants for land acquisition and facility development projects.

The OPSP's ranking criteria will continue to reflect those issues identified in the latest edition of the state's SCORP. Certain OPSP criteria may be modified or added from year-to-year depending upon LWCF administrative and planning staff, and OPSP Advisory Panel discussions.

Modifications and additions must be based on the SCORP and approved by the National Park Service.

New Hampshire's use of the OPSP began in 1981, coincidental with the sharp decline in federal funding for the LWCF program. The OPSP has evolved through several grant rounds and it continues to serve the purpose of helping to select the best projects with the most benefits. This evolution has included modifications to the selection criteria to more fairly reflect need based on population growth. Also, more emphasis has been placed on a community's ability to pay for and maintain a proposed project. The qualities of the particular project and the numbers of potential recreationists that may benefit from the completed project have also become relatively more important as the OPSP process has evolved. Protection of certain outstanding natural areas has likewise grown in importance and more emphasis will be given to wetlands in the 2013-2018 SCORP.

#### **OPSP Advisory Panel**

The Open Project Selection Process Advisory Panel was formed in 1981. Membership on the Panel has varied from year to year but has always maintained a core of potential LWCF users and outdoor recreation interest groups. Members represent towns, cities, school districts, and state agencies as well as the conservation community. Members also represent minority populations, the elderly, and the handicapped. The Commissioner of the Department of Resources and Economic Development (DRED) who also serves as State Liaison Officer (SLO) for LWCF appoints the approximately 18-member Advisory Panel as needed and as vacancies occur.

The OPSP Advisory Panel meets approximately twice a year at the request of the SLO or designated DRED staff. Generally, one meeting is called to review and recommend possible program rules and changes to the selection criteria based on the SCORP. A second yearly meeting takes place at the conclusion of grant project application evaluations. At this meeting the OPSP Advisory Panel is requested to review the scoring committee evaluations. After both meetings, the advice and recommendations of the OPSP Advisory Panel are forwarded to the SLO for his/her review and subsequent application to the National Park Service for final approval.

**Project Selection Criteria**

The project selection criteria are designed to select the best of the project applications from each grant round. For most criteria, a range of points is allowed. The final number of points awarded to each project proposal is simply the summation of all the points given to each criterion. The exact numbers of points, and the selection criteria themselves, may vary from year to year; however, one important goal of the program goal is to fairly and equitably distribute the LWCF grant funds throughout the state. Recommendations for revisions may originate from the SCORP, from DRED or from the Office of Energy and Planning (OEP) staff, or from the OPSP Advisory Panel. All proposed revisions to the OPSP must be reviewed, evaluated, and approved by the National Park Service

## Appendix E

### List of Acronyms

ABFDC-NH	Architectural Barrier-Free Design Code for New Hampshire
ACE	Active Community Environments
ADA	Americans with Disabilities Act
ADAAG	Americans with Disabilities Act Accessibility Guidelines
AGO	America's Great Outdoors Initiative
AMC	Appalachian Mountain Club
ANSI	American National Standards Institute
ATV	All-Terrain Vehicles
BRFSS	Behavioral Risk Factor Surveillance System
BMP	Best Management Practices
CCC	Civilian Conservation Corps
CDC	Centers for Disease Control
CNHRPC	Central New Hampshire Regional Planning Commission
CORD	Council on Resources and Development
CPSC	Consumer Product Safety Commission
DES	New Hampshire Department of Environmental Services
DHHS	Department of Health and Human Services
DHR	New Hampshire Division of Historical Resources
DOJ	U.S. Department of Justice
DOT	New Hampshire Department of Transportation
DRED	Department of Resources and Economic Development
DTTD	Division of Travel and Tourism Development
EPA	Environmental Protection Agency
FARMS	Fixed Asset Resource Maintenance System
FNRT	Friends of the Northern Rail Trail in Grafton County
GBRPP	Great Bay Resource Protection Partnership
GIS	Geographic Information Systems
GRANIT	Geographically Referenced Analysis and Information Transfer System
GSIL	Granite State Independent Living
HEAL	Healthy Eating, Active Living
HUD	United States Department of Housing and Urban Development
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
LCHIP	Land and Community Heritage Investment Program
LCIP	Land Conservation Investment Program
LHIs	Leading Health Indicators
LWC	Livable Walkable Communities (New Hampshire)
LWCF	Land and Water Conservation Fund
NARRP	National Association of Recreation Resource Planners
NEGC	New England Governor's Conference
NGA	National Governors Association
NHACC	New Hampshire Association of Conservation Commissions
NHBOHS	New Hampshire Bureau of Historic Sites
NHBOT	New Hampshire Bureau of Trails
NHCP	New Hampshire Coastal Program
NHDCR	New Hampshire Department of Cultural Resources

NHDES	New Hampshire Department of Environmental Services
NHDFL	New Hampshire Division of Forest and Lands
NHDRED	New Hampshire Department of Resources and Economic Development
NHDPR	New Hampshire Division of Parks and Recreation
NHEP	New Hampshire Estuaries Project
NHFG	New Hampshire Fish and Game Department
NHLA	New Hampshire Lakes Association
NHNHB	New Hampshire Natural Heritage Bureau
NHOEP	New Hampshire Office of Energy and Planning
NHRPA	New Hampshire Recreation and Park Association
NHSA	New Hampshire Snowmobile Association
NASPD	National Association of State Park Directors
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRPA	National Recreation and Park Association
NRPC	Nashua Regional Planning Commission
NSRE	National Survey on Recreation and the Environment
NWI	National Wetlands Inventory
OEP	New Hampshire Office of Energy and Planning
OF	Outdoor Foundation
OHRV	Off-highway Recreation Vehicle
OPP	Obesity Prevention Program
OPSP	Open Project Selection Process
ORLS	Outdoor Recreation Leaders' Survey
PWAAB	Public Water Access Advisory Board
REPP	Regional Environmental Planning Program
ROI	Return on Investment
RSA	Revised Statute Annotated
SAFETEA-LU Users	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SCORP	New Hampshire's Statewide Comprehensive Outdoor Recreation Plan
SIP	State Implementation Plan
SLO	State Liaison Officer
SPACE	Statewide Program of Action to Conserve our Environment
SPNHF	Society for the Protection of New Hampshire Forests
SRKG	Sunapee Ragged Kearsarge Greenway
TE	Transportation Enhancements
UNH	University of New Hampshire
UPRRP	Urban Park and Recreation Recovery Program
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
VLAP	Volunteer Lake Assessment Program
WAP	Wildlife Action Plan
WMNF	White Mountain National Forest
YMCA	Young Men's Christian Association
YWCA	Young Women's Christian Association
YRFSS	Yearly Risk Factor Surveillance System

## Appendix F

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## Appendix G

### The Economic Value of New Hampshire Lakes, Rivers, Streams, and Ponds (Summary)

***The Economic Value of New Hampshire Lakes, Rivers, Streams and Ponds***  
**A Summary of the Study**  
**(prepared by Jacquie Colburn, Lakes Coordinator NHDES; May 17, 2010)**

In 2001, the New Hampshire Lakes Association commissioned a multi-phased, multi-year study on behalf of the Lakes, Rivers, Streams and Ponds Partnership to do the following:

- 1) Provide estimates of the economic value from fishing, swimming, boating, public drinking water supplies, and waterfront property ownership for lakes, rivers, streams, and ponds in New Hampshire.
- 2) Ascertain public opinion regarding the state's surface waters.
- 3) Determine if conditions related to water quality worsen and users changed their behavior, meaning they would visit our waters less often, how this might financially impact New Hampshire. (Shapiro and Kroll, 2001, Shapiro and Kroll, 2003, Shapiro and Kroll, 2004, and Nordstrom, 2006).

Phase I of the study conducted in 2001 was the literature and methodological review;

Phase II of the study was conducted in 2003 and is titled "Estimates of Select Economic Values of New Hampshire Lakes, Rivers, Streams, and Ponds";

Phase III of the study was conducted in 2004 and is titled "Public Opinion Poll Results in the Study of Select Economic Values of New Hampshire Lakes, Rivers, Streams and Ponds";

Phase IV of the study was conducted in 2006 and is titled "The Economic Impact of the Potential Decline in New Hampshire Water Quality: The Link Between Visitor Perceptions, Usage and Spending."

Copies of Phases II, III, and IV of the study are available at:

[http://des.nh.gov/organization/divisions/water/wmb/lakes/economic\\_values.htm](http://des.nh.gov/organization/divisions/water/wmb/lakes/economic_values.htm)

The Steering Committee for this economic study consisted of the following with contributions from numerous other organizations and agencies:

- New Hampshire Lakes Association
- New Hampshire Rivers Council
- New Hampshire Department of Environmental Services
- New Hampshire Department of Fish and Game
- Squam Lakes Association
- Lake Sunapee Protective Association
- Newfound Lake Region Association

#### **Phase II of the Study**

The purpose of the Phase II Study was to provide estimates of the economic value from three recreational uses: fishing, swimming, and boating, and two non-recreational uses: public drinking water supplies and waterfront property ownership for New Hampshire lakes, rivers, streams, and ponds. Although there are other significant economic values from surface waters,

the Phase I Study suggested that these five uses provide both significant value and have data available to estimate the value.

Results of Phase II are summarized below (from Shapiro and Kroll, 2003).

- The total sales generated by recreational uses (i.e., boating, fishing, swimming) of New Hampshire's freshwaters, and by public drinking water supplies, range from \$1.1 billion to as much as \$1.5 billion annually.
- Annually, there are approximately 14.7 million visitor days spent by both residents and nonresidents in New Hampshire boating, fishing, and swimming. These visitor days represent roughly 65 percent of the state's summer visitor days and roughly 25 percent of the state's annual visitor days.
- Days spent boating, fishing and swimming collectively generate approximately:
  - \$320 million to \$340 million in annual household income;
  - 9,000 to 15,000 full- and part-time jobs; and,
  - \$850 million to \$1.2 billion in annual total sales, which represents 8 percent to 12 percent of the total impact of visitor spending on the state's economy.
- Nearly 200,000 households and businesses rely on public drinking water from surface water supplies. This generates approximately \$75 million to \$150 million in annual household income, 1,900 to 2,600 full-and part-time jobs, and \$276 million to \$300 million in annual total sales.
- A preliminary estimate suggests that waterfront property owners on lakes, rivers, streams, and ponds pay an estimated \$247 million per year in property taxes.
- The study confirms that the economic value of our fresh surface waters is significant based on these five factors. In reality the value is much higher as the study did not include:
  - Other recreational uses such as hunting waterfowl, shoreline picnics or bird watching;
  - Commercial and industrial uses of surface waters;
  - The economic benefit of business locating in NH due to access to surface waters;
  - People's willingness to pay to keep surface waters clean for themselves as well as future generations.

### **Phase III of the Study**

In 2004, the Partnership commissioned a survey of New Hampshire residents. The purpose of Phase III of the study, conducted in 2004, was to ascertain public opinion about the relative importance of different freshwater attributes, such as overall beauty of the area, water quality, pollution, and crowding, when New Hampshire residents decide to use the state's surface waters for recreational purposes, and how residents' attitudes and behaviors would change if these freshwater attributes were altered.

Results of Phase III are summarized below (from Shapiro and Kroll, 2004).

- The most important reason that New Hampshire residents visit a specific New Hampshire freshwater body is that it offers the best fishing, boating, or swimming. Overall beauty of the area is the second most important reason to visit specific New Hampshire freshwater bodies.
- The most important reasons people stay away from specific New Hampshire freshwater bodies are pollution, overcrowding of people and boats, and poor water quality.
- The survey asked residents to rate the seriousness of a range of environmental and management issues:
  - 68 % rated invasive plants as “very serious” or “serious”
  - 68 % rated crowding as “very serious” or “serious”
  - 54 % rated algae blooms as “very serious” or “serious”
  - 52 % rated water levels or water flows as “very serious or “serious”
  - 48 % rated mercury as “very serious” or “serious”
- The survey also asked if residents would change their behavior if these issues worsened, the respondents indicated that they would indeed do so. Of swimmers, boaters, anglers, and other users:
  - 58 % would decrease use if water levels/flows worsened
  - 67 % would decrease use if invasive plants worsened
  - 70 % would decrease use if algal blooms worsened
  - 71 % would decrease use if mercury worsened
  - 75 % would decrease use if crowding worsened

The survey confirmed that our lakes and rivers are a draw for residents and out-of-state visitors. New Hampshire residents are concerned about water quality and broad environmental factors, such as crowding and development along the shorelines. Maintaining the quality of our rivers and lakes, as well as the quality of the experience people have when they go out to recreate or sight-see is a real economic issue.

#### **Phase IV of the Study**

The final phase of the study conducted in 2006, consisted of a survey of individuals swimming, boating, and fishing at 75 randomly selected access sites across the state ascertained their opinions about New Hampshire’s surface water resources. This phase of the study determined if conditions worsen and these users change their behavior, meaning they would visit our waters less often, how this might financially impact New Hampshire. To review a brochure summarizing the findings of Phase IV of the study, please visit: <http://www.nhlakes.org/docs/Economic-Study-Phase-IV-Brochure.pdf>

The results of Phase IV are summarized below (from Nordstrom, 2006).

- The total annual visitor days made by anglers, boaters and swimmers is 14.9 million; about 29% of the 51.4 million visitor days for the entire year in New Hampshire.
- The total sales generated by anglers, boaters and swimmers combined are nearly \$400 million, or 26% of summer spending in New Hampshire.
- The total household income generated from these sales is about \$134 million.
- Just under 6,000 jobs (full-time and part-time) are generated by fishing, boating, and swimming visits to New Hampshire.
- A range of 79% to 94% of recreationalists report high levels of satisfaction with the water quality, clarity and purity, natural views and scenery, crowding levels, and water levels and flows.

- One-half to two-thirds of visitors would decrease or cease their visiting days to a particular site if they perceived a decline in water clarity and purity, natural views and scenery, crowding levels and water levels and flows.
- Overall, perceived degradation to water clarity and purity will result in the greatest economic loss to New Hampshire. Perceived declines in water clarity and purity would result in about \$51 million of lost sales, \$18 million in lost income, and more than 800 lost jobs statewide.

USFWS



*Bald eagle*

# Stakeholder Survey, Executive Summary







## Executive Summary

### Stakeholder Survey Results for Lake Umbagog National Wildlife Refuge August 2005<sup>1</sup>

#### Introduction

The National Wildlife Refuge System, managed by the U.S. Fish and Wildlife Service (FWS), is the largest system of public lands in the world dedicated to wildlife conservation. There are over 545 national wildlife refuges nationwide, encompassing 95 million acres. The National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, USC668dd) is the guiding legislation for managing these lands. It requires the FWS to develop a 15-year comprehensive conservation plan (CCP) for every refuge by the year 2012. Each CCP will describe a vision and desired future condition for the refuge, and outlines goals, objectives, and management strategies for each refuge's habitat and visitor service's programs. The CCP process for Lake Umbagog National Wildlife Refuge (NWR), including public involvement, was initiated in 2002.

In addition to the Improvement Act, developing a CCP involves many other important federal laws, including the National Environmental Policy Act (NEPA; Public Law 91-190, as amended). NEPA, and its implementing regulations, require that major federal actions, such as the development of a CCP, be fully evaluated and disclosed in an environmental document. The document must describe the refuge's environmental, social and economic conditions (i.e. the "affected environment"), and present an analysis of the social and environmental impacts from the proposed action and alternative management scenarios under consideration. In addition, an opportunity for public review and comment on the proposed action and its alternatives is required.

#### Purpose of Survey

This survey was designed by the U.S. Geological Survey to provide information to the FWS planning team for use in their environmental analysis. Its results inform the team of public satisfaction, preferences, and expectations regarding current and proposed refuge management. Specifically, it measures public satisfaction with existing visitor conditions, and rates the quality of past and current experiences on the refuge. It also identifies preferences for proposed management changes, and gauges public understanding and knowledge about the refuge so that future communications regarding management decisions can be most effective. The targeted recipients of the survey were "stakeholders." These are individuals with a previous history of substantive involvement with refuge planning.



<sup>1</sup>Full citation for report: Sexton, N.R., Stewart, S.C., Koontz, L., and Wundrock, K.D., 2005, Stakeholder survey results for Lake Umbagog National Wildlife Refuge: Completion report: U.S. Geological Survey, Biological Resources Division, Scientific Investigations Report 2005-5207, \_\_\_\_ p.

## Stakeholder Profile

In 2002, as part of initial public involvement for the Lake Umbagog NWR CCP, the FWS broadly distributed an “issues workbook” to individuals in the local community and surrounding area. In addition, a series of public scoping meetings were held. These activities served to begin a dialogue with interested and affected individuals and groups, and to assist the planning team in identifying public issues and concerns.

As the planning team progressed to developing the proposed action and other alternatives, this survey was developed to identify public expectations for refuge management, measure past refuge experiences, evaluate preferences for certain actions, and assess public understanding and knowledge of refuge activities and priorities.

The sample of “stakeholders” for this survey is 214 individuals who had either completed the workbook or attended one of the scoping meetings. About half of respondents are local residents, with most of them living in the area full time. Local residents surveyed have lived in the area (Coos County, NH or Oxford County, ME) on average for about 29 years, with many of their families living there for at least three generations. There appears to be a relationship between stakeholder residency (and length of residency) and their agreement with management options and knowledge of refuge facts. Most stakeholders have a long history of visiting the refuge, with around 10 visits/year for the past 20 years. Understanding the profile of stakeholders involved in a public participatory process can be informative in communications with those stakeholders.

## Stakeholder Experience at the Refuge

Not surprisingly, many of the activities that the refuge is well-known for are important to a large majority of stakeholders.

Activities such as viewing water and forest birds, paddling, viewing moose, and being in a serene environment that is undeveloped are important. More specialized activities, such as hunting, snowmobiling, and ice fishing are important to a much smaller group of stakeholders (see figure J.1). Local residents find many of those specialized activities (boat fishing, motor boating, snowmobiling, and deer hunting) more important than do non-local respondents.

Stakeholders are participating in the activities they find most important on Umbagog Lake and along the Magalloway and Androscoggin Rivers. Very few people are participating in important activities in the other locations.

Overall, stakeholders agree that the refuge is a meaningful place. They identify with the refuge for what it symbolizes to them and they agree that it is an important place for future generations. They do not appear solely dependent on the refuge for the activities in which they participate. However, they do appear to recognize the importance of the experiences they have at the refuge and those experiences bring them back time and again.

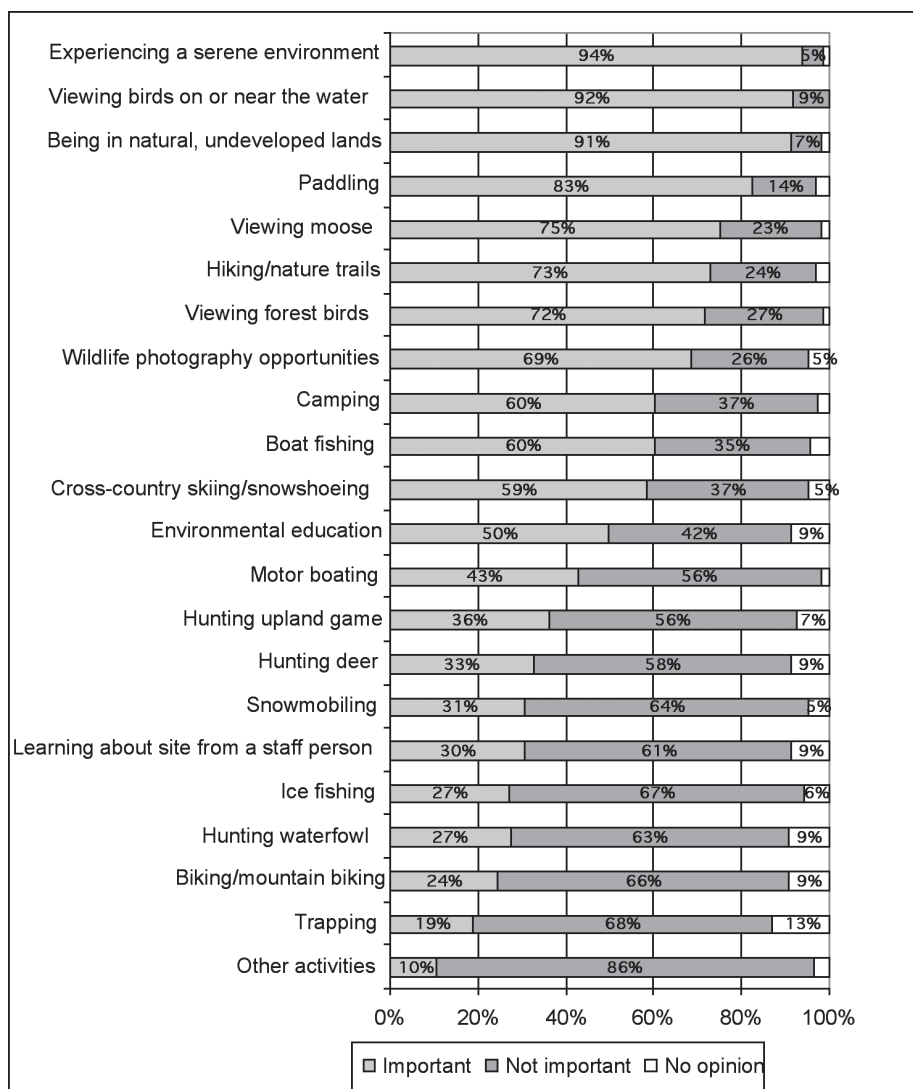


Figure J.1. Importance of activities to respondents who visit Lake Umbagog NWR.

## Stakeholder / Refuge Relations

Based on qualitative responses, stakeholders appear to see the value (both economically and from a quality-of-life perspective) the refuge provides to the local community. They feel the refuge is providing an important function in protecting valued resources. They also see some negative impacts to the local community. These include issues related to promoting rapid growth and tourism in the area that exceeds capacity or community desires. However, these comments appear to stretch beyond refuge responsibility, though stakeholders do seem to feel the refuge has an important role to play in addressing this issue.

Stakeholders sampled appear to have some level of trust of the refuge or the FWS; however, it is not overwhelming. Though greater than 50% of all stakeholders indicate they trust both the refuge staff and the FWS, more than 25% of non-local stakeholders are unsure. This information is important as the refuge continues to interact with stakeholders and improve relationships throughout the CCP process.

## Stakeholder Communication and Participation

Stakeholders have been quite participatory in natural resource or environmental decision making activities within the last 5 years. Though, by nature of the sample (i.e., those who attended a public meeting or completed the scoping workbook), this is not surprising. About 85% of respondents are interested in results from this study and information about future refuge planning activities, indicating a desire to communicate and be involved.

Interestingly, while their trust in the refuge is not overwhelming, refuge staff is the source used by almost half of respondents for information about the refuge, followed by friends, neighbors, and colleagues. It appears stakeholders are relying heavily on the information provided by the refuge.

Beyond refuge staff and friends and neighbors, local and non-local stakeholders use different sources of information to learn about the refuge (see figure J.2). Non-local residents rely more heavily on information from recreation or environmental groups and the Internet, while local residents rely more on newspapers (particularly the Berlin, NH papers), local newsletters, and local town officials. These differences are likely due to the proximity that these groups live to the refuge and the means used to communicate locally about local issues.

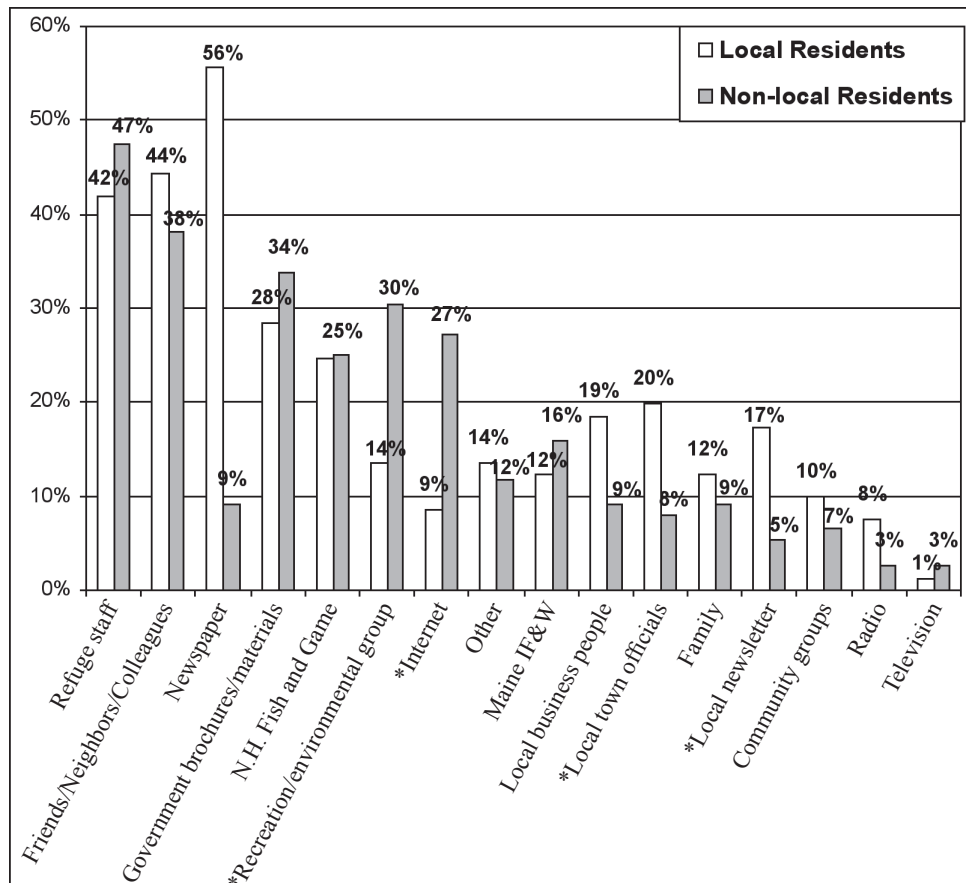


Figure J.2: Sources from which stakeholders get news and information about Lake Umbagog NWR (services with asterisks indicate statistical differences between local and non-local resident ratings of importance).

## Stakeholder Preferences for Refuge Management

### Visitor Services and Features

Potential services rated as important by the majority of stakeholders sampled ( $\geq 65\%$ ) include environmental education; opportunities for wildlife observation; provision of nonmotorized trails; information on hiking, birdwatching, or wildlife photography; and opportunities for volunteering. Services related to hunting and fishing were rated as desirable by fewer respondents (see figure J.3). Nonlocal stakeholders are more supportive of user fees and the provision of Refuge information (on hiking, birdwatching, and photography) than are local stakeholders. Both groups of stakeholders would prefer most of the desired services near Umbagog Lake and along the Magalloway and Androscoggin Rivers.

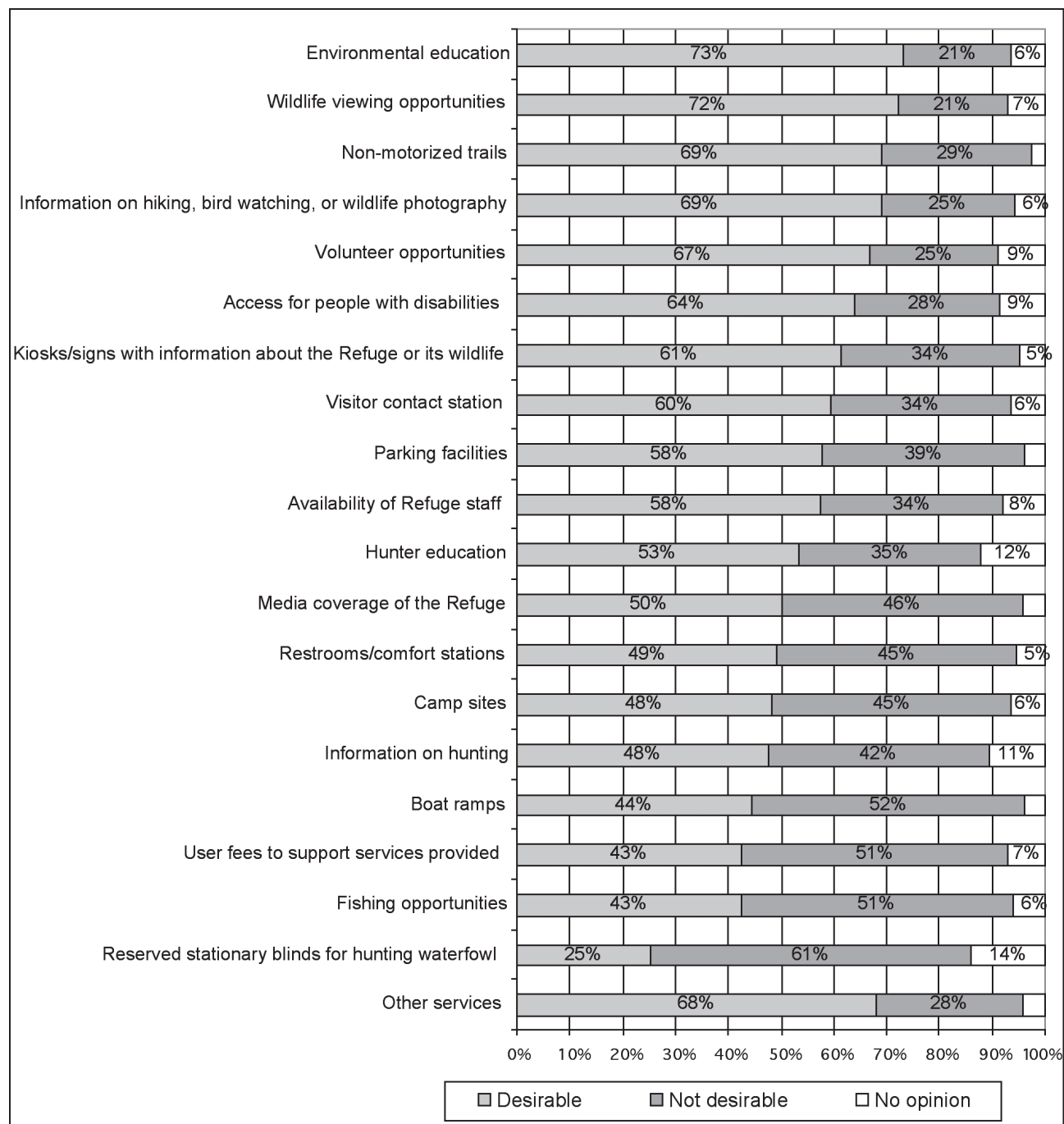


Figure J.3: Desirability of services at Lake Umbagog NWR.

Regarding how services should be managed (increase, leave as is, or decrease), stakeholders appear to be in agreement that the following services be left as is: camp sites, boat ramps, fishing access, and visitor numbers. However, more nonlocal respondents than locals feel that boat ramps and fishing access should be decreased (~25% vs. <10%).

Stakeholders are split (almost 50/50) on whether to increase or leave the following services as is:

- wildlife observation/photography facilities,
- interpretive exhibits,
- brochures/publications,
- restrooms,

However, non-local respondents appear more supportive of restoring more natural conditions than local respondents. Stakeholders are even more split on the management of signs, hunting areas, and visitor impacts on wildlife with valid proportions in all three categories (increase, leave as is, and decrease).

## Management Tradeoffs

Overall, stakeholders are supportive of management tradeoffs related to refuge expansion/acquisition, habitat management (in particular forest management practices on the refuge), public use, and balancing public use and wildlife disturbance (see figure J.4, J.5, J.6, J.7). There also appears to be low potential for conflict with most of these management options.

Some factors appear to be influencing support for these options. Importance of activity type (e.g., consumptive activities such as fishing and hunting; nonconsumptive activities such as biking or hiking), participation in natural resource decision making, residency (local vs. non-local resident), and length of time a respondent has lived in the local area are related (in different combinations for each category of management option) to the agreement with these options.

Though there is not one set of factors that are overwhelmingly driving the small differences in agreement that exist for these management options, there are some relationships in the data that may be useful in targeting groups of stakeholders who are less supportive of these management options. As options are proposed in the CCP, it will be helpful to know where opposition may occur as the public participation process continues. Likewise, as alternatives are implemented, it will be important to recognize potential resistance. Because, even though the development of a CCP is a public process, it is unlikely that all stakeholders will be in agreement with all management actions.

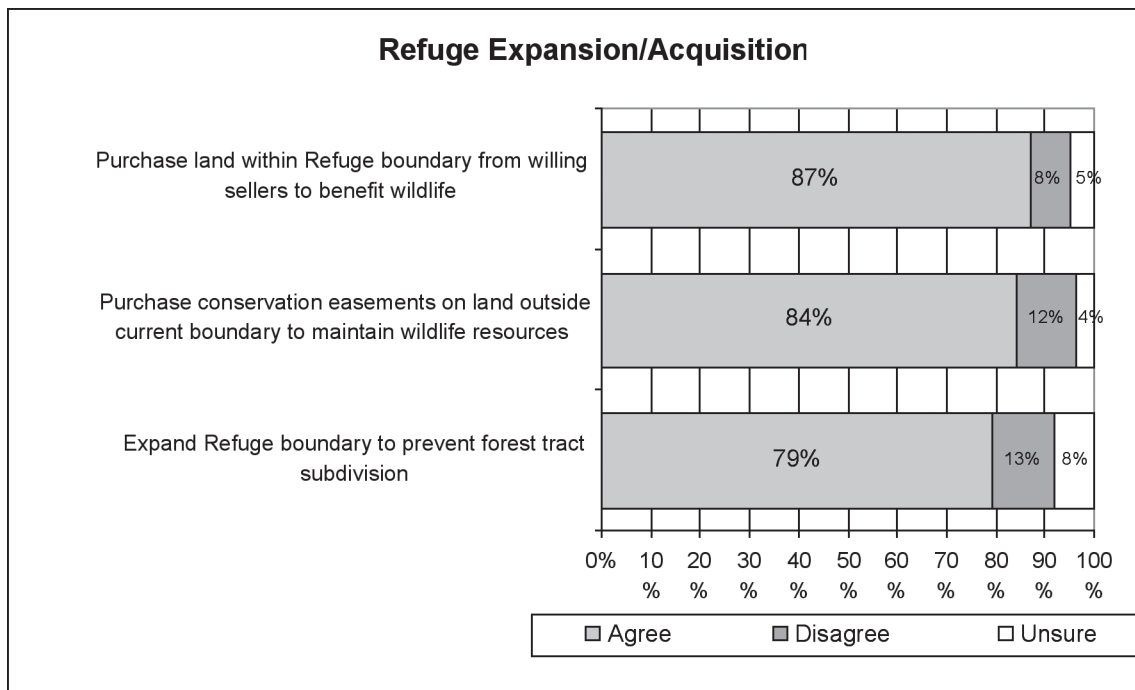


Figure J-4: Stakeholder agreement with management tradeoff statements regarding refuge expansion/acquisition

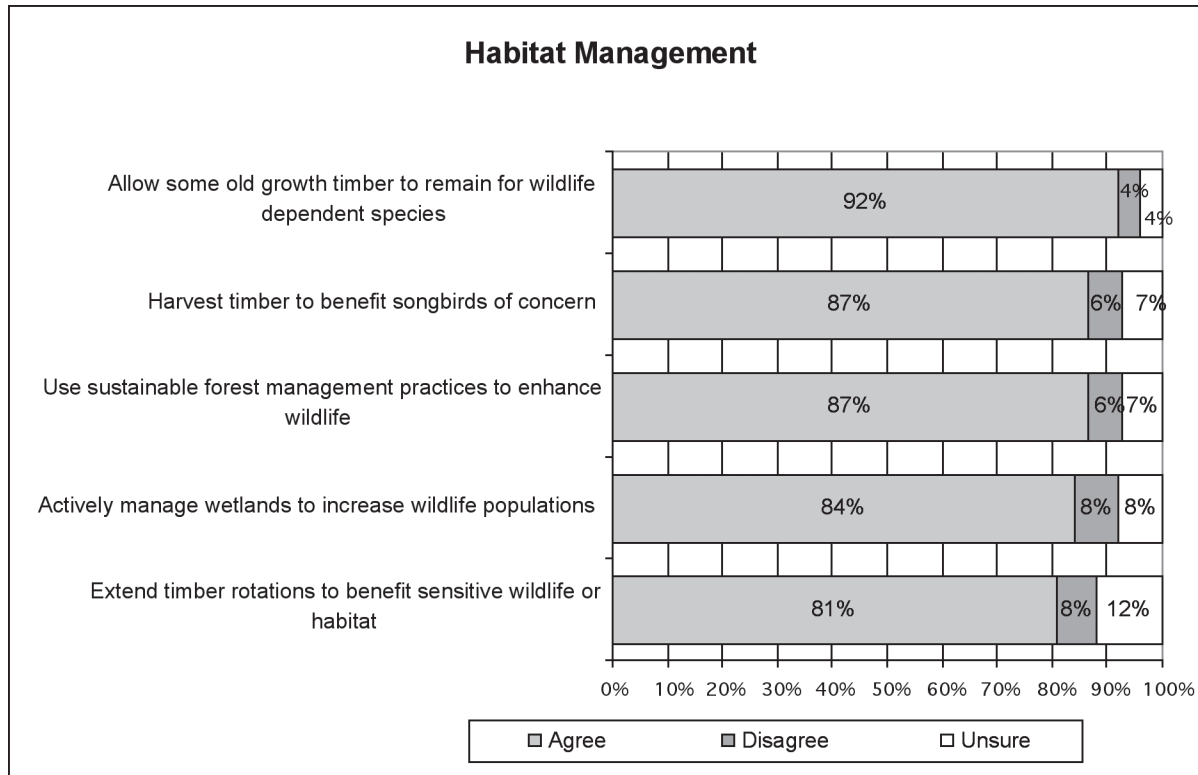


Figure J.5: Stakeholder agreement with management tradeoff statements regarding habitat management.

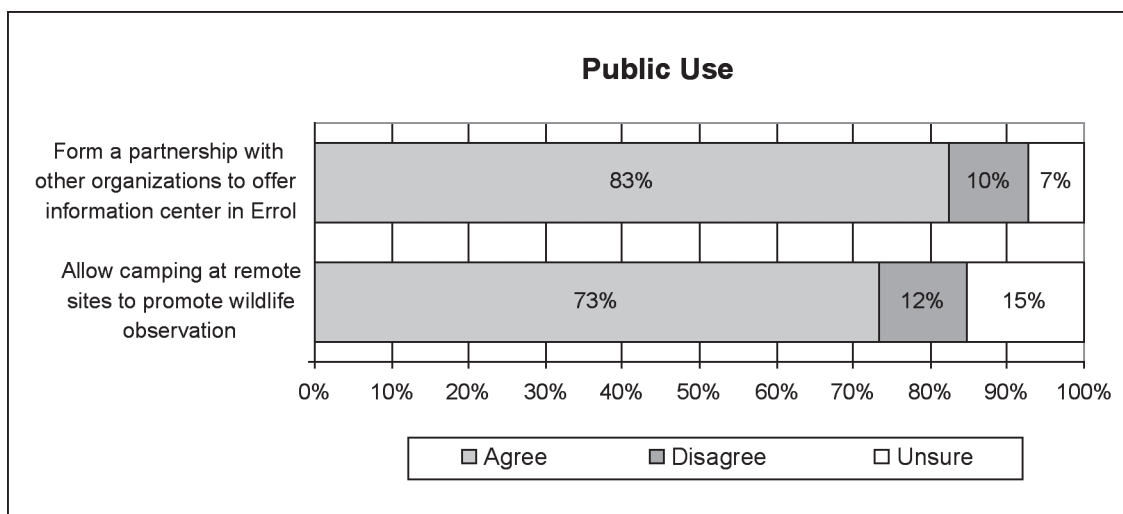
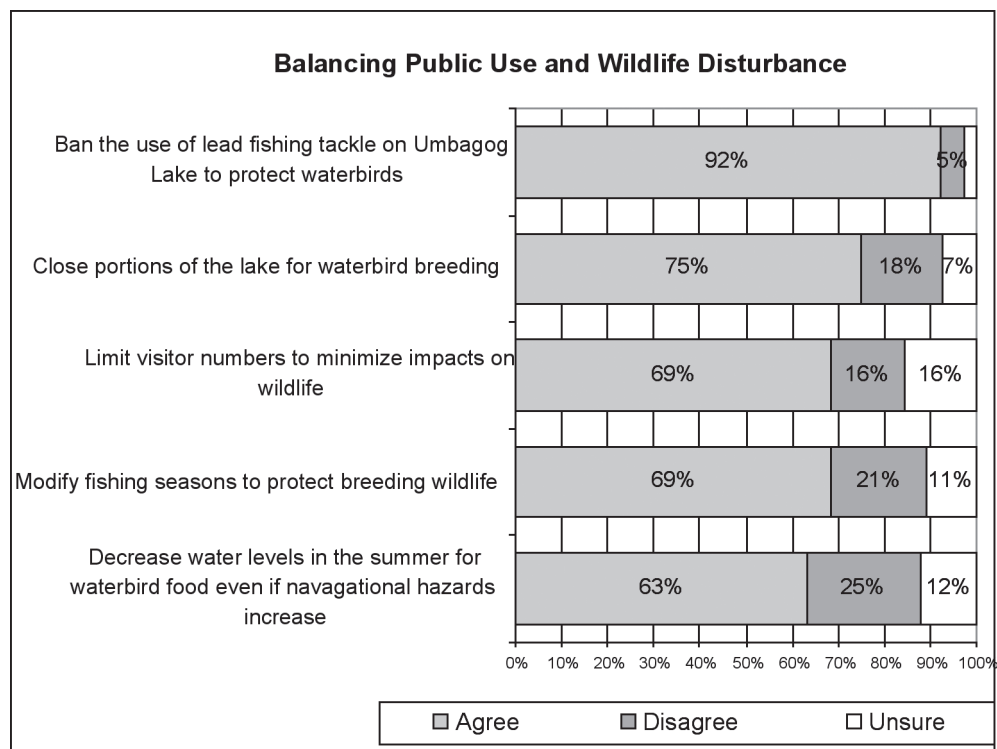


Figure J.6: Stakeholder agreement with management tradeoff statements regarding public use.



## Stakeholder Knowledge of Refuge Issues

Stakeholders' knowledge of questions they were asked regarding refuge issues is fairly low. However, when asked, most said they knew some or a fair amount about the refuge and its management. The average percent of correct answers was around 65% for each of the knowledge categories: the refuge and surrounding land ownership patterns; the purpose of the refuge and why it was established; water-level management; and, the FWS's land acquisition procedures.



**Figure J.7: Stakeholder agreement with management tradeoff statements regarding balancing public use and wildlife disturbance.**

Stakeholders' knowledge level on these questions seems to be influenced by the importance of wildlife observation activities, participation in natural resource decision making, and length of residency in the local area. As with the management tradeoff results, there is not one set of factors that is overwhelmingly driving the differences in scores on these knowledge questions. There are some relationships in the data that may be useful in targeting groups of stakeholders who are less familiar with factual knowledge concerning refuge issues. Although simply providing information or facts about an issue does not necessarily change attitudes, providing the public with accurate and understandable information when working through a planning process is important for effective communication and discussion of CCP alternatives.

## Availability of Complete Report

The complete report will be available later this fall from refuge headquarters in hard copy or on CD-Rom at the address below, or can be viewed and/or downloaded online at <http://www.fort.usgs.gov/products/publications/21507/21507.asp>.

Lake Umbagog NWR  
 Route 16 North  
 P.O. Box 240  
 Errol, NH 03579  
**Phone:** 603-482-3415  
**Fax:** 603-482-3308  
**Email:** [FW5RW\\_LUNWR@fws.gov](mailto:FW5RW_LUNWR@fws.gov)





# 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

*National Overview*

Issued August 2012

**Preliminary Findings**

# Director's Message

From its monumental mountains and bountiful lands, to the great lakes and roving rivers, America the Beautiful is truly graced with an outdoors cherished more and more each day. The evidence is found in the *2011 National Survey of Fishing, Hunting, and Wildlife Recreation*.

This report demonstrates the value of Fish and Wildlife-Related Recreation to the American people by providing information on participation and expenditures for fishing, hunting and wildlife watching.

Wildlife-associated recreation not only sustains our spirit and connects us to each other and the natural world, but also provides significant financial support for wildlife conservation in our nation's economy. According to preliminary information from the latest national survey, 90 million people, 38 percent of all Americans 16 years and older, participated in wildlife-related recreation in 2011 and spent \$145 billion dollars. This spending supports thousands of jobs in industries and businesses connected to fishing, hunting and the observance of wildlife.

The National Survey is conducted every five years at the request of the State fish and wildlife agencies to measure the importance of wildlife-based recreation to the American people. The 2011 Survey represents the 12th in a series since 1955. Developed in collaboration with the States, the Association of Fish and Wildlife Agencies, and national conservation organizations, the Survey has become one of the most important sources of information on fish and wildlife recreation in the country.

It is an honor to present these findings to you in this unprecedented year as we celebrate the 75th anniversary of the Wildlife Sport Fish and Restoration Program – a celebration of partnerships to benefit fish and wildlife, and provide Americans access to the Great Outdoors through a self-imposed investment paid by manufacturers and users of gear purchased by anglers, boaters, and shooters and managed by Federal and State fish and wildlife agencies.

I express many thanks to the men and women who took time to participate in the survey as well as to the State fish and wildlife agencies for their financial support through the Multistate Conservation Grant Programs. Without this support, the 2011 Survey would not have been possible.

I would also like to express my sincere gratitude for the countless number of dedicated Americans who continue to enjoy and support wildlife conservation each and every day. I am grateful to the tremendous partnership successes that help to lay the groundwork for the future of conservation across our beloved nation.



Daniel Ashe  
Director, U.S. Fish and Wildlife Service

# 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

*National Overview*

Issued August 2012

**Preliminary Findings**



# Preface

Preliminary information from the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR) is provided in this report. The final National Report will be available in November 2012.

The Survey is a partnership effort with state agencies and national conservation organizations and has become one of the most important sources of information on fish and wildlife-related recreation in the United States. The Survey collects information on participation and expenditures for hunting, fishing, and wildlife-watching activities such as observing, feeding, and photographing wildlife.

The advance release of preliminary survey results is an effort to make the data available as soon as possible. Please note that the data are subject to revision.



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# Foreword

The 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation is the twelfth in a series of surveys that have been conducted every five years since 1955. The purpose of the Survey is to collect and report information on the number of people who fished, hunted, and wildlife watched, the extent of their activity, and the money they spent on their activities in 2011.

The Survey is conducted at the request of State wildlife management agencies through the Association of Fish and Wildlife Agencies, and is coordinated by the U.S. Fish and Wildlife Service. Funding comes from the Multistate Conservation Grant Programs authorized by the Wildlife and Sport Fish Restoration Programs Improvement Act of 2000. The Survey was developed with assistance from representatives of State agencies, national conservation organizations, and related industries.

Results are based on data collected by the U.S. Census Bureau. The Census Bureau contacted 48,627 households for interviews. Samples of 16,371 potential anglers and hunters and 13,861 potential wildlife watchers were selected from those households to be interviewed in detail about their participation and expenditures. The Census Bureau conducted detailed interviews in three different waves, which began in April and September of 2011 and January of 2012. Interviews were completed in May 2012.

The survey methodology used in 2011 was similar to that used for the 2006, 2001, 1996, and 1991 Surveys, so the estimates are comparable.

An outlier analysis was done on the special equipment and land ownership expenditure data. A purchase was



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flagged it if it was over \$60,000. If the item was reported by more than one household member or double-reported by a respondent, it was deleted. Also, if the respondent's income level was not high enough to support such a purchase it was assumed the respondent gave us the total value of their recreation equipment instead of the amount spent that year, and the amount was deleted. Twenty-six expenditure items were deleted.



# Preliminary Report

In 2011 90.1 million Americans, 38% of the U.S. population 16 years old and older, enjoyed some form of fishing, hunting or wildlife-associated recreation. Outdoor recreation is a huge contributor to our nation's economy. Expenditures by hunters, anglers and wildlife-recreationists were \$145.0 billion. This equates to 1% of gross domestic product; meaning one out of every one hundred dollars of all goods and services produced in the U.S. is due to wildlife-related recreation.

Almost 37.4 million Americans participated in fishing, hunting or both sports in 2011. These sportsmen and women spent \$43.2 billion on equipment, \$32.2 billion on trips, and \$14.6 billion on licenses and fees, membership dues and contributions, land leasing and ownership, and plantings for hunting. On average, each sportsperson spent \$2,407 in 2011.

Although the Survey focuses on collecting information on people 16 years of age and older who participated in wildlife-related recreation in 2011, it does include some information on 6 to 15-year-olds. Data available from the FHWAR Survey screen reveals 1.8 million 6 to 15 year olds hunted, 8.5 million fished, and 11.7 million watched wildlife.

The Survey measures the number of people who participated in wildlife-related recreation in 2011 and is not intended to reflect the total number of wildlife-related recreationists in the U.S. Many individuals can be considered hunters and anglers even though they did not participate in 2011.



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Fishing

As one of the most popular outdoor recreational activities in the United States, fishing attracted 33.1 million individuals 16 years old and older in 2011. These anglers spent an average of 17 days fishing. Freshwater, excluding Great Lakes, fishing was the most popular type of fishing with 27.1 million anglers devoting 443 million days to the sport. Great Lakes and saltwater fishing were also popular with 1.7 million and 8.9 million anglers, respectively.

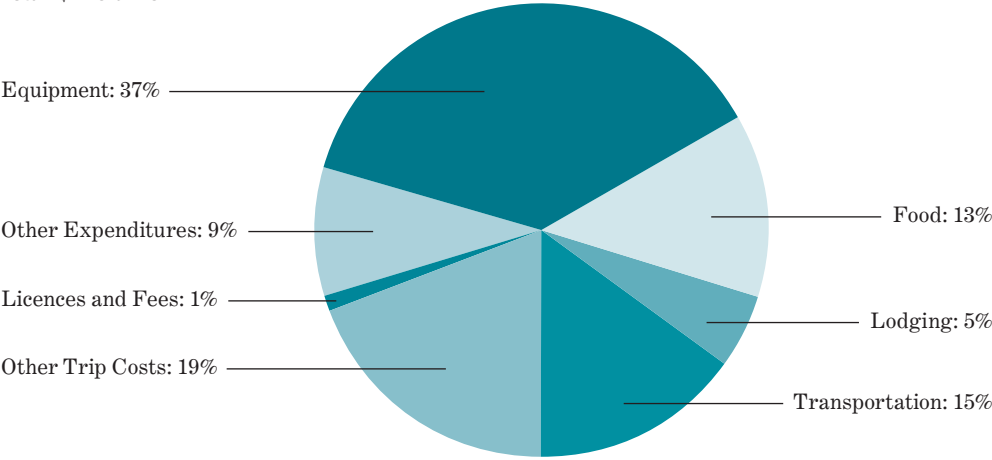
Anglers spent \$41.8 billion on trips, equipment, licenses, and other items to support their fishing activities in 2011. The average expenditure per angler was \$1,261. Trip-related spending on food, lodging, transportation and other trip costs totaled \$21.8 billion, which is 52% of all angler spending. Spending on equipment was \$15.5 billion and comprised 37% of spending. Magazines, membership dues and contributions, licenses, and other fishing expenditures accounted for 11% at \$4.5 billion.

Comparing results from the 2011 FHWAR Survey with those of the 2006 Survey reveals the number of anglers increased 11%. The biggest increase was by Great Lakes anglers, a 17% increase in participation. The increases for saltwater and non-Great Lakes freshwater angling participation were 15% and 8%, respectively.

While participation in fishing increased from 2006 to 2011, total fishing-related expenditures declined 11%. Expenditures for fishing equipment such as rods, reels, poles, and tackle did not decline, however. All pre-2011 expenditures in this report were adjusted to be in 2011 dollars.

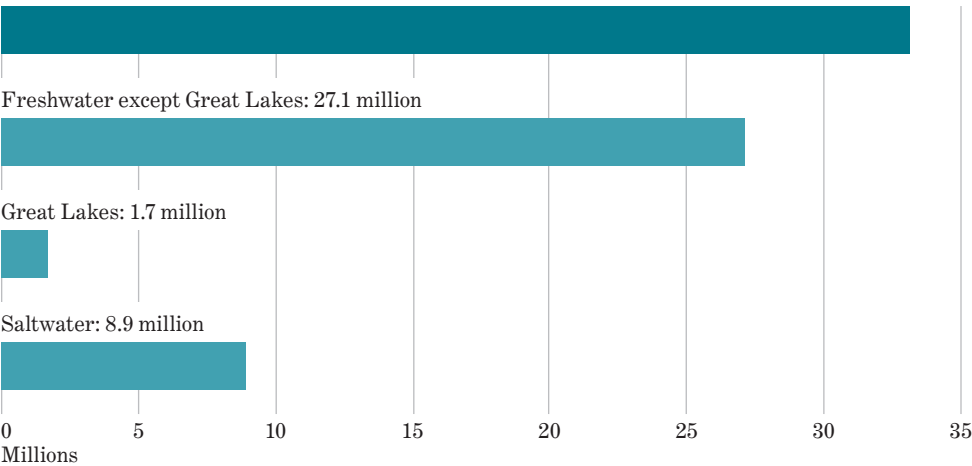
Fishing Expenditures: 2011

Total: \$41.8 billion

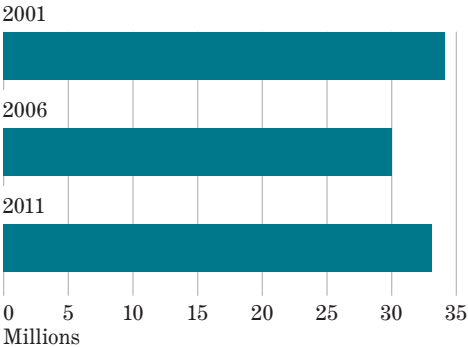


Total Anglers and Anglers by Water Type: 2011

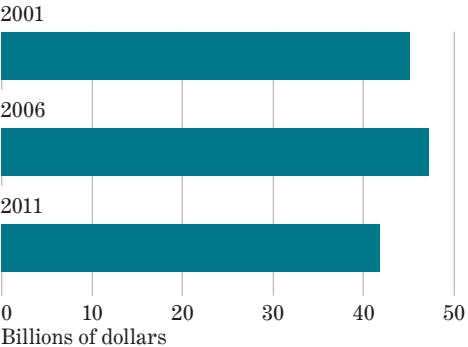
Total Anglers: 33.1 million



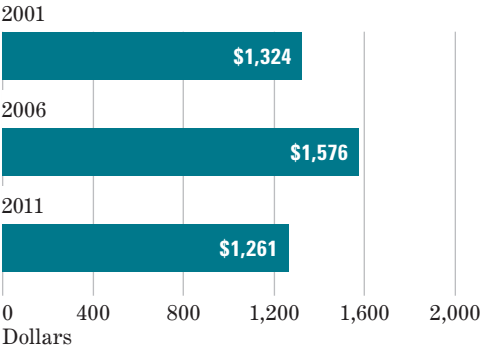
Anglers: 2001–2011



Angler Expenditures: 2001–2011



Average Angler Expenditures: 2001–2011



Comparing the 2001 and 2011 Survey estimates reveals no statistically significant change<sup>1</sup> in the number of anglers. Overall spending declined 7%. The category of spending that experienced the greatest decrease (-44%) was special equipment, which are big-ticket items such as boats and recreational vehicles. Expenditures for fishing equipment did not change, similar to the 2006–2011 trend.

**Hunting**

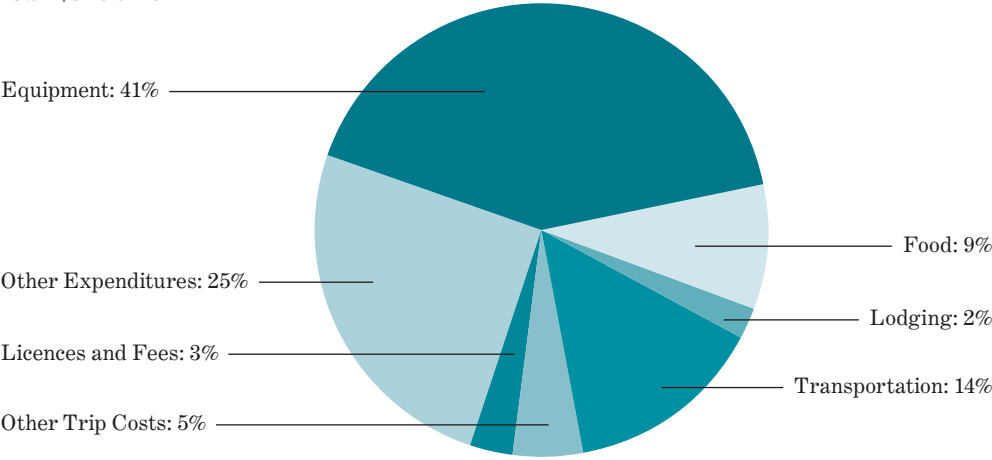
In 2011 13.7 million people, 6% of the U.S. population 16 years old and older, went hunting. Hunters in the U.S. spent an average of 21 days pursuing wild game. Big game like elk, deer and wild turkey attracted 11.6 million hunters (85%) who spent 212 million days afield. Over 4.5 million (33%) pursued small game including squirrels, rabbits, quails, and pheasants on 51 million days. Migratory birds, such as geese, ducks and doves, attracted 2.6 million hunters (19%) who spent 23 million days hunting. Hunting for other animals such as coyotes, groundhogs and raccoons attracted 2.2 million hunters (16%) who spent 34 million days afield.

Hunters spent \$34.0 billion on trips, equipment, licenses, and other items to support their hunting activities in 2011. The average expenditure per hunter was \$2,484. Total trip-related expenditures comprised 31% of all spending at \$10.4 billion. Other expenditures, such as licenses, stamps, land leasing and ownership, and plantings totaled

<sup>1</sup> Changes are judged to be significant if they are at the 95% level. This means that for 95% of all possible samples, the estimate for one survey year cannot be shown to be different from the estimate for the other survey year. Approximate standard errors were used.

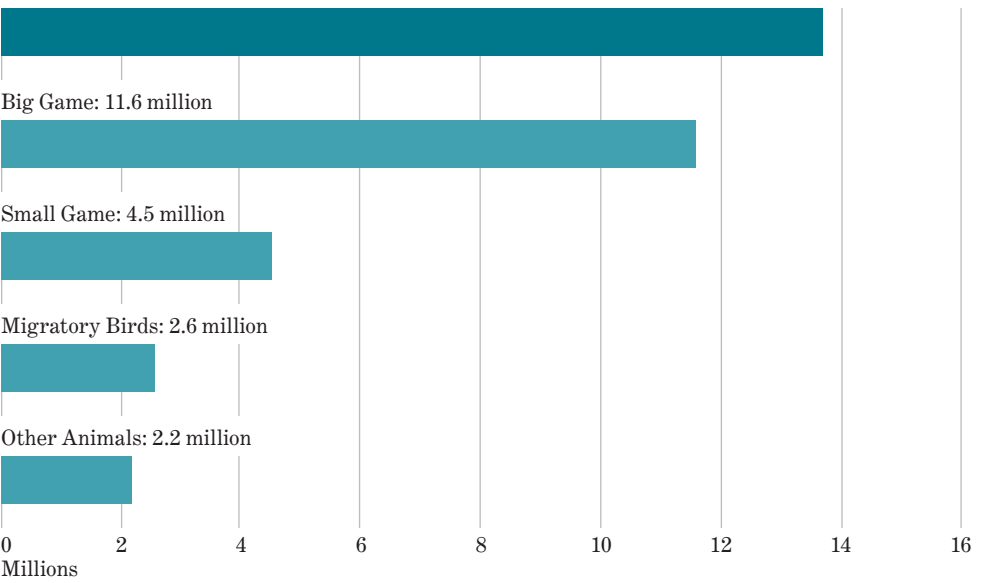
**Hunting Expenditures: 2011**

Total: \$34.0 billion

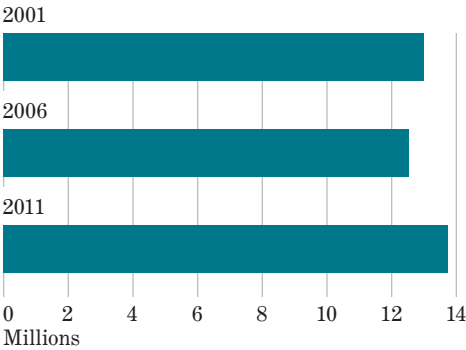


**Total Hunters and Type of Hunting: 2011**

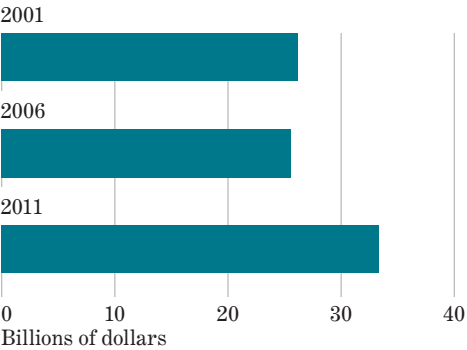
Total Hunters: 13.7 million



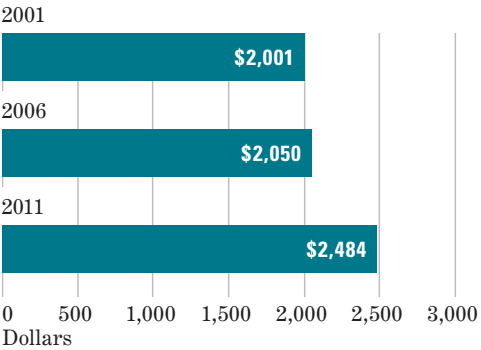
**Hunters: 2001–2011**



**Hunter Expenditures: 2001–2011**



**Average Hunter Expenditures: 2001–2011**





\$9.6 billion, 28% of all spending. Spending on equipment such as guns, camping equipment, and 4-wheel drives comprised 41% of spending with \$14.0 billion.

Overall hunting participation increased 9% from 2006 to 2011. The numbers of big game hunters rose 8%, migratory bird hunters increased 13%, and hunters seeking other animals increased by 92%. The number of small game hunters declined 6%, which is not statistically significant.

Total hunting-related spending increased between 2006 and 2011. There was a 30% increase over the five-year period. Purchases of hunting equipment such as guns, decoys, and ammunition increased 29%. The category with the biggest increase was land leasing and ownership with 50%. Trip-related spending was up 39%.

The 10-year comparison of the 2001 and 2011 Surveys shows an increase in both the number of hunters and their expenditures. Overall participation was up 5% over the time period. Big game hunting increased 6%. Small game and migratory bird hunting had declines of 17% and 13%, respectively. Other animal hunting increased 107%. Total hunting expenditures increased 27%. Expenditures for hunting equipment, such as firearms, ammunition, and archery equipment, increased 33%.

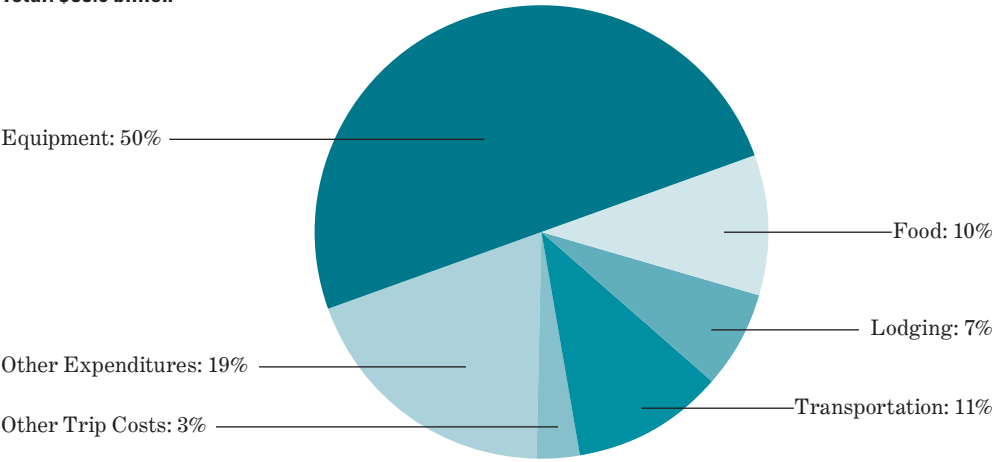
**Wildlife Watching**

Wildlife watching is a favorite pastime for millions in the U.S. Nearly 71.8 million people 16 years old and older fed, photographed, and observed wildlife in 2011. They spent \$55.0 billion on their activities. The Survey defines wildlife watching as participants either taking a “special interest” in wildlife around their homes or taking a trip for the “primary purpose” of wildlife watching. Wildlife-watching activities such as incidentally observing wildlife while gardening are not included.

Of the 71.8 million people who engaged in wildlife watching in 2011, 22.5 million (31%) participated by taking trips away from home and 68.6 million (96%) participated around their home. Away-from-home participants are defined as those who travel a mile or more from home to engage in wildlife watching, and around-the-home participants are those who wildlife watch less than a mile of home.

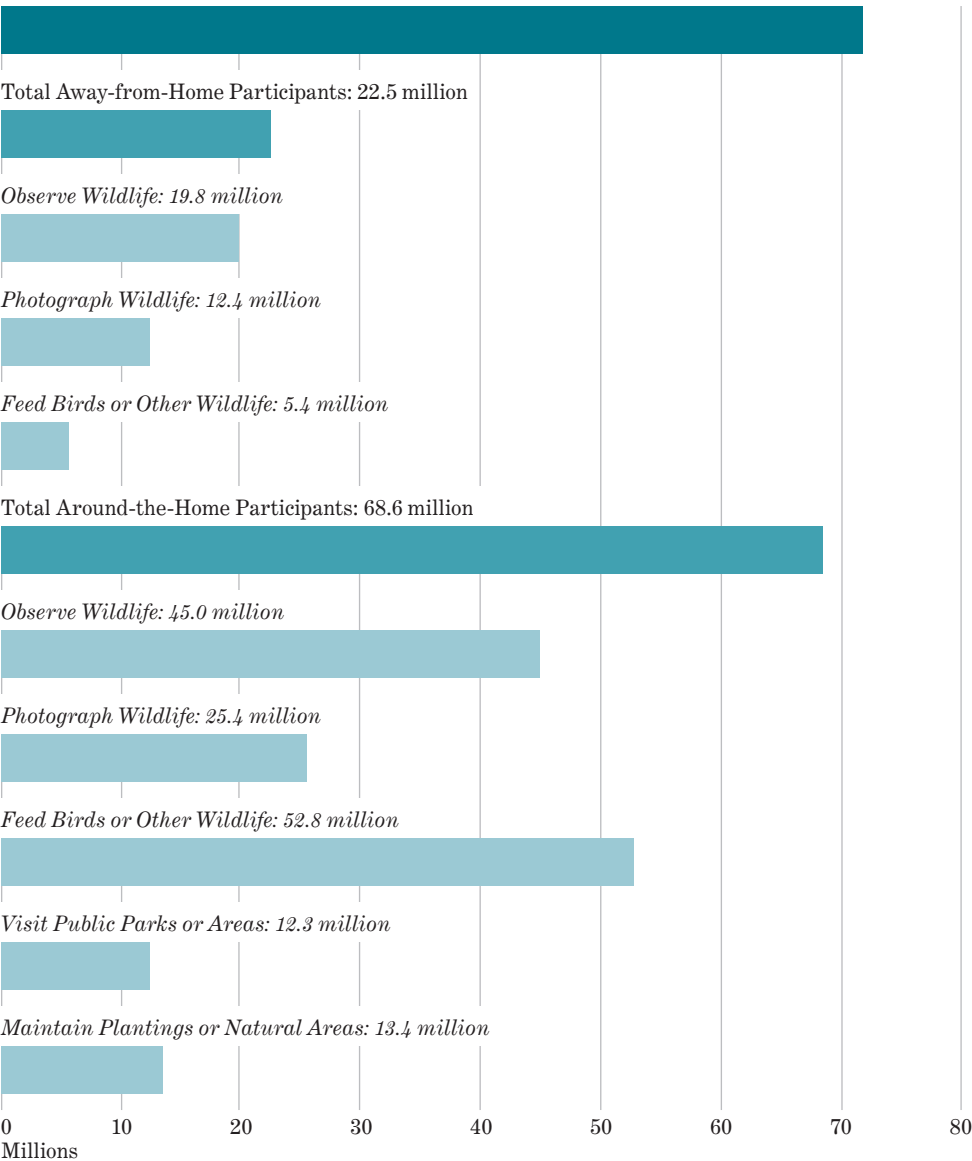
**Wildlife Watching Expenditures: 2011**

**Total: \$55.0 billion**



**Total Wildlife Watchers and Type of Participants: 2011**

**Total Wildlife-Watching Participants: 71.8 million**



Nearly all people who wildlife watched did so around the home. For the 68.6 million around-the-home participants, feeding wildlife was the most popular activity. Over 52.8 million individuals, 74% of all wildlife watchers, fed wildlife around their home. Over 45.0 million people (63%) observed wildlife and 25.4 million (35%) photographed wildlife around their home. Over 12.3 million (17%) visited parks or natural areas to view wildlife and 13.4 million (19%) maintained plantings or natural areas for the benefit of wildlife within a mile of their home.

About a third of all wildlife watchers took trips a mile or more from home to observe, photograph, or feed wildlife. Observing wildlife was the most popular activity, with 19.8 million participants, 88% of all away-from-home wildlife watchers. Almost 12.4 million people (55%) photographed fish and wildlife away from home; 5.4 million (24%) enjoyed feeding wildlife while on trips.

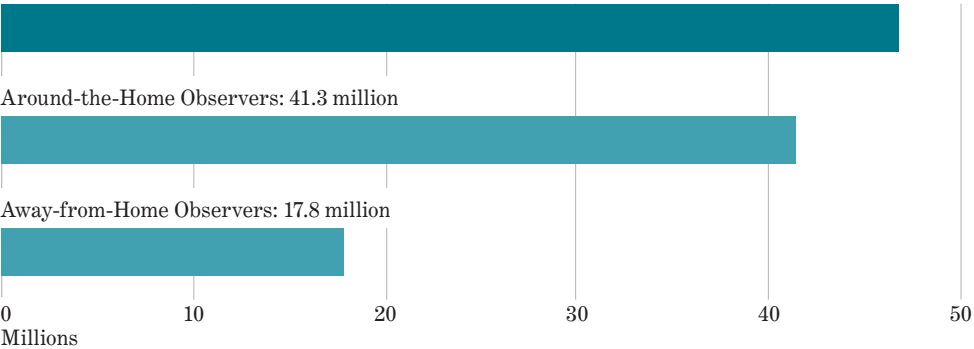
Comparing the 2011 Survey with the two previous surveys shows no significant change from 2006 to 2011 and a 9% increase from 2001 to 2011 in overall wildlife-watching participation. From 2006 to 2011 there was no change in the number of participants for either

around-the-home or away-from-home wildlife watching. From 2001 to 2011 the number of around-the-home participants increased by 9% while there was no significant change in the number of away-from-home participants.

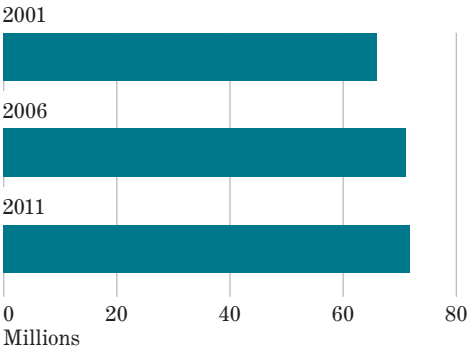
Overall expenditures pursuant to wildlife watching increased 7% from 2006 to 2011 and 13% from 2001 to 2011. The amount of trip-related expenditures from 2006 to 2011 increased 20% and 67% from 2001 to 2011. From 2006 to 2011 spending for wildlife-watching and special equipment did not change significantly.

**Bird Observers: 2011**

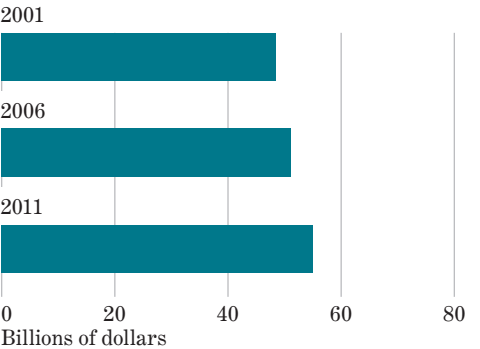
Total Bird Observers: 46.7 million



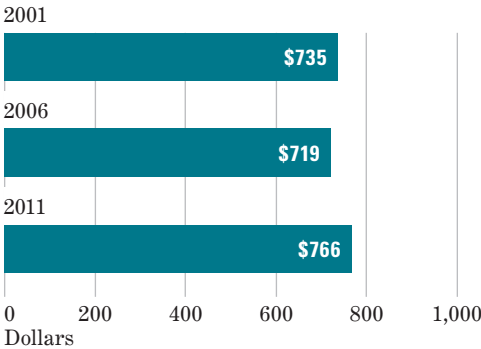
**Wildlife Watchers: 2001–2011**



**Wildlife Watcher Expenditures: 2001–2011**



**Average Wildlife Watcher Expenditures: 2001–2011**



# Summary

With more than 90.1 million Americans 16 years of age and older participating in 2011, wildlife-related recreation is clearly an important leisure activity in the U.S. An average of nearly four out of ten people you meet will participate in some type of wildlife recreation. By comparison, there were 36 million recreational runners in 2009.

Wildlife recreation is not only an important leisure activity but it is also a catalyst for economic growth. Hunters, anglers and wildlife watchers spent \$145.0 billion on wildlife-related recreation in 2011. This spending contributed to local economies throughout the country, which added to employment, raised economic output, and generated tax revenue.

The next report of preliminary findings will contain State data and will be available in August of 2012. This and future Survey reports will also be available on our web page at <http://wsfrprograms.fws.gov/home.html>.



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**Table 1. Anglers and Hunters 16 Years Old and Older, Days of Participation, and Trips by Type of Fishing and Hunting: 2011**

<i>Type of fishing and hunting</i>	<i>Participants</i>		<i>Days of participation</i>		<i>Trips</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<b>Total Sportspersons</b>	<b>37,397</b>	<b>100</b>	<b>835,725</b>	<b>100</b>	<b>711,645</b>	<b>100</b>
<b>Fishing</b>						
<b>Total, all fishing</b>	<b>33,112</b>	<b>100</b>	<b>553,841</b>	<b>100</b>	<b>455,005</b>	<b>100</b>
Total, all freshwater	27,547	83	455,862	82	368,805	81
Freshwater, except Great Lakes	27,060	82	443,223	80	353,620	78
Great Lakes	1,665	5	19,661	4	15,185	3
Saltwater	8,889	27	99,474	18	86,200	19
<b>Hunting</b>						
<b>Total, all hunting</b>	<b>13,674</b>	<b>100</b>	<b>281,884</b>	<b>100</b>	<b>256,640</b>	<b>100</b>
Big game	11,570	85	212,116	75	167,320	65
Small game	4,506	33	50,884	18	43,135	17
Migratory bird	2,583	19	23,263	8	21,315	8
Other animals	2,168	16	34,434	12	24,869	10

*Note: Detail does not add to total because of multiple responses.*

**Table 2. Summary of Expenditures for Fishing and Hunting: 2011**

(Population 16 years old and older.)

<i>Expenditure Item</i>	<i>Expenditures</i>		<i>Spenders</i>		
	<i>Amount (thousands of dollars)</i>	<i>Average per sportsperson (dollars)<sup>1</sup></i>	<i>Number (thousands)</i>	<i>Percent of sportspersons</i>	<i>Average per spender (dollars)<sup>1</sup></i>
<b>Total, all items</b>	<b>90,002,368</b>	<b>2,407</b>	<b>35,990</b>	<b>96</b>	<b>2,501</b>
<b>Trip-Related Expenditures</b>					
<b>Total trip-related</b>	<b>32,210,653</b>	<b>861</b>	<b>33,507</b>	<b>90</b>	<b>961</b>
Food and lodging, total	11,592,622	310	29,048	78	399
Food	8,653,068	231	28,773	77	301
Lodging	2,939,554	79	7,422	20	396
Transportation, total	11,029,451	295	29,691	79	371
Public	1,107,975	30	2,760	7	401
Private	9,921,476	265	28,843	77	344
Other trip costs <sup>2</sup>	9,588,580	256	26,804	72	358
<b>Equipment Expenditures</b>					
Fishing equipment	6,179,132	165	21,920	59	282
Hunting equipment	8,182,297	219	11,585	31	706
Auxiliary equipment <sup>3</sup>	3,736,648	100	11,198	30	334
Special equipment <sup>4</sup>	25,129,326	672	3,990	11	6,298
<b>Other Expenditures</b>					
Magazines, books, DVDs	319,781	9	6,053	16	53
Membership dues and contributions	1,122,787	30	5,394	14	208
Land leasing and ownership	10,832,158	290	2,935	8	3,691
Licenses, stamps, tags, and permits	1,586,985	42	24,099	64	66
Plantings (for hunting)	702,601	19	1,273	3	552

<sup>1</sup> Average expenditures are annual estimates.<sup>2</sup> Other trip costs include guide fees, pack trip or package fees, public and private land use fees, equipment rental, boating costs (which include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel), bait, ice, and heating and cooking fuel.<sup>3</sup> Auxiliary equipment includes camping equipment, binoculars, special fishing and hunting clothing, processing and taxidermy costs, foul weather gear, boots, waders, field glasses, telescopes, and electronic equipment such as a GPS device.<sup>4</sup> Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

Note: Detail does not add to total because of multiple responses. Detail in subsequent Preliminary Tables may not add to totals shown here because of nonresponse to individual questions.

**Table 3. Expenditures for Fishing: 2011**

(Population 16 years old and older.)

<i>Expenditure Item</i>	<i>Expenditures</i>		<i>Spenders</i>		
	<i>Amount (thousands of dollars)</i>	<i>Average per angler (dollars)<sup>1</sup></i>	<i>Number (thousands)</i>	<i>Percent of anglers</i>	<i>Average per spender (dollars)<sup>1</sup></i>
<b>Total, all items</b>	<b>41,769,129</b>	<b>1,261</b>	<b>30,289</b>	<b>91</b>	<b>1,379</b>
<b>Trip-Related Expenditures</b>					
<b>Total trip-related</b>	<b>21,789,465</b>	<b>658</b>	<b>29,309</b>	<b>89</b>	<b>743</b>
Food and lodging, total	7,711,318	233	25,158	76	307
Food	5,435,208	164	24,891	75	218
Lodging	2,276,110	69	5,983	18	380
Transportation, total	6,261,536	189	25,293	76	248
Public	803,771	24	2,222	7	362
Private	5,457,766	165	24,504	74	223
Other trip costs, total	7,816,610	236	25,143	76	311
Guide fees, pack trip or package fees	1,102,375	33	2,946	9	374
Public land use fees	237,887	7	4,190	13	57
Private land use fees	243,705	7	1,744	5	140
Equipment rental	245,547	7	1,872	6	131
Boating costs <sup>2</sup>	3,815,819	115	7,929	24	481
Bait	1,497,445	45	19,717	60	76
Ice	509,494	15	13,400	40	38
Heating and cooking fuel	164,337	5	3,810	12	43
<b>Equipment Expenditures</b>					
<b>Fishing equipment, total</b>	<b>6,141,895</b>	<b>185</b>	<b>21,527</b>	<b>65</b>	<b>285</b>
Rods, reels, poles, and rodmaking components	2,366,774	71	10,651	32	222
Lines and leaders	593,398	18	13,756	42	43
Artificial lures, flies, baits, and dressing for flies or lines	1,169,092	35	15,560	47	75
Hooks, sinkers, swivels, and other items attached to a line except lures and baits	628,600	19	16,496	50	38
Tackle boxes	141,789	4	4,271	13	33
Creels, stringers, fish bags, landing nets, and gaff hooks	131,515	4	3,655	11	36
Minnow traps, seines, and bait containers	81,008	2	3,172	10	26
Depth finders, fish finders, and other electronic fishing devices	469,849	14	938	3	501
Ice fishing equipment	241,328	7	637	2	379
Other fishing equipment	318,542	10	4,228	13	75
<b>Auxiliary equipment, total</b>	<b>1,106,865</b>	<b>33</b>	<b>4,420</b>	<b>13</b>	<b>250</b>
Camping equipment	385,633	12	1,976	6	195
Binoculars, field glasses, telescopes, etc.	85,522	3	410	1	208
Special fishing clothing, rubber boots, waders, and foul weather gear	318,382	10	2,472	7	129
Processing and taxidermy costs	82,766	2	188	1	440
Other	234,562	7	720	2	326
<b>Special equipment<sup>3</sup></b>	<b>8,257,673</b>	<b>249</b>	<b>2,296</b>	<b>7</b>	<b>3,596</b>
<b>Other Expenditures</b>					
Magazines, books, DVDs	108,308	3	2,483	8	44
Membership dues and contributions	321,990	10	1,728	5	186
Land leasing and ownership	3,442,243	104	924	3	3,724
Licenses, stamps, tags, and permits, total	600,690	18	17,166	52	35
Licenses	551,824	17	16,233	49	34
Stamps, tags, and permits	48,867	1	3,726	11	13

<sup>1</sup> Average expenditures are annual estimates.<sup>2</sup> Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.<sup>3</sup> Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

Note: Detail does not add to total because of multiple responses.

**Table 4. Expenditures for Hunting: 2011**

(Population 16 years old and older.)

<i>Expenditure Item</i>	<i>Expenditures</i>		<i>Spenders</i>		
	<i>Amount (thousands of dollars)</i>	<i>Average per hunter (dollars)<sup>1</sup></i>	<i>Number (thousands)</i>	<i>Percent of hunters</i>	<i>Average per spender (dollars)<sup>1</sup></i>
<b>Total, all items</b>	<b>33,962,667</b>	<b>2,484</b>	<b>13,364</b>	<b>98</b>	<b>2,541</b>
<b>Trip-Related Expenditures</b>					
<b>Total trip-related</b>	<b>10,421,189</b>	<b>762</b>	<b>11,914</b>	<b>87</b>	<b>875</b>
Food and lodging, total	3,881,304	284	10,289	75	377
Food	3,217,859	235	10,253	75	314
Lodging	663,444	49	1,881	14	353
Transportation, total	4,767,915	349	10,990	80	434
Public	304,204	22	648	5	469
Private	4,463,711	326	10,885	80	410
Other trip costs, total	1,771,970	130	4,581	34	387
Guide fees, pack trip or package fees	493,913	36	1,024	7	482
Public land use fees	40,447	3	709	5	57
Private land use fees	755,087	55	1,193	9	633
Equipment rental	62,747	5	490	4	128
Boating costs <sup>2</sup>	213,817	16	519	4	412
Heating and cooking fuel	205,959	15	2,817	21	73
<b>Equipment Expenditures</b>					
<b>Hunting equipment, total</b>	<b>7,738,324</b>	<b>566</b>	<b>10,400</b>	<b>76</b>	<b>744</b>
Firearms	3,050,322	223	3,007	22	1,015
Rifles	1,429,097	105	1,695	12	843
Shotguns	914,619	67	1,213	9	754
Muzzleloaders, primitive firearms	122,035	9	370	3	330
Pistols, handguns	584,570	43	901	7	649
Bows, arrows, archery equipment	934,847	68	2,829	21	331
Telescopic sights	530,655	39	1,748	13	304
Decoys and game calls	301,995	22	2,738	20	110
Ammunition	1,298,456	95	8,828	65	147
Hand loading equipment	199,019	15	1,262	9	158
Hunting dogs and associated costs	951,110	70	1,007	7	945
Other	471,920	35	3,125	23	151
<b>Auxiliary equipment, total</b>	<b>1,844,880</b>	<b>135</b>	<b>5,101</b>	<b>37</b>	<b>362</b>
Camping equipment	159,853	12	570	4	280
Binoculars, field glasses, telescopes, etc.	287,186	21	1,210	9	237
Special hunting clothing, rubber boots, waders, and foul weather gear	570,308	42	3,082	23	185
Processing and taxidermy costs	672,759	49	2,055	15	327
Other	154,774	11	619	5	250
<b>Special equipment<sup>3</sup></b>	<b>4,389,286</b>	<b>321</b>	<b>613</b>	<b>4</b>	<b>7,159</b>
<b>Other Expenditures</b>					
Magazines, books, DVDs	107,272	8	1,934	14	55
Membership dues and contributions	382,817	28	1,885	14	203
Land leasing and ownership	7,389,915	540	2,279	17	3,242
Licenses, stamps, tags, and permits, total	986,385	72	10,214	75	97
Licenses	786,227	57	9,746	71	81
Federal duck stamps	33,094	2	2,206	16	15
Stamps, tags, and permits	167,064	12	3,554	26	47
Plantings	702,601	51	1,273	9	552

<sup>1</sup> Average expenditures are annual estimates.<sup>2</sup> Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.<sup>3</sup> Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs) and other special equipment.

Note: Detail does not add to total because of multiple responses.



**Table 5. Wildlife-Watching Participants by Type of Activity: 2011**

(Population 16 years old and older. Numbers in thousands.)

<i>Activity</i>	<i>Number</i>	<i>Percent</i>
<b>Total participants</b>	<b>71,776</b>	<b>100</b>
Away from home	22,496	31
Observe wildlife	19,808	28
Photograph wildlife	12,354	17
Feed wildlife	5,399	8
Around the home	68,598	96
Observe wildlife	45,046	63
Photograph wildlife	25,370	35
Feed wildlife	52,817	74
Visit parks or natural areas <sup>1</sup>	12,311	17
Maintain plantings or natural areas	13,399	19

<sup>1</sup> Includes visits only to parks or natural areas within one mile of home.

Note: Detail does not add to total because of multiple responses.

**Table 6. Away-From-Home Wildlife Watchers by Wildlife Observed, Photographed, or Fed and Place in the U.S.: 2011**

(Population 16 years old and older. Numbers in thousands.)

<i>Wildlife observed, photographed, or fed</i>	<i>Total participants</i>		<i>Participation by place</i>					
			<i>Total</i>		<i>In state of residence</i>		<i>In other states</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<b>Total, all wildlife</b>	<b>22,496</b>	<b>100</b>	<b>22,496</b>	<b>100</b>	<b>18,529</b>	<b>82</b>	<b>6769</b>	<b>30</b>
Total birds	18,924	84	18,924	100	16,037	85	6257	33
Songbirds (cardinals, robins, etc.)	12,120	54	12,120	100	10,616	88	3356	28
Birds of prey (hawks, eagles, etc.)	12,890	57	12,890	100	10,990	85	3917	30
Waterfowl (ducks, geese, etc.)	13,333	59	13,333	100	11,081	83	4231	32
Other water birds (shorebirds, herons, cranes, etc.)	10,606	47	10,606	100	8,509	80	3483	33
Other birds (pheasants, turkeys, road runners, etc.)	6,857	30	6,857	100	5,770	84	1790	26
Total land mammals	13,653	61	13,653	100	11,743	86	4180	31
Large land mammals (deer, bear, etc.)	10,369	46	10,369	100	8,702	84	3045	29
Small land mammals (squirrel, prairie dog, etc.)	10,299	46	10,299	100	8,758	85	3299	32
Fish (salmon, shark, etc.)	6,358	28	6,358	100	4,964	78	2075	33
Marine mammals (whales, dolphins, etc.)	4,008	18	4,008	100	2,325	58	1864	47
Other wildlife (turtles, butterflies, etc.)	10,113	45	10,113	100	8,602	85	2865	28

Note: Detail does not add to total because of multiple responses. Column showing percent of total participants is based on the "Total, all wildlife" Numbers.

Participation by place percent columns are based on the total Numbers of participants for each type of wildlife.

**Table 7. Wild Bird Observers and Days of Observation: 2011**

(Population 16 years old and older. Numbers in thousands.)

<i>Observers and days of observation</i>	<i>Number</i>	<i>Percent</i>
<b>Observers</b>		
<b>Total bird observers</b>	<b>46,741</b>	<b>100</b>
Around-the-home observers	41,346	88
Away-from-home observers	17,818	38
<b>Days</b>		
<b>Total days observing birds</b>	<b>5,161,909</b>	<b>100</b>
Around the home	4,923,873	95
Away from home	238,036	5

Note: Detail does not add to total because of multiple responses.

**Table 8. Expenditures for Wildlife Watching: 2011**

(Population 16 years old and older.)

<i>Expenditure Item</i>	<i>Expenditures (thousands of dollars)</i>	<i>Spenders</i>		
		<i>Number (thousands)</i>	<i>Percent of wildlife-watching participants<sup>1</sup></i>	<i>Average per spender (dollars)<sup>2</sup></i>
<b>Total, all items<sup>3</sup></b>	<b>54,961,547</b>	<b>55,980</b>	<b>78</b>	<b>982</b>
<b>Trip-Related Expenditures</b>				
<b>Total trip-related</b>	<b>17,274,675</b>	<b>19,905</b>	<b>88</b>	<b>868</b>
Food and lodging, total	9,349,439	17,017	76	549
Food	5,465,019	16,740	74	326
Lodging	3,884,420	6,851	30	567
Transportation, total	6,006,860	18,647	83	322
Public	2,521,247	3,029	13	832
Private	3,485,613	17,768	79	196
Other trip costs, total	1,918,376	9,359	42	205
Guide fees, pack trip or package fees	775,074	2,037	9	380
Public land use fees	239,021	6,212	28	38
Private land use fees	113,207	1,093	5	104
Equipment rental	141,017	1,485	7	95
Boating costs <sup>4</sup>	547,875	1,366	6	401
Heating and cooking fuel	102,182	2,302	10	44
<b>Equipment and Other Expenses</b>				
<b>Total</b>	<b>37,686,872</b>	<b>52,584</b>	<b>73</b>	<b>717</b>
Wildlife-watching equipment, total	11,323,179	47,951	67	236
Binoculars, spotting scopes	918,567	5,057	7	182
Cameras, video cameras, special lenses, and other photographic equipment	2,799,579	8,307	12	337
Film and photo processing	528,057	5,742	8	92
Bird food, total	4,068,161	36,956	51	110
Commercially prepared and packaged wild bird food	3,133,968	34,263	48	91
Other bulk foods used to feed wild birds	934,194	13,271	18	70
Feed for other wildlife	1,012,964	9,987	14	101
Nest boxes, bird houses, feeders, baths	969,708	19,181	27	51
Day packs, carrying cases, and special clothing	855,196	6,483	9	132
Other wildlife-watching equipment (such as field guides and maps)	170,946	4,847	7	35
Auxiliary equipment, total	1,555,374	6,445	9	241
Tents, tarps	289,781	2,964	4	98
Frame packs and backpacking equipment	216,231	1,976	3	109
Other camping equipment	294,173	2,472	3	119
Other auxiliary equipment (such as blinds and GPS devices)	755,188	2,008	3	376
Special equipment, total	14,343,643	2,219	3	6,465
Off-the-road vehicle	6,475,469	486	1	13,326
Travel or tent trailer, pickup, camper, van, motor home, house trailer, recreational vehicle (RV)	5,868,982	518	1	11,331
Boats, boat accessories	1,703,305	1,175	2	1,449
Cabins	...	...	...	...
Other	289,263	246	(Z)	1,175
Magazines, books, DVDs	420,395	8,480	12	50
Land leasing and ownership	5,676,794	1,233	2	4,603
Membership dues and contributions	2,163,568	10,756	15	201
Plantings	2,203,920	8,818	12	250

... Sample size too small (less than 10) to report data reliably. (Z) Less than 0.5 percent.

<sup>1</sup> Percent of wildlife-watching participants column is based on away-from-home participants for trip-related expenditures. For equipment and other expenditures the percent of wildlife-watching participants is based on total participants.<sup>2</sup> Average expenditures are annual estimates.<sup>3</sup> Information on trip-related expenditures was collected for away-from-home participants only. Equipment and other expenditures are based on information collected from both away-from-home and around-the-home participants.<sup>4</sup> Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

Note: Detail does not add to total because of multiple responses and nonresponse.

**Table 9. Comparison of Wildlife-Related Recreation Participation: 2006 and 2011**

(U.S. population 16 years old and older. Number in thousands.)

Type of Participation	2006		2011		2006–2011 % Change*
	Number	Percent	Number	Percent	
<b>Total Sportspersons</b>	<b>33,916</b>	<b>100</b>	<b>37,397</b>	<b>100</b>	<b>10%</b>
<b>Anglers, Total</b>	<b>29,952</b>	<b>100</b>	<b>33,112</b>	<b>100</b>	<b>11%</b>
All freshwater	25,431	85	27,547	83	8%
Freshwater, except GL	25,035	84	27,060	82	8%
Great Lakes	1,420	5	1,665	5	17%
Saltwater	7,717	26	8,889	27	15%
<b>Hunters, Total</b>	<b>12,510</b>	<b>100</b>	<b>13,674</b>	<b>100</b>	<b>9%</b>
Big game	10,682	85	11,570	85	8%
Small game	4,797	38	4,506	33	–6%
Migratory bird	2,293	18	2,583	19	13%
Other animal	1,128	9	2,168	16	92%
<b>Wildlife-Watching Participants, Total</b>	<b>71,132</b>	<b>100</b>	<b>71,776</b>	<b>100</b>	<b>1%</b>
Around-the-Home	67,756	95	68,598	96	1%
Away-from-Home	22,977	32	22,496	31	–2%

Note: Detail does not add to total because of multiple responses and nonresponse.

\*Not tested for significance level. Standard errors were not available at the time of printing.

**Table 10. Comparison of Wildlife-Related Recreation Participation: 2001 and 2011**

(U.S. population 16 years old and older. Number in thousands.)

Type of Participation	2001		2011		2001–2011 % Change*
	Number	Percent	Number	Percent	
<b>Total Sportspersons</b>	<b>37,805</b>	<b>100</b>	<b>37,397</b>	<b>100</b>	<b>–1%</b>
<b>Anglers, Total</b>	<b>34,067</b>	<b>100</b>	<b>33,112</b>	<b>100</b>	<b>–3%</b>
All freshwater	28,439	83	27,547	83	–3%
Freshwater, except GL	27,913	82	27,060	82	–3%
Great Lakes	1,847	5	1,665	5	–10%
Saltwater	9,051	26	8,889	27	–2%
<b>Hunters, Total</b>	<b>13,034</b>	<b>100</b>	<b>13,674</b>	<b>100</b>	<b>5%</b>
Big game	10,911	84	11,570	85	6%
Small game	5,434	42	4,506	33	–17%
Migratory bird	2,956	23	2,583	19	–13%
Other animal	1,047	8	2,168	16	107%
<b>Wildlife-Watching Participants, Total</b>	<b>66,105</b>	<b>100</b>	<b>71,776</b>	<b>100</b>	<b>9%</b>
Around-the-Home	62,928	95	68,598	96	9%
Away-from-Home	21,823	33	22,496	31	3%

Note: Detail does not add to total because of multiple responses and nonresponse.

\*Not tested for significance level. Standard errors were not available at the time of printing.

**Table 11. Comparison of Wildlife-Related Recreation Expenditures, 2006 and 2011**

(U.S. population 16 years old and older. Dollars in thousands.)

<i>Activity and Type of Expenditure</i>	<i>2006</i>		<i>2011</i>		<i>2006–2011 % Change*</i>
	<i>Dollars</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>	
<b>Total Sportsperson</b>	<b>85,848,030</b>	<b>100</b>	<b>89,299,767</b>	<b>100</b>	<b>4%</b>
<b>Fishing, Total</b>	<b>47,052,459</b>	<b>100</b>	<b>41,769,129</b>	<b>100</b>	<b>–11%</b>
Trip-Related	20,023,987	41	21,789,465	52	9%
Equipment	21,008,254	51	15,506,433	37	–26%
Fishing equipment	5,972,289	14	6,141,895	15	3%
Auxiliary equipment	872,189	3	1,106,865	3	27%
Special equipment	14,163,776	34	8,257,673	20	–42%
Other	6,020,218	9	4,473,231	11	–26%
<b>Hunting, Total</b>	<b>25,640,335</b>	<b>100</b>	<b>33,260,066</b>	<b>100</b>	<b>30%</b>
Trip-Related	7,480,048	25	10,421,189	31	39%
Equipment	12,019,281	55	13,972,490	42	16%
Hunting equipment	6,010,320	27	7,738,324	23	29%
Auxiliary equipment	1,489,842	6	1,844,880	6	24%
Special equipment	4,519,119	22	4,389,286	13	–3%
Other	6,141,006	20	8,866,389	27	44%
<b>Wildlife Watching, Total</b>	<b>51,133,555</b>	<b>100</b>	<b>54,961,547</b>	<b>100</b>	<b>7%</b>
Trip-Related	14,420,170	32	17,274,675	31	20%
Equipment	25,954,939	57	27,222,196	50	5%
Wildlife-Watching equipment	11,054,094	28	11,323,179	21	2%
Auxiliary equipment	1,157,027	3	1,555,374	3	34%
Special equipment	13,743,818	26	14,343,643	26	4%
Other	10,758,446	11	10,464,677	19	–3%

Note: 2011's expenditures do not include plantings for hunting, since that item was not asked in 2006.

\*Not tested for significance level. Standard errors were not available at the time of printing.

Note: 2006 estimates in 2011 dollars.

**Table 12. Comparison of Wildlife-Related Recreation Expenditures: 2001 and 2011**

(U.S. population 16 years old and older. Dollars in thousands.)

<i>Activity and Type of Expenditure</i>	<i>2001</i>		<i>2011</i>		<i>2001–2011 % Change*</i>
	<i>Dollars</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>	
<b>Total Sportsperson</b>	<b>89,212,543</b>	<b>100</b>	<b>89,299,767</b>	<b>100</b>	<b>0%</b>
<b>Fishing, Total</b>	<b>45,427,422</b>	<b>100</b>	<b>41,769,129</b>	<b>100</b>	<b>–8%</b>
Trip-Related	18,684,876	41	21,789,465	52	17%
Equipment	21,626,728	48	15,506,433	37	–28%
Fishing equipment	5,886,975	13	6,141,895	15	4%
Auxiliary equipment	919,262	2	1,106,865	3	20%
Special equipment	14,820,490	33	8,257,673	20	–44%
Other	5,115,817	11	4,473,231	11	–13%
<b>Hunting, Total</b>	<b>26,276,913</b>	<b>100</b>	<b>33,260,066</b>	<b>100</b>	<b>27%</b>
Trip-Related	6,696,252	25	10,421,189	31	56%
Equipment	13,209,829	50	13,972,490	42	6%
Hunting equipment	5,815,705	22	7,738,324	23	33%
Auxiliary equipment	1,533,502	6	1,844,880	6	20%
Special equipment	5,860,623	22	4,389,286	13	–25%
Other	6,370,831	24	8,866,389	27	39%
<b>Wildlife Watching, Total</b>	<b>48,974,477</b>	<b>100</b>	<b>54,961,547</b>	<b>100</b>	<b>12%</b>
Trip-Related	10,406,261	21	17,274,675	31	66%
Equipment	30,010,533	61	27,222,196	50	–9%
Wildlife-Watching equipment	9,375,556	19	11,323,179	21	21%
Auxiliary equipment	913,973	2	1,555,374	3	70%
Special equipment	19,721,004	40	14,343,643	26	–27%
Other	8,557,685	17	10,464,677	19	22%

Note: 2011's expenditures do not include plantings for hunting, since that item was not asked in 2001.

\*Not tested for significance level. Standard errors were not available at the time of printing.

Note: 2001 estimates in 2011 dollars.





U.S. Department of the Interior  
U.S. Fish & Wildlife Service







The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Thomas S. Burack, Commissioner**

February 16, 2011

Matthew Schweisberg  
Manager, Wetland Protection Unit  
United States Environmental Protection Agency  
Region 1  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

Dear Mr. Schweisberg: *Math*

Enclosed please find the following:

- New Hampshire's Wetland Program Plan. I want to thank Trish Garrigan, Jeanne Voorhees, and Mark Kern of your staff for their time and assistance in facilitating meetings and in drafting the plan. An electronic copy of this document was forwarded to your staff earlier this week.

Also please find hard copies of grant reports already submitted electronically last fall:

- EPA grant report "Building a Watershed Model for Enhancing Wetland Protection".
- EPA grant report: "Stream Crossings in Ashuelot River Watershed".
- EPA grant report: "Outreach in Stream Continuity and Restoration Opportunities"

If you have any questions regarding the Wetland Plan or the EPA reports, please do not hesitate to contact me directly at 603-271-4054.

Sincerely,

*Collis*  
Collis Adams, CWS  
Wetlands Bureau Administrator

cc: w/ cover letter only  
Trish Garrigan  
Jeanne Voorhees  
Mark Kern  
Peter Holmes

DES Web site: [www.des.nh.gov](http://www.des.nh.gov)

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## **New Hampshire Wetland Program Plan**

**2011-2017**

The New Hampshire Wetland Program Plan (“the Plan”) provides a framework and direction over the next six years for the New Hampshire Department of Environmental Services (“DES”) and its partners to strengthen and improve the program and in doing so better protect wetlands and aquatic resources statewide. In order to prepare the plan DES brought together various programs both from within and outside the agency that share common interests related to wetlands, most notably NH Department of Fish and Game, and the NH Department of Transportation, to discuss shared goals. This group identified the actions and activities necessary to reach those goals. The Plan should be considered a work in progress that will be revisited and revised as needed.

New Hampshire’s tidal and non-tidal wetlands are of great importance for flood control, water filtration, water storage and recharge for both groundwater and surface waters. These functions become more valuable with the expected increase in occurrence and severity of storm events associated with climate change. Wetlands also support the food chain, providing food and shelter for a variety of aquatic and upland plants and animals. Although New Hampshire has lost fewer wetlands to filling and dredging than many coastal states, landscape change poses a significant challenge to the protection of New Hampshire’s wetlands. Given the important functions and values of wetlands, there have been a number of attempts to place an economic value on wetlands resources. For instance, a 2006 EPA funded study estimated that the economic benefits generated by a single acre of

wetland amount to \$150,000 to \$200,000 (NACO, 2006). The same study found that wetlands increase surrounding real estate values by an estimated 28 percent while enhancing the quality of life. In 2002 a study by the Clean Water Network estimated the economic value of New Hampshire's remaining wetlands to be approximately \$1.2 bill (CWN, 2002)

The primary state law that authorizes the permitting program to protect wetlands is RSA 482-A, the New Hampshire Fill and Dredge in Wetlands Act (the "Wetlands Act"). The state's wetland permitting program is the primary means of wetlands regulation in New Hampshire. For projects with significant wetland impacts, based on either square footage (>10,000 square feet) or the impact on sensitive species, DES requires the applicant to compensate for the unavoidable loss of wetland functions and values that will result from the proposed impact. There are four options an applicant could use to address mitigation: wetland construction in upland areas, wetland restoration that re-establishes impacted wetlands or, protection of wetland and associated uplands through a conservation easement. If applicants can demonstrate to the satisfaction of DES that the other three options are not available then a fourth option is the Aquatic Resource Mitigation Fund (ARM Fund). This fund was established in 2006 and involves payment into one of 16 watershed-based funds.

The DES Wetlands program and applicants often interact with many other land resources permitting programs: including Alteration of Terrain, Subsurface Wastewater Disposal Systems, Groundwater and Drinking Water Supply, and Shoreland Protection. This type of coordinated permitting benefits state and federal partners and the general public.

DES utilizes LEAN techniques to identify and eliminate waste in our various processes. For example, LEAN was used to develop a new streamlined review of land resource applications at the administrative review level. DES is engaged in other LEAN initiatives to develop coordinated and streamlined processes for applicants. This LEAN process was made possible through funding from an EPA grant which is due to expire this year. DES hopes that through EPA and other additional funding sources some of the goals identified in this plan can be achieved.

## Overall Goal Statement and Time Frame

DES has identified the following overall goals or “desired outcomes” related to wetland resources in the state. These outcomes are separated into environmentally based outcomes and programmatic based outcomes and are the two cornerstones that were used to guide the work to be accomplished under the Plan.

### Environmentally- based outcomes:

- Wetland complexes of high ecological function and value, are afforded adequate protection.
- Blocks of unfragmented habitat are protected and/or connected to other habitats, protected land, or stream and wildlife corridors.
- Land development practices avoid and minimize cumulative and indirect impacts to wetland and aquatic resources.
- Natural stream flow regimes are maintained, and stream crossings allow aquatic resources to stay connected.
- Streams and wetlands have adequate protective buffers.

### Programmatic-based outcomes:

- Wetland permit processes will be integrated with other land resources permits.
- Wetland protection efforts will be well funded and wetland resources will be protected and maintained to provide improved ecosystem services (reduce flooding, improve water quality, provide habitat and recreation opportunities) and the economic benefits they provide.
- Development of a broad base of stewardship and public understanding of the multiple benefits of the functions and values of wetlands and aquatic resources.
- Wetland compliance and enforcement efforts are adequately funded, and actions are consistent and responsive.
- Wetland condition is assessed on a regular basis as part of NH Water Quality Monitoring Strategy and 305(b) reporting.
- Environmentally-based outcomes and measures are used for annual status and trends reporting and to influence proposed regulation, policy, and decision making.
- Resource management decisions are based on sound science and balance competing interests.

## **Core Elements of the New Hampshire Wetland Program Plan**

**DES identified five core program elements for the wetland planning process. These are:**

1. Regulation and Enforcement
2. Restoration and Protection
3. Data/Monitoring and Assessment/Water Quality Standards
4. Sustainable Financing
5. Outreach and Education/ Local Capacity building

These elements were used to focus the discussion and to help set priorities for action. Each element was assessed to identify strengths and weaknesses. A prioritization process was then used to identify the most important elements for initial focus. (However, it is acknowledged that all elements are important with a sustainable source of funding as perhaps the most important of all.) Suggested actions, activities and a preliminary timeline were identified and are listed in the following pages by each element.

## **CORE ELEMENT #1: REGULATION and ENFORCEMENT**

**Goal:** To avoid and minimize wetland loss, preserve wetland functions, and replace unavoidable or illegal losses with healthy wetlands that are equivalent or greater in size and that function similar to or better than lost wetlands. To develop a process that moves beyond the complaint-driven enforcement process to a proactive landscape level investigation to deter violations.

**Objective:** Continue development of a strong regulatory program by strengthening regulations, policies and guidance documents; developing and operating under consistent application procedures to maintain consistency and coordination; create strategies to conduct strong compliance and enforcement processes that are timely, relevant, and effective.

<b>Action (a): Improve and strengthen enforcement efforts</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Coordinate and/or consolidate program complaint protocols: <ul style="list-style-type: none"><li>- Review existing procedures</li><li>- Review existing database systems</li></ul>	x	x	x		
Develop a systematic approach on a watershed scale to address Land Resources Management and Water Quality complaints: <ul style="list-style-type: none"><li>- Pool agency money/resources to field check complaints</li><li>- Develop a consistent and coordinated system to address complaints</li></ul>	x	x	x		

Core Element # 1 cont.

Develop a proactive, systematic approach to locate and pursue large, unreported violations on a landscape-level scale	x	x	x	x	
<ul style="list-style-type: none"><li>- Develop a protocol to evaluate and identify potential violations and land use changes over a period of time</li><li>- Develop a consistent and coordinated enforcement response to violations identified</li></ul>					
Action (b): Increase Field Presence (“Watershed Circuit Rider”)					
Activity	2010-2011	2012	2013	2014	2015
Develop a strategy to integrate field presence and field enforcement process across multiple programs (Wetlands, AOT, Subsurface, WQS)	x	x	x		
Develop Strategy for Cross training of Watershed staff and interns on Land Resource jurisdiction	x	x	x		
Develop Strategy for Cross training Land Resources staff on Water Quality jurisdiction (Watershed Program currently handles)	x	x	x	x	x



Core Element # 1 cont.

<b>Action (c): Simplify and Consolidate Permit process</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Identify opportunities to streamline internal processes		x	x		
Identify opportunities to streamline permit procedures and forms	x	x			
Work towards implementation of e-filing		x	x	x	x
Pursue strategic program enhancements such as improving internal and external (public) accessibility to data layers and address indirect impacts		x	x	x	x
Continue to use LEAN techniques to improve wetlands permitting process	x	x	x	x	
<b>Action (d): Implement changes to improve wetland protection</b>					
<b>Activity</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Identify opportunities to strengthen and clarify statute		x	x	x	x
Identify opportunities to strengthen and clarify rules		x	x	x	x
Pursue implementation for integrated permitting for a unified Land development permit	x	x	x	x	x
Expand approaches to define and address indirect and cumulative impacts of landscape change		x	x	x	x

## CORE ELEMENT #2: RESTORATION AND PROTECTION

**Goal:** To prioritize and implement protection and restoration of aquatic resources of high ecological value and function that are connected to other habitats and that are sustainable.

**Objective:** Continue development of a strong ARM Fund Program to maximize efficiency, mitigate impacts to valuable wetlands and aquatic resources, and continue use of funds for ecologically significant and sustainable projects.

Action (a): Develop new and use existing tools and science to inform regulatory decisions					
Activity	2010-2011	2012	2013	2014	2015
Incorporate Wildlife Action Plan (WAP) and other science-based documents into application review		x		x	
Identify priority wetland-wildlife habitats for protection where enhanced buffers would be appropriate		x		x	
Evaluate need for buffer protection associated with water quality, flood control and other functions and values		x	x		x
Evaluate methodologies for modeling vernal pool locations and work with Fish and Game to develop vernal pool prediction model that maximizes accuracy (WAP strategy) into permitting review		x	x	x	x

<b>Action (b): Continue development of ARM Fund Program to maximize efficiency of program and use of funds for ecologically sustainable projects</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Promote high quality protection/restoration projects through criteria development, prioritization, and dissemination of information to towns, land trusts, partners etc		x	x		
Explore feasibility of changing mitigation threshold		x	x		
Develop Strategy for Watershed-based plans that identify protection and restoration priorities for the ARM	x	x		x	x
Continue revisions to application process and ranking criteria to accommodate range of protection and restoration activities	x	x	x		
Continue application announcement and review to improve efficiency for DES and the ARM selection committee	x	x	x		
Develop coordinated approach for aquatic resource protection with other existing programs		x	x	x	x

## Core Element # 2 cont.

<b>Action (c): Mitigate impacts to wetlands and aquatic resources</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Develop formal relationship with Fish and Game to protect and mitigate significant regulated wildlife resources and assist with updates and implementation of NH Wildlife Action Plan (WAP)(MOA with funding)		x	x		
Participate in WAP revisions to incorporate climate change, and revisions to agency rules and statutes	x	x	x	x	x
Identify priority wetland-wildlife habitats for protection where enhanced buffers and mitigation would be required (See Regulation Element –overlap)		x	x	x	x
<b>Action (d): Use data to inform regulatory decisions related to mitigation</b>					
<b>Activity</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Continue development of wetland/aquatic mitigation programs (ARM)	x		x	x	
Continue development of ARM Program and change threshold required for mitigation		x			
Incorporate best available science technologies and data collection techniques(including WAP) in regulatory decision-making	x	x	x		
<b>Action (e): Build capacity at the local level to enhance protection efforts</b>					
<b>Activity</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Develop a strategy to address buffers through local and state process			x	x	
Identify opportunities for conservation through land trusts, local commissions, and state and regional opportunities			x	x	x

### CORE ELEMENT #3: WETLAND DATA/MONITORING AND ASSESSMENT/WQS

**Goal:** To develop methods for monitoring and assessing wetland functions and condition. Assessment methods will be integrated with narrative and numeric water quality criteria for 305(b)/303(d) reporting.

**Objective:** Ensure that wetlands are treated as waters of the state consistently throughout all state programs

Action (a): Establish regulatory background for wetland monitoring					
Activity	2010-2011	2012	2013	2014	2015
Revise wetland monitoring strategy	x	x			
Develop a strategy to establish and adopt criteria that qualitatively describe the condition or suite of functions that must be achieved to support a designated use [Create cross walk for Designated uses and Wetland function]	x	x	x		
Develop a strategy to establish wetland-specific water quality standards	x	x	x		
Develop a strategy to establish and adopt numeric criteria representing wetland specific values for chemical, physical and biological parameters	x	x	x	x	

## Core Element # 3 cont.

<b>Action (b): Develop GIS-based Wetland Catalog system capable of update</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Work with other state agencies (DOT) to fund and develop protocol to update GIS wetlands catalog from new wetland application delineations and/or have applicant submit digital wetland delineations		x	x	x	
Develop strategy to obtain existing town, county and nonprofit delineations	x	x	x	x	
Develop strategy to provide quality assurance for digitized delineations		x	x	x	
<b>Action (c): Provide foundation for a wetland monitoring Level II assessment</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Review USA RAM, existing state specific RAM's and NH Method to develop a protocols for Level II wetlands monitoring		x		x	
Develop and implement a Floristic Quality Assessment Index (FQAI) as a Level II assessment tool and develop Index of Biological Integrity (IBI) to develop numeric criteria for FQAI	x	x	x	x	
Develop a strategy to provide quality assurance for wetland monitoring procedures	x	x	x	x	x
Train DES staff and volunteers (create wetland monitoring volunteer groups) in new procedures and protocols		x	x	x	x
<b>Action (d): Develop metrics and field protocols for wetland restoration and protection</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Strategize on development of restoration professional workgroup			x	x	x
Identify restoration opportunities and methods to monitor and review project data.		x	x	x	x

## CORE ELEMENT #4: SUSTAINABLE FINANCING

**Goal:** Provide stable funding sources to support program long-term and improve quality of service

**Objective:** To make wetland programs and other department initiatives financially stable. Stable financial resources are necessary to achieve goals and objectives in the New Hampshire Wetland Protection Plan.

Action (a): Develop strategy to revamp fee and funding structure with goal of making wetlands program more financially stable.					
Activity	2010-2011	2012	2013	2014	2015
Identify and pursue additional opportunities for program funding	x	x	x	x	x
Review legislative opportunities to account for public service offered at a cost to program – e.g., pre application meetings, appeals, inspections	x	x	x	x	x
Review existing legislative caps for appropriateness – DOT, utilities, etc	x	x	x	x	x
Review other possible fees for other resource use - dock registration, buffers, etc	x	x	x	x	x
Action (b): Identify other water programs with associated wetland impacts					
Activity	2010-2011	2012	2013	2014	2015
Create mitigation program for projects impacting wetland through storm water, 401, or impacts to buffers			x		x
Review other water programs for identification of impacts to wetlands and clean water authority – nonpoint source, dams, water diversions and water quality		x	x	x	x

Action (c): Partner with key stakeholders					
Activity	2010-2011	2012	2013	2014	2015
Foster relationships with academic institutions, natural resource scientists, and conservation groups		x		x	x
Work with colleges and universities to promote research in areas that will assist with environmental compliance as well as social and technical research		x		x	x
Work with local groups to address smaller issues, and get them involved in providing feedback to improve permit process			x		x



## CORE ELEMENT #5: OUTREACH AND EDUCATION

### Goal(s):

- Develop a comprehensive, coordinated network of volunteers to assist in outreach and education
- Use volunteers to perform education and outreach to achieve desired environmental compliance and outcomes
- Local decision makers are well-informed and can then make sound environmental decisions.
- Use Education/outreach to educate legislature
- **Objective:** To improve public understanding of wetlands value and understand wetland process

Action (a): Coordinate wetland message into other Water Division outreach					
Activity	2010-2011	2012	2013	2014	2015
Develop wetlands message and outreach tools (fact sheets, presentations, etc.) focused on important functions and values (i.e., wildlife, flood protection, and water quality)	x	x	x	x	x
Develop HUC 12 level wetland report cards integrated with other waterbody types			x	x	x
Develop DES Water Division Outreach Steering Committee (with other stakeholders, e.g., Fish and Game)	x	x	x	x	x
Action (b): Develop volunteer corps for wetland outreach					
Activity	2010-2011	2012	2013	2014	2015
Develop training materials for volunteer corps		x	x	x	x
Train existing volunteer groups to integrate wetland steward message (VLAP, VRAP)		x	x	x	x
Identify DES staff to provide technical assistance to volunteer corps	x	x	x		

<b>Action (c): Enhance and integrate outreach, education and technical assistance to municipal officials, conservation commissions and watershed organizations (and land use planning commissions)</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Strategize on creating Master Outreach calendar (with DES Outreach Committee)	x	x	x		
Strategize on creating on-line training in wetland outreach and assessment tools		x	x	x	x
Pursue partnerships for education/outreach:					
- Pursue training through educators to teach other trainers					
- Pursue training with SWS, Conser. Commissions to help to education/outreach – hold partners accountable with agreements		x	x	x	x
Coordinate with DOT Storm Water Outreach Team	x	x	x		
Coordinate with Public Affairs Division of Fish and Game – provide tools to get message out, Discover NH Day, Project WET, Teach the teacher, and other available forums	x	x	x	x	x
Review the Shoreland Stakeholder group as model to develop education/outreach plan	x	x	x		
<b>Action (d): Influence and inform local decision making</b>					
<b>Activity</b>	<b>2010-2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Expand approaches to define and address indirect and cumulative impacts of landscape change			x	x	x
Distribute information to municipalities related to wetland outreach efforts, assessment tools, and reporting on the ecological integrity of wetlands			x	x	x

**REPORT OF THE ACTIVITY OF THE  
NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES  
AQUATIC RESOURCE MITIGATION FUND PROGRAM  
FEBRUARY, 2012**

**INTRODUCTION**

This report is to fulfill the requirement of RSA 482-A: 33 that the Department of Environmental Services (DES) submit an annual report to the Chairpersons of the Fiscal Committee, the House Resources, Recreation and Development Committee and the Senate Energy and Natural Resources Committee (formerly the Senate Environment and Wildlife Committee) “summarizing all receipts and disbursements of the aquatic resource compensatory mitigation fund, including a description of all projects undertaken and the status of the administrative assessment account”. This report also fulfilled the requirement of the Memorandum of Agreement with the Corps of Engineers, New England District, to submit an annual report on the program. This report is for Fiscal Year 2011, from July 1, 2010 to June 30, 2011.

The New Hampshire Aquatic Resource Mitigation (ARM) Fund was established in 2006 by enactment of RSA 482-A:28 through RSA 482:33 to provide wetlands permit applicants with an additional option to address federal and state mitigation requirements when impacts to jurisdictional wetlands and other aquatic resources are permitted that require mitigation. DES manages and implements the ARM Fund in accordance with both the state statutory requirements (RSA 482-A:28-32) and a Memorandum of Understanding between DES and the United States Army Corps of Engineers that ensures consistency and compliance with federal standards.

The ARM Fund Program provides wetlands permit applicants with the option to contribute payments to this fund *in lieu of* implementation of several other possible and more traditional compensatory mitigation alternatives. These other wetlands mitigation options might include restoration of existing impaired wetlands, land acquisition and preservation, or construction of new wetlands. In many circumstances, these other options may be more costly, time consuming or complex to implement for the wetlands permit holder as compared with an ARM Fund contribution.

DES accounts for ARM Fund payments on a major watershed basis. When sufficient funds are accrued for a watershed, DES will issue a request for proposals, evaluate the proposals received, and award grants for the projects determined to have the highest long-term environmental benefits in the specific watershed. Projects that have been awarded funds include those that provide significant wetlands restoration or land conservation and are focused on areas of important and/or vulnerable wetlands with regional significance. A summary of the results for FY 2011 is provided below.

**FY 2011 Permits Issued with ARM Fund as Compensatory Mitigation and ARM Fund Receipts**

The ARM Fund program has been very successful for permit applicants and has resulted in many significant wetland preservation and restoration projects across the state. Table 1 provides a list of the projects permitted in FY 2011 where the wetlands permit holders selected payment to the ARM Fund to satisfy compensatory mitigation requirements. Permit holders have been separated into two categories: those that paid into the ARM Fund and those with delayed payments. The table also shows the project impacts to wetlands (i.e., the acres of wetlands permitted to be filled) and ARM Fund payments for each project. In FY 2011, twelve permits with 9.87 acres in cumulative impacts were issued where permit holders elected compensatory mitigation by payment to the ARM Fund. The ARM Fund received mitigation fees of \$627,860.00 for 7 projects. In addition, five projects were permitted with estimated total wetland impacts of 2.85 acres and expected ARM Fund compensatory mitigation fees of \$361,050.00 to be paid in either FY 2012 or FY 2013. Payments were delayed for these four projects because the projects were delayed either because the owner needed to wait until economic conditions improved or there were local permitting issues. In each case, DES granted an extension with the condition that the ARM Fund administrative fee (discussed further below) was submitted as a partial payment and to cover project review costs. Overall, the twelve projects approved for the payment option amount to an estimated \$988,910.00 into the Fund.

**TABLE 1. WETLAND PERMITS ISSUED IN STATE FY 2011 WHERE APPLICANT USED ARM FUND FOR COMPENSATORY MITIGATION.**

<b>TOWN/ DES/CORPS FILE NUMBER</b>	<b>WATERSHED</b>	<b>DATE PERMIT ISSUED</b>	<b>WETLANDS IMPACTS (acres)</b>	<b>ARM FUND REVENUES</b>	<b>PAYMENT DEPOSIT DATE (FISCAL YEAR)</b>
<b>PROJECTS WITH ARM FUND PAYMENTS MADE BY PERMIT HOLDERS IN FY 2011</b>					
<b>Durham 2005-556/2005-1863</b>	Salmon Falls to Piscataqua River	7/6/2010	0.41	\$55,561	July, 6 2010 (FY 2011)
<b>Hooksett 2010-1370/2010-1957</b>	Merrimack River	8/31/2010	0.11	\$9,813	August 31, 2010 (FY 2011)
<b>Enfield 2010-1525/2010-1320</b>	CT to White River to Bellows Falls	10/1/2010	2.64	\$322,892	October 1, 2010 (FY 2011)
<b>Lebanon 2009-2853/2010-128</b>	CT to White River to Bellows Falls	10/12/2010	2.65	\$71,250	October 12, 2010 (FY 2011)
<b>Alton 2010-1261/2010-1419</b>	Winnepesaukee River	10/21/2010	1.13	\$157,802	October 21, 2010 (FY 2011)
<b>Lincoln 2010-2355/2010-2486</b>	Pemigewasset River	1/14/2011	0.04	\$4,364	January 14, 2011 (FY 2011)
<b>Concord/Penacook 2010-1970/2010-2507</b>	Contoocook	1/18/2011	0.04	\$6,178	January 18, 2011 (FY 2011)
<b>Subtotal</b>			<b>7.02</b>	<b>\$627,860.00</b>	
<b>PROJECTS WITH PERMITS ISSUED IN FY 2011 AND PAYMENTS DELAYED UNTIL FUTURE YEARS</b>					
<b>Newbury-Goshen 2010-26/ 2010-337</b>	CT River to White River to Bellows Falls		0.51	\$74,180	June 11, 2012 (FY 2012)
<b>Berlin, 2009-2366/2010-2544</b>	Upper Androscoggin		0.65	\$76,410	August 31, 2012 (FY 2013)
<b>Berlin/Milan 2009-2989/2010-130</b>	Upper Androscoggin		1.10	\$123,971	August 31, 2012 (FY 2013)
<b>Epsom 2009-396/2009-2494</b>	Merrimack		0.53	\$77,891	June 20, 2012 (FY 2012)
<b>Hanover, 2010-428/2010-2284</b>	CT River to Waits to White Rivers		0.06	\$8,598	March 22, 2013 (FY 2012)
<b>Subtotal</b>			<b>2.85</b>	<b>\$361,050.00</b>	
<b>TOTAL, ALL PROJECTS.</b>			<b>9.87</b>	<b>\$988,910.00</b>	

**ARM Fund Disbursements in FY 2011**

The ARM Fund program grants funds to projects involving wetland and/or stream restoration, wetland enhancement, and/or preservation of upland buffers associated with high quality aquatic resources. The Fund has been utilized by projects in several watersheds since the program inception. The projects that completed the restoration or preservation tasks and were provided payment during the 2011 fiscal year are noted in Table 2.

**TABLE 2. ARM FUND DISBURSEMENTS FOR COMPLETED PROJECTS IN STATE FY 2011**

<b>PROJECT NAME/APPLICANT</b>	<b>WATERSHED</b>	<b>TOWN</b>	<b>ARM FUNDS DISBURSED</b>	<b>MATCHING FUNDS</b>	<b>PROJECT DESCRIPTION</b>
<b>Hooksett Clay Pond Headwater Project, Hooksett</b>	Merrimack River	Hooksett	\$200,000	\$1,065,000	733+/- acres of high value wildlife habitat in the Clay Pond Headwaters area, including over 130 acres of wetlands, vernal pools, and exemplary natural communities. It was protected by combining town ownership with a conservation easement(s) held by Bear-Paw Regional Greenways.
<b>Oxbow Property, Canterbury</b>	Merrimack River	Canterbury	\$300,000	\$510,000	A conservation easement will be held by the Forest Society protecting a 294-acre parcel in Canterbury. Protecting this land is of critical conservation importance as it includes 26 acres of wetlands and two miles of undeveloped shoreline on the Merrimack River, as well as exemplary plant communities and habitat for several state-listed plant and animal species.
<b>Stewart Property, Francestown,</b>	Merrimack River	Francestown	\$48,000	\$0	The funds were used to purchase, fee simple, 55 acres of the Stewart land in Francestown with an easement held by the Francestown Land Trust. This purchase will protect over 5,000 linear feet of shoreline along Rand Brook and the South Branch of the Piscataquog River, including enhancement involving 2 acres of wetland restoration of the riparian buffer and the removal of invasive species in both wetlands and uplands.
<b>Potter Farm Conservation/Wetland Enhancement Project, Northumberland</b>	Upper Connecticut River	Norumberland	\$135,687	\$233,702	326 acre property purchased by The Nature Conservancy for protection and restoration of floodplain forests, maintain agricultural land uses, and protect uplands and rivershore connectivity. The project is an entire ridgeline-to-rivershore swath. This parcel is part of TNC's "Kilkenny Matrix Forest Block", comprising 119,600 acres of unfragmented forest.
<b>Nesenkeag Brook Headwaters Project, Londonderry</b>	Merrimack River	Londonderry	\$19,399	\$5,970	The Town of Londonderry used funds to review the hydrologic conditions for future wetland enhancement opportunities. The restoration of the Nesenkeag Brook Headwaters site attempts to return a degraded ecosystem to its natural potential.
<b>TOTAL FUNDS DISBURSED</b>			<b>\$703,086.00</b>	<b>\$1,814,672.00</b>	

**TABLE 3. ARM FUND: PROJECTS AWARDED FUNDS BY WATERSHED IN STATE FY 2011**

<b>PROJECT NAME/APPLICANT</b>	<b>WATERSHED</b>	<b>TOWN</b>	<b>ARM FUNDS OBLIGATED</b>	<b>MATCHING FUNDS</b>	<b>PROJECT DESCRIPTION</b>
<b>WINNIPESAUKEE RIVER WATERSHED</b>					
<b>Tioga River Wildlife Conservation Area/ Town of Belmont</b>	Winnepesaukee River	Belmont	\$30,000	\$4,600	The Town of Belmont proposed to eradicate the current infestation of Glossy Buckthorn on the Tioga River Wildlife and Conservation Area. The most significant threat of the invasion is to Prime Wetland 18, one of the highest ranking wetlands in Belmont. Wetland enhancement is within 25 acres of wetland habitat with control methods implemented to eliminate and manage invasive species on the site.
<b>Coffin Brook Road Floodplain Connectivity Improvement Project/ Town of Alton</b>	Winnepesaukee River	Alton	\$23,000	\$35,707	Enhancement of 30 acres of a floodplain wetland system through the installation of a series of floodplain culverts in a specific area of the floodplain to restore hydrologic connectivity of the floodplain and prevent flooding into the road surface by allowing flow during storm events. Installation of selected 45" wide by 29" high elliptical culverts improves passage in the floodplain.
<b>WINNIPESAUKEE RIVER WATERSHED SUBTOTAL</b>			<b>(\$53,000.00)</b>	<b>(\$40,307.00)</b>	
<b>SALMON FALLS RIVER-PISCATAQUA RIVER WATERSHED</b>					
<b>Siemon Family Charitable Trust Conservation Land/ N.H. Fish and Game Department.</b>	Salmon Falls – Piscataqua Rive	Milton	\$29,300	\$191,800	The NHFG was donated the value of a conservation easement on the 366.1 acres of land with 1.9 miles of riparian corridor along Jones Brook. The funds were used to complete components of the land transaction. The property consists of 44.75 acres of NH Wildlife Action Plan (WAP) Tier 1, Highest Ranked Wildlife Habitat by Ecological Condition in the State; 73.65 acres of WAP Tier 2, Highest Ranked in Biological Region; and 239.23 acres of WAP Supporting Landscape.
<b>Upper Oyster River Channel and Fish Passage Restoration Project, Barrington./ Piscataqua Region Estuaries Partnership</b>	Salmon Falls – Piscataqua Rive	Barrington	\$100,000	\$101,250	Culvert removal to improve fish passage to approximately 4 miles of upstream riverine habitat in the headwaters of the Oyster River. The project will improve habitat for the American brook lamprey (state endangered species), wild eastern brook trout, American eels, and other aquatic life. The project will provide protection of 18 acres of land along the river.

PROJECT NAME/APPLICANT	WATERSHED	TOWN	ARM FUNDS OBLIGATED	MATCHING FUNDS	PROJECT DESCRIPTION
<b>River Road Marsh Restoration, New Castle/New Castle Conservation Commission</b>	Salmon Falls–Piscataqua River	New Castle	\$27,993	\$27,250	The New Castle Conservation Commission in partnership with the Rockingham County Conservation District will provide 0.5 acres of salt marsh restoration. Once restored, this wetland is expected to have high wildlife habitat value, sediment retention/ nutrient removal , educational and aesthetic potential.
<b>Odiorne Point State Park Maritime Cobble Beach and Coastal Salt Pond Marsh Restoration Project, Rye/ Rockingham County Conservation District</b>	Salmon Falls – Piscataqua Rive	Rye	\$43,000	\$6,100	The Rockingham County Conservation District was awarded \$43,000 for 3.8 acres of restoration and 6.45 acres of enhancement work at the state park. Located at Odiorne Point State Park in Rye NH, the NH Natural Heritage Bureau defines the aforementioned sites as “exemplary natural communities” of which the coastal salt pond marsh is the only one of its kind in the State. These significant habitats are home to two endangered, and two state listed threatened plant species
<b>Berry Brook Watershed Restoration through Stream Restoration, Buffer Development, and LID Retrofits/ UNH Stormwater Center and City of Dover.</b>	Salmon Falls – Piscataqua River	Dover	\$440,000	\$198,100	The project will significantly restore and reconnect 0.9 miles of 1 <sup>st</sup> order stream, Berry Brook to the Cocheco River. The work includes restore/daylight/recreate 1,960 feet of stream channel, remove fish passage barriers, and provide significant treatment of 164 acres of watershed for diadromous fish and other aquatic species. Berry Brook is an urban stream which will be improved through two efforts: 1) Wetland and stream restoration, buffer development and conservation, and 2) Base flow and water quality improvements.
<b>Exeter River Water Quality Improvements and Buffer Preservation/Town of Brentwood</b>	Salmon Falls – Piscataqua River	Brentwood	\$78,468	\$50,420	The Brentwood Conservation Commission will preserve 16 acres of frontage on the Exeter River, and 0.3 acres of riparian enhancement to improve water quality and habitat. The project targets and expands on projects identified in the Exeter River Geomorphic Assessment and Watershed-Based Plan: Middle Exeter River (2010). In that plan, these are Projects #1-3 which include stormwater retrofits, riverbank stabilization, buffer plantings, and conservation easements totaling approximately 16 acres.



PROJECT NAME/APPLICANT	WATERSHED	TOWN	ARM FUNDS OBLIGATED	MATCHING FUNDS	PROJECT DESCRIPTION
<b>Sprucewood Forest/Trust for Public Lands</b>	Salmon Falls – Piscataqua River	Durham	\$500,000	\$500,000	The primary goal for the project is to permanently conserve 176 acres comprised of 142 acres of uplands, 34.04 acres of wetlands, 0.9 acres of floodplain forest, diverse wildlife habitat and natural communities and frontage on Oyster River. Town of Durham will work with the Southeast Land Trust of NH to develop a stewardship/management plan after they have assumed ownership of the property. A significant portion of the subject property is contained within the 2,690 ac Oyster River Conservation Focus Area identified in the NH Coastal Plan. This is a keystone property connecting over 2,200 acres of existing conservation land - including the isolated 36 acres Spruce Hole Conservation Area and other protected lands owned by UNH, the Town and private land trusts.
<b>Evans Mountain/Town of Strafford, Bear-Paw Regional Greenways</b>	Salmon Falls – Piscataqua River	Strafford	\$367,750	\$580,105	The goal of the project is to permanently protect the 1,015-acre Evans Mountain property in Strafford by combining fee ownership by the Town of Strafford and the Blue Hills Foundation with a conservation easement(s) held by Bear-Paw Regional Greenways. This parcel is part of a 6,000-acre unfragmented forest that includes headwater streams of Bow Lake and the Nippo Brook/Isinglass River in the Salmon Falls - Piscataqua River watershed. The project includes a wetland restoration and aquatic resource improvement component which proposes to restore 18 degraded sites. More than 980 acres of the property are ranked as either "highest ranked in the state" or "highest ranked in the biological region" in the 2010 Wildlife Action Plan.
<b>SALMON FALLS RIVER-PISCATAQUA RIVER WATERSHED SUBTOTALS</b>			<b>(\$1,586,511.00)</b>	<b>(\$1,655,025.00)</b>	
<b>TOTAL, ALL WATERSHEDS</b>			<b>\$1,639,511.00</b>	<b>\$1,695,332.00</b>	

### ARM Fund Projects Awarded Funds in FY 2011

In March, 2010, DES announced the availability of ARM funds accrued in the following two watersheds: Winnepesaukee River watershed, and the Salmon Falls to Piscataqua River watershed. These two watersheds had accumulated funds over a two year period and were required by administrative rules to be advertised for release. Pre-proposals were requested to be submitted by April. The projects that propose restoring or protecting similar functions as those lost by the projects that generated the funds were reviewed by the ARM Fund Site Selection Committee. Upon their review, the selected projects are invited to provide full applications to be submitted by August, 2011. The SSC then conducts meetings, field inspections, and utilizes evaluation criteria to score and rank the projects for funding. Their recommendations are provided to the Army Corps of Engineers and the Wetland Council for final approval.

Two projects were awarded funds from the Winnepesaukee River watershed account and eight projects were awarded funds in the Salmon Falls to Piscataqua River watershed. Table 3 provides details of the past fiscal year's disbursements and a brief description of the gain in resources from each completed project.

### Status of the Administrative Assessment Account

One component of an ARM Fund payment is an administrative assessment established by RSA 482-A:30, III and RSA 482-A:30-a, II. Such account assessments collected shall be used to support up to two full-time positions for administration of the fund. During fiscal year 2011, the assessment was revised from 5% to 20% of the sum of a total payment. Table 4 notes the revenue accrued that supports one full-time position.

**TABLE 4. Status of Administrative Assessment Account**

<b>Administrative Assessment</b>	<b>Revenue</b>
<b>Projects with 5% administrative fee</b>	\$43,979.94
<b>Projects with 20% administrative fee</b>	\$2,108.59
<b>Total for FY 2011</b>	<b>\$46,088.53</b>

### Overall Status of the ARM Fund Account (as of June 30, 2011)

The 2011 fiscal year ended with 10 of the 16 ARM Fund watersheds having accumulated funds. Table 5 describes revenues, expenses, encumbered funds and a balance by each watershed. It should be noted that the following watersheds were advertised in March 2011 with a pre-proposal due in April and full applications due by August, 2011: Upper Androscoggin River, Connecticut River from White River to Bellows Falls, and the Winnepesaukee River watershed. The results of this grant round will be reported in the fiscal year 2012 report.

**TABLE 5. Status of ARM Fund accounts according to watersheds.**

<b>FY 2011 Quarter</b>	<b>Beginning Balance (7/1/10)</b>	<b>Revenues</b>	<b>Expenses</b>	<b>Encumbered</b>	<b>Ending Balance (6/30/211)</b>
<b>Upper Androscoggin River</b>	\$93,819.23	\$9,276.96	\$13,744.55	\$89,000.00	\$351.64
<b>Lower Androscoggin River</b>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Saco River</b>	\$46,223.29	\$0.00	\$0.00	\$0.00	\$46,223.29
<b>Winnepesaukee River</b>	\$153,737.16	\$165,692.62	\$7,890.12	\$53,000.00	\$258,539.66
<b>Salmon Falls – Piscataqua Rivers</b>	\$1,540,871.89	\$58,339.06	\$2,778.05	\$1,586,511.00	\$9,922.90
<b>Merrimack River</b>	\$652,331.13	\$14,015.11	\$490.68	\$569,000.00	\$96,855.56
<b>Nashua River</b>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>CT to Millers River</b>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>CT-Ashuelot to Vernon Dam to Millers River</b>	\$183,533.82	\$0.00	\$0.00	\$178,000.00	\$5,533.82
<b>CT to Bellows Falls to Vernon Dam</b>	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Contoocook River</b>	\$0.00	\$1,235.67	\$1,235.67	\$0.00	\$0.00
<b>CT to White to Bellows Falls</b>	\$0.00	\$414,037.39	\$19,894.50	\$0.00	\$394,142.89
<b>CT to Waits River to White River</b>	\$0.00	\$429.88	\$429.88	\$0.00	\$0.00
<b>Pemigewasset River</b>	\$140,042.02	\$5,237.53	\$872.92	\$113,500.00	\$30,906.63
<b>CT to Johns River to Waits River</b>	\$220,446.53	\$0.00	\$3,448.06	\$0.00	\$216,998.47
<b>Upper CT River</b>	\$148,723.43	\$0.00	\$0.00	\$148,000.00	\$723.43
<b>Total All Watersheds</b>	<b>\$3,179,728.50</b>	<b>\$668,264.22</b>	<b>\$50,784.43</b>	<b>\$2,737,011.00</b>	<b>\$1,060,198.29</b>

Additional information on the ARM Fund program, annual reports noting project awards and announcement of funds available can be found at the NHDES web site at:

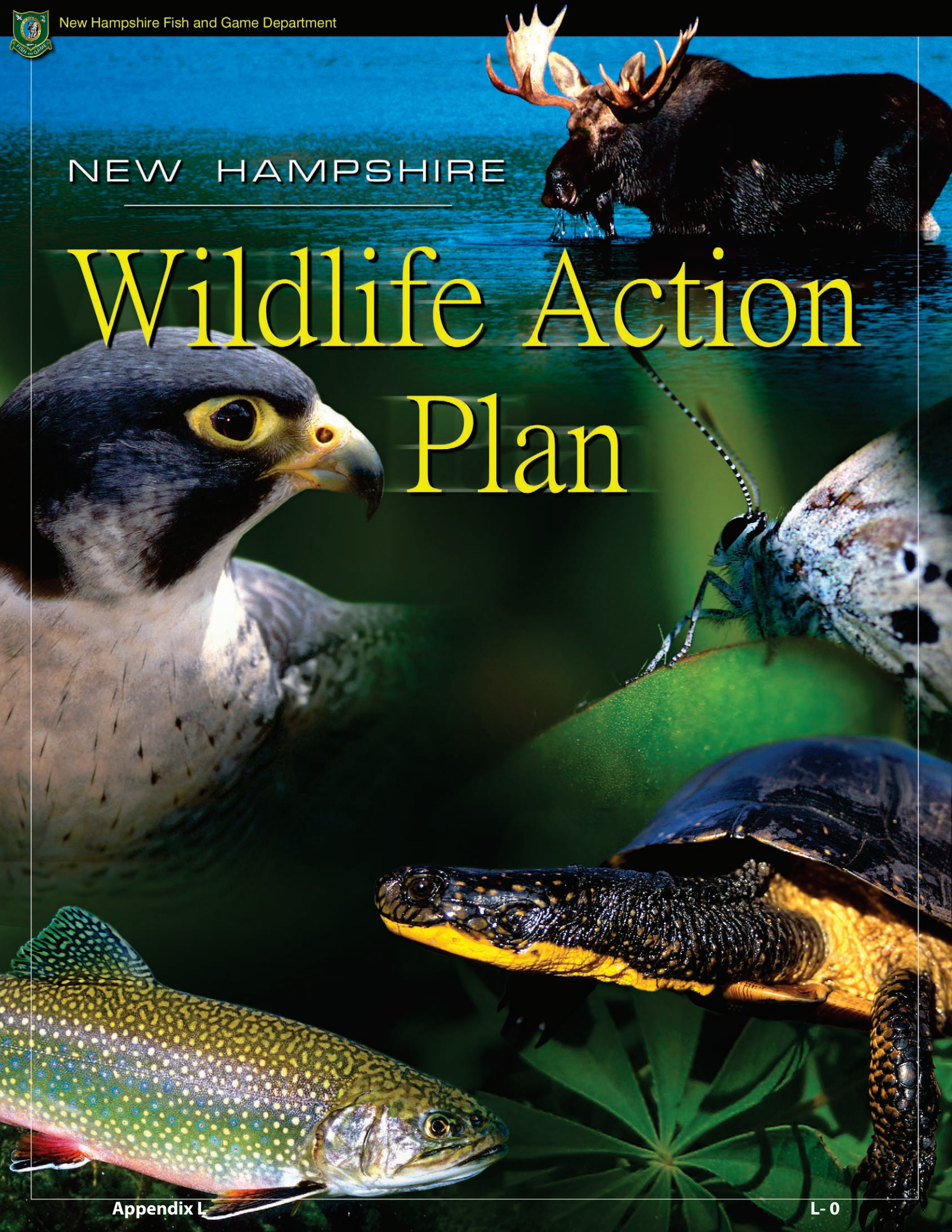
<http://des.nh.gov/organization/divisions/water/wetlands/wmp/index.htm>





NEW HAMPSHIRE

# Wildlife Action Plan





#### On the Cover

Moose: © Alan Briere photo

Peregrine Falcon: © Alan Briere photo

Brook Trout: © Eric Engbretson photo

Blandings Turtle: © NHFG / Marquis Walsh photo

Karner Blue Butterfly: © NHFG / Victor Young photo

# New Hampshire Wildlife Action Plan

Submitted October 1, 2005



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## TABLES

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### CHAPTER 2

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### CHAPTER 3

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**TABLE 3-2.** Summary of potential biodiversity indicators. Indicators should be interpreted cautiously. Recorded observations of rare plants, animals, and natural communities do not consistently represent structured surveys. Absence of survey information and null observations are both potential causes for low indicator levels, but no information is available to discern which is true.

### CHAPTER 4

**TABLE 4-1.** Preliminary habitat risk groups. Habitats were placed into risk groups based on information provided on risk assessment forms.

**TABLE 4-2.** Preliminary species risk groups. Data and taxonomic expertise were limiting factors for many fish and wildlife species. Obtaining peer review to validate the risk groups and completing assessments for poorly studied fish and wildlife are high priority tasks for WAP implementation.

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**TABLE 4-10.** Number of habitats and species at highest risk due to altered natural disturbance regimes. See Table 4-11 and Appendix A and B for details.

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Appendix A and B for additional information on specific risk factors and rankings.

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**TABLE 4-19.** Habitats and species at highest risk from effects of energy and communication infrastructure, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

**TABLE 4-20.** Number of habitats and species at highest risk from introduced species. See Table 4-21 and Appendix A and B for details.

**TABLE 4-21.** Habitats and species at highest risk from introduced species, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

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**TABLE 4-23.** Habitats and species at highest risk from the effects of mercury, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

**TABLE 4-24.** Number of habitats and species at highest risk from the effects of non-point source pollution. See Table 4-25 and Appendix A and B for details.

**TABLE 4-25.** Habitats and species at highest risk from the effects of non-point source pollution, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

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**TABLE 4-27.** Habitats and species at highest risk from the effects of oil spills, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

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**TABLE 4-29.** Habitats and species at highest risk from the effects of predation and herbivory, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

**TABLE 4-30.** Number of habitats and species at highest risk from the effects of recreation. See Table 4-31 and Appendix A and B for details.

**TABLE 4-31.** Habitats and species at highest risk from the effects of recreation, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

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**TABLE 4-38.** Number of habitats and species at highest risk from the effects of unsustainable forest harvesting. See Table 4-39 and Appendix A and B for details.

**TABLE 4-39.** Habitats and species at highest risk from the effects of unsustainable forest harvesting, in descending order by Rank. See Appendix A and B for additional information on specific risk factors and rankings.

## CHAPTER 5

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## CHAPTER 6

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## FIGURES

### CHAPTER 3

**FIGURE 3-1** (see insert). New Hampshire Habitat Landcover. Predictive habitat maps were developed for all WAP habitat types, and compiled to create a complete landcover. The New Hampshire Habitat Landcover will be used to conduct conservation planning analyses.

**FIGURE 3-2.** Mapping and Data Diagram. Data describing the condition of each habitat polygon were entered into a database for use in comparative analyses.

**FIGURE 3-3.** Habitat Diversity by Town. Total number (richness) of WAP habitat types within town boundary. Habitat diversity may be used as an indicator of wildlife diversity.

**FIGURE 3-4** (see insert). Preliminary Integrated Fragmentation Effects Surface. Preliminary results showing predicted edge effects for 'human' landcover types. Fragmentation effects may be used as an indicator of ecological integrity.

**FIGURE 3-5** (see insert). Conservation Lands by Town.

**FIGURE 3-6** (see insert). Town Scale Habitat Summary Map. New Hampshire Habitat landcover shown at the town scale. Condition analyses are underway for small, medium, and large-scale habitat types.

**FIGURE 3-7.** Predicted Matrix Forests. Matrix Forest maps were created collaboratively by NHFG, TNC, NHB, and NRCS. Map validation is a high priority WAP objective.

**FIGURE 3-8.** Predicted Terrestrial Habitats. Terrestrial Habitat maps were created by NHFG and NHB. Map validation is a priority WAP objective.

**FIGURE 3-9.** Predicted Wetland Habitats. Wetland Habitat maps were created collaboratively by NHFG and NHB. Map validation is a priority WAP objective.

**FIGURE 3-10.** Watershed Groupings. Watershed Groupings were created by TNC. Validation of watershed classifications is a priority WAP objective.

**FIGURE 3-11.** Lake Types. Lake types were created by TNC (Olivero and Bechtel 2005). Validation of Lake Types is a priority WAP objective.

**FIGURE 3-12.** Lake Condition Summary. The condition of New Hampshire lakes was analyzed by TNC (Olivero and Bechtel 2005).

### CHAPTER 4

**FIGURE 4-1.** Risk factor ranking process. Wildlife experts identified risks to wildlife, and scored each risk based on their experience, published literature, and peer review.

### CHAPTER 5

**FIGURE 5-1.** Risk assessments, condition assessments, and actions identified in species and habitat profiles were used to identify general strategies important to many wildlife species and habitats.

### CHAPTER 6

**FIGURE 6-1.** Adaptive management flow chart.

# COMMONLY USED ACRONYMS

Many acronyms are used throughout the chapters and appendices. This list only includes the most commonly used acronyms. Those not listed here are spelled out the first time they are used in each chapter or appendix.

ACOE	United States Army Corps of Engineers
ATV	All Terrain Vehicle
DRED	Department of Resources and Economic Development
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
FLEP	Forestland Enhancement Program
GIS	Geographic Information System
GRANIT	Geographically Referenced Analysis and Information Transfer System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAAT	National Advisory Acceptance Team
NHA	New Hampshire Audubon
NHBR	New Hampshire Bird Records
NHCP	New Hampshire Coastal Program
NHDES	New Hampshire Department of Environmental Services
NHDFL	New Hampshire Division of Forests and Lands
NHDOT	New Hampshire Department of Transportation
NHFG	New Hampshire Fish and Game
NHNHB	New Hampshire Natural Heritage Bureau
NHOSP	New Hampshire Office of State Planning
NRCS	Natural Resource Conservation Service
OHRV	Off Highway Recreational Vehicle
RAARP	Reptile and Amphibian Reporting Program
SPNHF	Society for the Protection of New Hampshire's Forests
TNC	The Nature Conservancy
UNH	University of New Hampshire
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
WAP	Wildlife Action Plan
WMNF	White Mountain National Forest



# ACKNOWLEDGMENTS

## PUBLIC LAW 107-63—NOV. 5, 2001 STATE WILDLIFE GRANTS

"... No State, territory, or other jurisdiction shall receive a grant unless it has developed, or committed to develop by October 1, 2005, a comprehensive wildlife conservation plan, consistent with criteria established by the Secretary of the Interior, that considers the broad range of the State, territory, or other jurisdiction's wildlife and associated habitats, with appropriate priority placed on those species with the greatest conservation need and taking into consideration the relative level of funding available for the conservation of those species."

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# Executive Summary

New Hampshire's Wildlife Action Plan (WAP) completion comes at a crucial time in the state's history. *New Hampshire's Changing Landscape 2005*, a recent report from the Society for the Protection of New Hampshire Forests (SPNHF), chronicles the increasing human footprint on the state's natural habitats, and documents the immediate need for improved habitat conservation. In 1983, the reforestation that followed farming and logging of the 19th and 20th centuries reached its peak, with 87 percent of the state's lands forested. By 1997, the U.S. Forest Service (USFS) estimated that the state's forest cover dropped three percent, to 84 percent. Unlike the 18th and 19th century conversion of forests to fields, today's land conversion to roads, housing, and businesses permanently alters natural habitats and degrades their value to native wildlife. The WAP points to where the most vulnerable species and habitats are in relation to these rapid changes to the natural landscape.

New Hampshire's WAP is the result of a mammoth effort by hundreds of people and organizations committed to ensuring the future welfare of wildlife in New Hampshire and providing opportunities for people to enjoy use of these resources. The WAP is the most comprehensive wildlife assessment ever completed in New Hampshire. Thirty-four wildlife experts from 10 conservation agencies, organizations, and academic institutions served as contributing authors.

In a parallel effort, a 33-person citizen advisory group shaped the management framework for New Hampshire's big game species. Working with the New Hampshire Fish and Game Department (NHFG) wildlife biologists and program administrators, management policies and population objectives were synthesized into a Big Game Management Plan (Appendix E). Big game management objectives were

integrated into the WAP's Chapter 5, Conservation Strategies.

At New Hampshire's Wildlife Summit in March of 2004, 110 individuals representing conservation, recreation, business, and community interests identified priority conservation issues. Via a web survey, 1,256 individuals provided additional input. Preventing habitat loss from development, educating citizens about wildlife management, and improving land-use planning were survey respondents' top priorities. During May of 2005, a sub-group of Wildlife Summit participants identified tools that could effectively be used to implement WAP strategies in the political and social climate of New Hampshire.

Using all available data, a core team of biologists identified 123 species and 27 habitats in greatest need of conservation. More than a half-million dollars of State Wildlife Grant federal funds were provided to contract with experts at partnering organizations, agencies, and academic institutions to complete assessments of these species and habitats. Each partner brought significant resources to match federal funds.

To ensure consistency and comparability of information, a wildlife species and habitat template was provided to all contracted experts. Four major elements—distribution and habitat, species and habitat condition, species and habitat risk assessment, and conservation actions—were addressed. In total, 131 species and habitat profiles were completed for all habitats and nearly all priority wildlife, including several invertebrate and fish species (nineteen “at risk” species were not profiled, either because there was a lack of information for those species, or because the conservation concerns facing those species were best addressed at the habitat level).

Following the development of species and habitat profiles, technical analyses were conducted to assess the condition of habitats and risks to wildlife. The results of these technical assessments were incorporated into each profile and are summarized in this document.

During the condition assessment phase, we compiled data that tripled the number of records in our wildlife occurrence database, and we used sophisticated science to develop the first maps ever to predict the location and compare the current condition of all matrix forests, terrestrial, wetland, and aquatic habitats over the entire state. Mapping was also completed for a subset of well-studied species.

In the risk assessment, we called on wildlife experts to conduct a structured assessment for 62 priority wildlife species and 27 habitats. Preliminary results identified 16 wildlife species that are highly at risk of extirpation from New Hampshire. Included in this list are Karner blue butterflies, piping plovers, and roseate terns. Eleven of the 27 priority habitats assessed ranked in the highest conservation risk category. Examples include Appalachian Oak Pine Forests, Pine Barrens, Salt Marshes, Lowland Spruce-Fir Forests, and Vernal Pools. Further review and analysis of species and habitats that appear to be in most jeopardy will be a first step in implementation.

After completing analysis of individual species and habitats, we identified risks that were common among species and habitats and developed strategies to address these risks. Rapid urban development in many parts of the state was identified as the most potent risk to our wildlife, devastating the health of many terrestrial, wetland, and aquatic populations and irreversibly fragmenting their habitats. Urban development is outpacing land protection. We need to respond by helping communities integrate wildlife habitat conservation into decisions about development. To meet this goal, we will:

- Provide public and private entities at all levels in the urban development and planning communities with information and assistance, including conservation science, maps, and mitigation guidelines to encourage sustainable development in sensitive wildlife areas

- Consider proactive strategies such as landowner incentives and voluntary land protection

Regional air and water quality issues scored among the most threatening problems for wildlife, both in terms of broad cumulative degradation and intense localized impacts. In response, we will:

- Promote the inclusion of wildlife in structured risk assessments by agencies engaged in energy, transportation, and industrial development projects
- Promote regional and national policies and funding that improve air and water quality for New Hampshire's wildlife and people

Some habitats have been degraded to the point that wildlife species associated with them will be lost without human intervention. To maintain our biodiversity and landscape integrity, we will:

- Guide management and restoration of rare and declining plants, animals, habitats, and natural communities
- Address human and ecological issues that threaten New Hampshire's biodiversity with strategies such as population management, habitat management and, when necessary, regulatory protection

There is a critical need to obtain, store, and manage data on the status and condition of New Hampshire's wildlife. Current information is essential to providing the best conservation science and monitoring. We will:

- Compile, manage, and analyze information about New Hampshire's wildlife; assess risks; and prioritize conservation actions
- Develop a system to monitor ecological health and management performance
- Adapt to changing conditions

# Introduction

From Mount Washington to our Atlantic coastline, New Hampshire supports a wealth of wildlife species and habitats. Through the 1700s and 1800s, a majority of the state's forests were cleared for fields, pastures, and timber. Rivers and streams, dammed and degraded, became largely impassable for migratory fish. During this period, many fish and wildlife—already beleaguered by deforestation and diminished water quality—were nearly extirpated by market hunting and fishing.

New Hampshire, like other states, reacted to this “era of exploitation” with efforts to conserve fish, wildlife, and land. In 1865, the New Hampshire Fisheries Commission was established to restore sea-run fish to the Merrimack and Connecticut rivers, and to introduce other species into lakes, ponds, and streams for their food and recreational value. Later, New Hampshire conservationists helped pass the 1911 Weeks Act, which in 1912 led to the purchase of 72,000 acres of land by the federal government and the creation of the White Mountain National Forest. Since then, people have flocked to New Hampshire each year to enjoy our forests, water, and wildlife.

In the early decades of the 20th century, concerned hunters and anglers demanded an end to the over-exploitation of the nation's fish and wildlife resources. In response, the reorganized and renamed New Hampshire Fish and Game Department (NHFG) took steps to conserve them by setting and enforcing bag limits; creating wildlife refuges and sanctuaries; paying for game damage; operating a game farm; and issuing hunting and fishing licenses. The revenue generated from fishing and hunting license sales enabled the agency to expand its restoration, education, and law enforcement programs.

Additional funding for wildlife restoration started coming to NHFG from the Federal government after

the passage of the Pittman-Robertson Act in 1937. In 1950, the Dingell-Johnson Act was established to support the states' restoration of sport fish. With this infusion of funds and support and the efforts of the Department, dozens of fish and wildlife species like moose, black bears, beaver, white-tailed deer, and wood ducks were able to rebuild their populations' health and numbers.

## BEYOND SPORT FISH AND GAME RESTORATION

In 1979, during an era of public outcry over polluted air and water, New Hampshire formally recognized the need to contribute to conserving endangered wildlife and passed the state Endangered Species Conservation Act. In partnership with the U.S. Fish & Wildlife Service (USFWS), U.S. Forest Service (USFS), and New Hampshire Audubon (NHA), NHFG staff initiated activities that would ultimately lead to the recovery of some of the high-profile species that were hit hardest by environmental contaminants—bald eagles, peregrine falcons, ospreys, and loons. The success of these efforts proved that management could benefit a broad range of wildlife.

Formally acknowledging the breadth of wildlife that are affected by environmental issues, and also recognizing the diversity of ecological roles and habitat values that are necessary to support wildlife, the Nongame Species Management Act was passed by the New Hampshire Legislature in 1988. The act expanded the mission of NHFG to include the full array of wildlife—not just game and endangered species. This was the genesis of the mechanism that allows the State to spend \$50,000 out of the General Fund to match private contributions to New Hampshire's Nongame and Endangered Wildlife Program. Over the years, the Nongame Program has leveraged

these funds to gain additional grants; thousands of people have contributed to the program.

The conservation of aquatic species in New Hampshire has focused on anadromous fish restoration, through the Atlantic salmon, American shad, and river herring restoration programs; and sport fish management, through population assessments and state and federal regulations. Lesser-known species of fish and aquatic invertebrates have received little direct attention. Some species, such as the bridled shiner, have been identified as species of concern in nearby states, while the status of other whole groups of species, such as crayfish and snails, is virtually unknown. The WAP provides the opportunity to assess the status and develop conservation priorities for all aquatic species and habitats.

In the 1980s, the waterfowl stamp, a new state lands management collaborative, and the Land Conservation Investment Program fueled NHFG's ability to manage land for all wildlife. Today, NHFG owns dozens of parcels and easements on parcels, enabling staff to manage for wildlife and habitat values. In cooperation with the N.H. Department of Resources and Economic Development's Division of Forest and Lands, many state forests and parks are managed for habitats that support diverse wildlife.

A partnership of concerned citizens and conservation organizations has spearheaded land, water, and wildlife conservation efforts in the 1990s and 2000s. The Society for the Protection of New Hampshire Forests (SPNHF), NHA, The Nature Conservancy (TNC), individual towns and many others have worked on their own and in partnership with NHFG and local land trusts to protect hundreds of thousands of acres in the last decade.

Despite this long history of successful projects and partnerships, NHFG has never had the resources necessary to comprehensively address the challenges facing all the state's wildlife and habitats. Certainly, decades of efforts to improve conditions for sport fish and game animals benefited more than just the focal species; nonetheless, not until now have we been able to take stock of a comprehensive range of species and habitat conditions, synthesize and analyze the information to identify risks to wildlife, and specifically target strategies to alleviate them.

## STATE WILDLIFE GRANTS AND THE WILDLIFE ACTION PLAN

In 2002, the United States Congress passed a law appropriating \$80 million in State Wildlife Grants, which would go to state wildlife agencies to address the "species in greatest need of conservation," including those species not hunted or fished. To be eligible for these funds, New Hampshire was required to develop a comprehensive wildlife conservation plan—the New Hampshire Wildlife Action Plan—to be submitted to Congress by October 1, 2005. Congress mandated that the Plan address eight elements:

1. Information on the distribution and abundance of species of wildlife, including low and declining populations as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife.
2. Descriptions of locations and relative condition of key habitats and community types essential to conservation of species identified in Element 1.
3. Descriptions of problems which may adversely affect species identified in Element 1 or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats.
4. Descriptions of conservation actions necessary to conserve the identified species and habitats and priorities for implementing such actions.
5. Proposed plans for monitoring species identified in Element 1 and their habitats, for monitoring the effectiveness of the conservation actions proposed in Element 4, and for adapting these conservation actions to respond appropriately to new information or changing conditions.
6. Description of procedures to review the Plan at intervals not to exceed ten years.
7. Plans for coordinating, to the extent feasible, the development, implementation, review, and revision of the Plan Strategy with Federal, State, and local agencies and Indian tribes that manage significant land and water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.
8. Plans for involving the Public in the development and implementation of Plan Strategies.



With the infusion of funds from the State Wildlife Grants and with the Congressional mandate, NHFG's Nongame and Endangered Wildlife Program has expanded over the last three years to cover more species and habitats in a broader context than ever before. Even with additional funding and staff, we continue to work closely with partners, recognizing that responsibility of protecting all wildlife and habitats is bigger than what we can accomplish on our own.

To assist in developing a comprehensive conservation plan, we called on broad expertise in the state to work as collaborators. Together, we developed an organizational structure (see Appendix F) and identified desirable outcomes to guide the development and future implementation of the Plan:

1. Citizens that are aware of New Hampshire's wildlife diversity and its contribution to the environmental, economic, and social fabric of the State and that actively support wildlife conservation.
2. An informed network of partners actively prepared to engage in implementing key conservation strategies and actions that protect the State's wildlife diversity.
3. A dynamic and adaptable GIS-based blueprint of New Hampshire's significant wildlife habitats that support species in greatest need for conservation and the full array of wildlife diversity.
4. A suite of conservation strategies that considers biological, social, and economic factors and opportunities to conserve the wildlife species in greatest need of conservation and all wildlife.
5. A dynamic and adaptable GIS-based wildlife data management system that contains all known wildlife occurrences and habitat polygons and that can be augmented continually with new data and queried by ecoregion, conservation land, habitat type, and species to monitor our progress in conserving wildlife.

The Planning Team developed the initial approach to completing the WAP. The Core Biologist Team served as a liaison between the biologists/researchers/writers and the Communications and Outreach Team, which worked on generating public input and releasing public information about the WAP. The three teams communicated frequently and most partner organizations were represented on more than one team, to

keep technical/scientific and communications activities in sync.

## STANDARDS FOR THE WILDLIFE ACTION PLAN

In developing strategies to address challenging issues facing New Hampshire wildlife, we:

1. Identified Wildlife At Risk
2. Assessed Wildlife Habitat Conditions
3. Evaluated Risk Factors
4. Developed Strategies
5. Integrated Monitoring, Performance and Adaptive Management
6. Planned for Implementation

Throughout the process, we concentrated on developing a more systematic and transparent approach to wildlife planning. We invited public participation during plan development; efforts included the Northeastern Regional Survey, a Wildlife Summit, a Web Survey, Stakeholder Meetings, and a Strategy Forum.

## IDENTIFYING WILDLIFE AT RISK

In Chapter 2, we identify New Hampshire's low and declining wildlife populations and wildlife that are indicative of the diversity and health of the State's wildlife. This chapter corresponds primarily with the first of the Eight Required Elements, and builds on the many conservation initiatives that preceded the WAP in New Hampshire. Chapter 2 lays a foundation for Element 2 by describing the use of natural communities as surrogates for the diversity of poorly understood wildlife, the relationship between natural communities and wildlife habitats, and serves to organize both species and natural communities within the over-arching habitat types that occur in New Hampshire. These habitat types are the basis for our analyses and planning work described in later chapters.

## Information Gathering (Data Templates)

One of the early and integral steps in the creation of this WAP was the development of an accurate, up-to-date, geographically referenced database system containing information on wildlife species. In cooperation with the New Hampshire Natural Heritage Bureau, we solicited data from experts on the highest

priority wildlife and improved the quality of existing records, tripling the initial amount of information. This database provides us with an efficient, web-based mechanism for reporting known fish and wildlife occurrences, and has been instrumental in determining distribution and abundance of species and habitats as required in the first and second of the Eight Required Elements.

Chapters 3–6 form the core of the WAP, with specific information about wildlife in New Hampshire, the problems they face, the solutions we propose, and how we will monitor them. To ensure that our work was comprehensive and based on the best available information, we developed standardized templates to gather technical information and data from contracted experts. All of the information collected on these forms is organized and linked in a database format, and has been applied throughout the document.

The first template, a Species and Habitat Profile Template (Appendix L), was completed for all wildlife and habitats. The fields in this template were designed to meet the first 5 of the Eight Required Elements, and their completion or lack thereof provide a clear indication of our knowledge gaps. Corresponding to each Profile Template, we completed a Risk Factor Ranking Form (Appendix M). Next, experts on each challenging issue evaluated ranks for the associated risk factors and summarized them in a Risk Assessment Template (Appendix N). This worked formed the body of Chapter 4.

To address all of the risks identified, we enlisted experts to complete a Strategy Template (Appendix O), with detailed information about implementation and feasibility for each objective. For each Strategy Template, a corresponding Feasibility Ranking Form (Appendix P) was completed. These data forms will help guide implementation.

### **Assessing Wildlife Habitat Condition**

The location and relative condition of key wildlife habitats, the second of the Eight Required Elements, is the topic of Chapter 3. Describing the locations and condition of wildlife habitats is a complex process. In the predictive phase, we used computer analyses and GIS to predict where each kind of wildlife habitat is located. In the analytical phase, we compiled many different kinds of data about each location and used these data to analyze the local status of predicted

habitats across the landscape. Information about local conditions will be compared and “filtered” to create maps showing areas of high potential and high risk for wildlife. A preliminary assessment of the condition of New Hampshire’s wildlife habitats is reported in Chapter 3.

In New Hampshire, considerable public effort and money is being invested in the preservation of properties that may not be the most critical to wildlife. The goal of our investment in sophisticated mapping technology and conservation science is to provide tools for local and regional planners to ensure that time and money are spent in the most critical locations. Developing a complete map of wildlife habitats in New Hampshire and compiling information about them for the WAP was a major scientific undertaking. The coordinated work of all our partners will make conservation technology much more accessible to the entire planning community.

### **Evaluating Risk Factors**

Although we were able to use quantitative data (Chapter 3) to gain insight about some of the challenging issues that threaten wildlife, for many issues, data are nonexistent. Chapter 4 addresses problems that may adversely affect wildlife and their habitats based on the expert opinions of wildlife professionals and the published literature. We used a structured process to organize and focus the attention of our science team on the most challenging issues.

From a scientific perspective, we recognize that all of the challenging issues, or “threats,” that wildlife face can be viewed as having two aspects in common. First, each has certain “risk factors” that potentially have negative impacts on wildlife; and second, each has a series of events or an “exposure pathway” that brings a risk factor to fruition. A simplified description of the risk assessment process follows—this process was completed for all priority habitats and most priority wildlife species.

In the initial phase of the process, a panel of experts on a given species or habitat was supplied with a list of potentially challenging issues. The panel identified all of the risk factors associated with each issue and described the exposure pathway for their target species or habitat. During the ranking phase of the process, the panel completed a Risk Factor Ranking Form (Appendix M) to provide numeric ranks about

key aspects of each risk factor. To the extent that expertise and information were available, the values given for each risk factor were peer-reviewed and cross-referenced to scientific literature. A summary score was calculated for each risk factor, and the highest scoring ones were described in detail in the Species or Habitat Profile.

In the comparative phase of the process, all of the scores from all of the Risk Factor Ranking Forms were compiled in a database. The scores were grouped based on the list of general challenging issues that was originally provided to the species/habitat expert panels. Next, an expert on each issue screened the scores for all of the wildlife affected by it. The scores from the forms and descriptions from the Species/Habitat Profiles were written up in a Risk Assessment Template. Finally, scores were analyzed to compare the levels of risk among species/habitats and also among the broader issues. This approach enabled us to summarize challenging issues in a consistent, standardized format that will be used to help prioritize actions for implementation.

## DEVELOPING AN ACTION PLAN

In response to the fourth of the Eight Required Elements, Chapter 5 describes actions necessary to conserve wildlife and provides information about prioritizing and implementing such actions. As part of the preceding chapters, we completed in-depth analyses to obtain a “diagnosis” of the issues that threaten New Hampshire’s wildlife most. During the earlier steps in our planning process, we completed some preliminary work—the public participation process and the Species and Habitat Profiles—to prescribe actions to resolve the biggest issues. Based on this work, we generated an exhaustive list of potential actions. To ensure that the list properly assigned the right solutions to the right problems, we surveyed our expert team to help cross-reference wildlife, habitats, risks, and solutions in a linked database.

We utilized this cross-referenced information to analyze the breadth and depth of the actions necessary to conserve the full array of New Hampshire’s wildlife. Within strategic program areas, wildlife management experts completed a ranking process to assess the operational feasibility of each action. For each strategy, experts gathered information about implementation potential and completed a detailed

Strategy Template that far exceeds the scope of this document.

To simplify the WAP, we organized our strategies under four focus areas. The goal of the Regional Air and Water Quality Action Plan is to reduce harmful air and water pollutants by promoting sustainable energy, transportation, and industrial development practices. The Local Land and Water Conservation Action Plan contains approaches for promoting sustainable development and resource use to support wildlife health and diversity through a combination of coordinated working groups, technical assistance, and the production of targeted information and education materials. The actions under the Statewide Biodiversity Stewardship Program will help maintain New Hampshire’s biodiversity and habitats by coordinating management, restoration, and land and regulatory protection. The Conservation Science and Information Management Action Plan will ensure that the best available science is used to adapt management and monitor those species and habitats of greatest conservation concern.

## INTEGRATING MONITORING, PERFORMANCE, AND ADAPTIVE MANAGEMENT

To meet the fifth of the Eight Required Elements, Chapter 6 describes New Hampshire’s plan for monitoring species identified in Element 1 and their habitats, for monitoring the effectiveness of the conservation actions proposed in Element 4, and for adapting these conservation actions to respond appropriately to new information or changing conditions. The three categories of variables we need to monitor are levels of risk factors, management effects, and ecological responses. Finding the right combination of measurements and variables within a reasonable budget—and still having the ability to respond to changes on the ground—is a critical challenge.

Our approach is to find the most efficient variables. By “efficient,” we mean variables that fit into more than one of the categories described above and also represent many fish and wildlife species. Efficient also means that we can measure a variable and detect changes with minimal effort. When a variable meets these criteria, we consider it a useful “indicator” because it indicates changes that are happening for many variables. Our goal is to select useful indicators for each priority habitat and high priority species, and



to monitor them rigorously.

## **GUIDING IMPLEMENTATION**

In accordance with elements 6-8 of the Eight Required Elements, Chapter 7 describes our plans for coordinating, reviewing, and revising the WAP during the implementation phase in concert with our partners, stakeholders, and public. Several of the objectives described in Chapter 5 require immediate implementation and will serve as a transition between plan development and implementation. For example, information that we gathered about risks to wildlife and the feasibility of our objectives will be used to prioritize implementation of the WAP. We recognize that our priorities may differ from those of our partners, stakeholders, and the public, and therefore will provide guidance to match action items with the best organization for implementation.

## **PLANNING FOR THE FUTURE**

Now, with the completion of the WAP, the process of funding and proceeding with its implementation begins. The benefits of investing in the WAP's strategies—or any wildlife conservation activities—go well beyond “saving” rare species. The economic benefits are clear. In a situation common to all states, wildlife associated recreation is a significant economic engine for New Hampshire. The U.S. Fish and Wildlife Service's 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation determined expenditures for these activities to be nearly \$579 million in New Hampshire. Fishing brought in an estimated \$165 million in 2001; hunting, \$71 million; and wildlife watching, \$343 million. Southwick Associates calculated that hunting and fishing alone provide more than 4,500 jobs in the state. Any downturn in participation in these activities would have a negative impact on the state's economy; whereas efforts to improve wildlife and habitat in New Hampshire would likely have the benefit of bringing more money into the system from hunters, anglers, and wildlife watchers.

The economic issue goes well beyond wildlife-associated recreation. New Hampshire's ecological framework is itself a hidden economy, untranslatable into dollars and cents. People live in and visit New Hampshire, and spend money in the state, in large

part because it is a place of great natural beauty. The downside is this: New Hampshire's structures and services have boomed. When people move to New Hampshire from out of state, the amount of space developed per person has risen to more than two acres. Some 18,000 acres of land in New Hampshire are lost each year to development. This conversion of forest and other wildlife habitat into roads, houses, and businesses degrades the land's value to New Hampshire's wildlife. New Hampshire can support new people, and it can offer them places to live and drive and work and recreate; the WAP helps accomplish this by pointing to where the most vulnerable species and habitats are in relationship to the rapidly transforming landscape.

It starts with smart planning, which is at the heart of this Plan's strategies. When people are able to clearly see the connections between good wildlife management, clean air and water, sustainable economic growth, and our quality of life, wildlife habitat conservation actions will naturally be brought to the forefront of planning decisions.

Through existing and new partnerships, NHFG is moving forward with implementing the WAP. Prompt action is crucial—not only for the health and diversity of wildlife and habitats in the state, but also to ensure that future generations will have the opportunity to experience and enjoy the Wild New Hampshire we love and appreciate today.

## ROADMAP TO EIGHT REQUIRED ELEMENTS

We used the eight required elements as the building blocks for New Hampshire's Wildlife Action Plan. Each element is an important piece of the wildlife puzzle. You will find these elements interwoven throughout the text, figures, and forms. We provide this guide to help you find the eight elements.

Element 1	Chapter and Appendix	Templates and Forms	Tables
<b>Information on the distribution and abundance of species of wildlife</b> , including low and declining populations as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife.	Chapter 2 Appendix A: Species Profiles	Species Profiles <ul style="list-style-type: none"> <li>• 1.2 Justification</li> <li>• 1.4 Population and Habitat Distribution</li> <li>• 1.7 Sources of Information</li> <li>• 2.2 Relative Health of Populations</li> </ul>	
Element 2	Chapter and Appendix	Templates and Forms	Tables
<b>Descriptions of locations and relative condition of key habitats and community types</b> essential to conservation of species identified in (1).	Chapter 3 Appendix B: Habitat Profiles	Habitat Profiles <ul style="list-style-type: none"> <li>• 1.6 Habitat Map</li> <li>• 2.1 Scale</li> <li>• 2.2 Relative Health of Populations</li> <li>• 2.4 Relative Quality of Habitat Patches</li> </ul>	Table 3-1 Table 3-2
Element 3	Chapter and Appendix	Templates and Forms	Tables
<b>Descriptions of problems</b> that may adversely affect species identified in (1) or their habitats, and <b>priority research and survey efforts</b> needed to identify factors which may assist in restoration and improved conservation of these species and habitats.	Chapter 4	Species and Habitat Profiles <ul style="list-style-type: none"> <li>• 1.8 Extent and Quality of Data</li> <li>• 3.1 (A) Exposure Pathway</li> <li>• 3.1 (B) Evidence</li> <li>• 3.2 Sources of Information</li> <li>• 3.3 Extent and Quality of Data</li> <li>• 3.4 Threat Assessment Research</li> </ul> Risk Exposure (Form 1) Risk Factor Assessment (Form 2)	Table 4-1 Table 4-2 Table 4-3
Element 4	Chapter and Appendix	Templates and Forms	Tables
<b>Descriptions of conservation actions</b> proposed to conserve the identified species and habitats and priorities for implementing such actions.	Chapter 5	Species and Habitat Profiles Existing Protection <ul style="list-style-type: none"> <li>• 1.3 Protection and Regulatory Status</li> <li>• 2.3 Population Management Status</li> </ul> Proposed Actions <ul style="list-style-type: none"> <li>• 4.1 (A) Affected Threat</li> <li>• 4.1 (B) Justification</li> <li>• 4.1 (C) Conservation Performance Objective</li> <li>• 4.1 (D) Performance Monitoring</li> <li>• 4.1 (E) Ecological Response Objective</li> <li>• 4.1 (F) Response Monitoring</li> <li>• 4.1 (G) Implementation</li> <li>• 4.1 (H) Feasibility</li> </ul> Feasibility Ranking Form 4.2 Conservation Action research Conservation Strategy Template	

Element 5	Chapter and Appendix	Templates and Forms	Tables
<b>Proposed plans for monitoring</b> species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions.	Chapter 6	Species Profiles <ul style="list-style-type: none"> <li>• 1.9 Distribution Research</li> <li>• 4.1 (C) Conservation Performance Objective</li> <li>• 4.1 (F) Response Monitoring</li> </ul>	Table 6.1
Element 6	Chapter and Appendix	Templates and Forms	Tables
<b>Descriptions of procedures to review the strategy</b> at intervals not to exceed ten years.	Chapter 7		
Element 7	Chapter and Appendix	Templates and Forms	Tables
<b>Plans for coordinating the development, implementation, review, and revision of the plan with Federal, State, and local agencies and Indian tribes</b> that manage significant land and water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.	Chapter 7	Conservation Strategy Template (E): Organization	
Element 8	Chapter and Appendix	Templates and Forms	Tables
<b>Broad public participation</b> is an essential element of developing and implementing these plans, the projects that are carried out while these plans are developed, and the Species in Greatest Need of Conservation that Congress has indicated such programs and projects are intended to emphasize.	Chapter 1 Appendix H: Wildlife Summit results Appendix I: Web Survey Appendix K: Wildlife Strategy Forum results Appendix J: Public participation record		