

Tuesday, February 15th

8:00 – 8:30 a.m.
Constellation Ballroom

Welcome and Introductory Remarks

Marvin Moriarty, Regional Director, FWS Northeast Region
Wendi Weber, Deputy Regional Director, FWS Northeast Region

8:30 – 9:30 a.m.

National and Regional Perspectives on the Application of Science in the Fish and Wildlife Service through Strategic Habitat Conservation (SHC) and Landscape Conservation Cooperatives (LCC)

National Perspective on Science Applications

Dr. Gabriela Chavarria, Science Advisor to the Director, FWS

Science has always been a strong component of the Service's expertise and science is always evolving. How can the Service take advantage of the newest and best science to guide our management and conservation efforts? How can we make sure that we all have access to the best science? Strategic habitat conservation is a framework that helps us apply the best science to the conservation challenges that we face and make the best conservation decisions together with our partners.

Regional Perspective on Science Applications

Dr. Ken Elowe, Assistant Regional Director, Science Applications, FWS Northeast Region

Where are we with strategic habitat conservation (SHC)? We have come a long way in the last few years learning about SHC and initiating LCCs. So what does that mean to you where you work? What are the challenges to fully engaging SHC and what can we all do about it? This conference is about us - as the Fish and Wildlife Service and as resource biologists, applied ecologists, conservation practitioners - and discovering together how to take the Service into this next exciting phase of resource conservation.

9:30 – 9:50 a.m.

Break

Five concurrent 90-minute sessions, each including a series of presentations followed by a group discussion, will repeat three times today beginning at 9:50 a.m., 12:45 p.m. and 2:30 p.m. Session topics include Biological Planning, Conservation Design, Biological Monitoring, LCCs, and Climate Change. **You are strongly encouraged to attend a session in its entirety.** There will be a break for lunch (on your own) from 11:20 a.m. to 12:45 p.m., and a 15-minute break between the two afternoon sessions.

Biological Planning Sessions
Room C



Establishing Biological Objectives

Bill Uihlein, Assistant Regional Director, Science Applications, FWS Southeast Region

As early as the mid-1990s, the leadership of the U.S. Fish and Wildlife Service recognized a subtle but growing tension emerging in its approach to conserving our nation's fish and wildlife resources and began responding with various organizational and operational changes. The tension was primarily being fueled by advances in conservation theory, decision theory, and the digital revolution. By the mid-2000s, the Service leadership took a bold step and adopted *strategic habitat conservation* (SHC) as an organizational and operational approach to fulfilling its mission of sustaining fish, wildlife, and plants for the benefit of Americans. One of the first and fundamental

processes in approaching conservation under the SHC paradigm is to develop explicit biological objectives - population objectives (and subsequent habitat objectives when habitat is the limiting factor). The purpose of establishing population objectives is singular – to explicitly define how much, how much more, and where to target conservation actions (e.g., habitat delivery). While the idea has merit, the process for deriving population and habitat objectives at various spatial and temporal scales can be daunting. In this presentation we will briefly explore the institutional, cultural, and technical challenges of establishing population objectives. In most cases innovation is the key, as there is no single tried and true method. The presentation will cover some existing processes for establishing objectives that will include: where to find population objectives, and an example or two for establishing or stepping them down to the project scale. A requisite to establishing population objectives is defining priority species (Presentation 2). Biologists are also asked to translate population objectives into habitat objectives by developing species-habitat models (Presentation 3). Finally, the Service desires each of the three processes (species prioritization, establishing population objectives, and developing population-habitat models) to be developed in partnership with others who share the responsibility to sustain fish and wildlife resources while remaining transparent, defensible, and replicable. This can be achieved through the formal process of structured decision making (Presentation 4).

Prioritizing Species for Biological Planning in the Northeast Region

*Curt Griffin, Professor of Wildlife Ecology and Conservation,
University of Massachusetts Amherst*

From a list of more than 400 priority species of birds, mammals, fishes, invertebrates and plants, identifying a subset of these priority species, known as representative species, to serve as proxies for landscape-scale conservation and management actions across the North Atlantic Landscape Conservation Cooperative (NALCC) is a humbling task. Yet developing protocols and tools for determining the optimum suite of representative species is a critical first step in the SHC biological planning process. Species-habitat and species-guild matrices were developed for each of the priority species using the terrestrial and aquatic habitat classifications developed for the Northeast by NatureServe and The Nature Conservancy. Following expert review of the matrices by Service biologists, SHC steering committee, partners, and species experts, a series of cluster analyses were conducted to group species that share similar habitats and guild characteristics. Recognizing that other criteria such as sensitivity to climate change and other stressors, monitoring feasibility, management responsiveness, and a large dose of common sense are also needed to select the final set of representative species, the R5 SHC steering committee developed additional filtering criteria for guiding selection of representative species. Relying on the guidance of Service biologists, SHC steering committee, partners, and species experts using a structured decision-making process, three workshops (North, South and Mid-Atlantic) will be held during spring 2011 to apply the filtering criteria to the cluster groups with the goal of selecting the smallest number of representative species to best represent priority species across the NALCC. These representative species will be used to set biological objectives, in landscape change assessments, to design management strategies that most effectively sustain fish and wildlife populations, and to monitor management outcomes that support adaptive management and strategic planning across the NALCC.

Range of Available Species Habitat Models and Next Steps in the Northeast Region

*Steve Williams, Regional Vertebrate Mapping Coordinator,
USGS Gap Analysis Program*

A wide range of habitat modeling approaches is currently employed in the conservation community. From expert opinion to measures of persistence, they vary in data input, data analysis, assumptions made and outputs derived. Each has its own set of benefits and drawbacks. Having an understanding of the range of habitat modeling approaches is important when evaluating which to employ in a given situation. Several approaches utilized in climate change scenarios will be presented, as well as an outline of current and future GAP and NALCC efforts in the Northeast.

Use of Structured Decision-Making in Biological Planning with Examples from the Northeast

Michael C. Runge, Research Ecologist, USGS Patuxent Wildlife Research Center

The conservation of trust resources ultimately occurs through implementation, not planning alone. How do managers inherit the products of biological planning and use those to make sound, transparent, enduring decisions about habitat management, population management, outreach and education, or workforce and budget allocation? Structured decision-making is the application of decision analysis to natural resource management, and offers a process for integrating policy values and scientific understanding to identify management actions that are expected to best achieve the fundamental objectives of the decision makers and stakeholders. The priorities that are identified at the landscape or regional level through biological planning can serve as some of the fundamental objectives of land managers. Structured decision-making can then help the land manager evaluate management actions designed to balance the full set of objectives, a set that typically includes competing interests. Structured decision-making is also a central component of adaptive management and can serve to identify key uncertainties, design monitoring, and identify appropriate actions in the face of new information. The Northeast Region has been a leader in the application of structured decision-making practices within the USFWS, including in endangered species, refuges, migratory birds, fisheries, and increasingly, biological planning.

Session Conclusions and Audience Feedback

All presenters

**Conservation Design
Sessions**
Room D



Assessment of Landscape Changes in the North Atlantic Landscape Conservation Cooperative (NALCC)

*Kevin McGarigal, Professor of Landscape Ecology,
University of Massachusetts Amherst*

A major objective of this project is to develop a landscape change model for the NALCC that will allow us to assess landscape change and the corresponding changes in ecological integrity and habitat capability for representative species under a wide range of future scenarios, and ultimately to identify strategic habitat conservation priorities. A potentially unique aspect of this project is the inclusion of a coarse-filtered assessment of ecological integrity to complement the fine-filtered species assessment. For this purpose, we are applying unique algorithms developed for the conservation assessment and prioritization system (CAPS) to assess how changes in the multivariate environment driven principally by climate change and urban growth affect ecological connectivity and thus ecological integrity for each location on the landscape. Areas of high ecological integrity (over time) are logical priorities for conservation as are areas that through management or restoration increase the connectivity and thus the integrity of the landscape. The development of both species-habitat and ecological integrity-based approaches will allow for evaluation of how these approaches compare and can complement each other.

Forecasting Changes in Stream Flow, Temperature, and Salmonid Populations in Eastern U.S. as a Result of Climate Change - What's Going to Happen, How Certain are We, and How Can We Help Managers Help Fish?

*Ben Letcher, USGS S.O. Conte Anadromous Fish Research Center and Adjunct
Associate Professor, Dept. of Natural Resources Conservation,
University of Massachusetts Amherst*

In the near future, stream salmonids will face unprecedented challenges as global climate change impacts stream temperatures and flows and as increased water extraction reduces stream flows. While it is clear that change will occur, there is large uncertainty in how it will occur. We are developing models of local population persistence that explicitly incorporate uncertainty for all key processes of climate change effects, from climate change forecasts, to downscaling, to demographic models, to population persistence. Our project has three main objectives: develop a hierarchical modeling framework to account for multiple scales and sources of uncertainty in climate change predictions, incorporate climate change forecasts into population persistence models, and develop a decision-support system for evaluating effects of alternate management strategies in the face of climate change. This kind of approach is now possible because of the development of new statistical approaches (Bayesian hierarchical models) that allow uncertainty to be propagated through the model, and because of an extensive dataset on stream salmonids. We will apply the model to three watersheds in the North Atlantic LCC, in coordination with the terrestrial LCC project. This effort will produce a vulnerability assessment of streams in the watersheds.

Trends in Habitat for Forest Wildlife in Maine's Great North Woods: The Need for Landscape Planning

Daniel J. Harrison, Professor of Wildlife Ecology, University of Maine

Given that Maine's northern forests are the cornerstone of the largest intact matrix of remaining forest habitat in the eastern U.S., maintaining biodiversity in Maine's 12 million acres of commercially managed forestlands is critically important to maintaining viable populations of many federal trust species and avoiding future endangerment of resident species dependent on functional forest landscapes. Based on previous research, which indicated that American martens and Canada lynx would effectively serve as umbrella species for 86 percent of 111 forest vertebrates in northern Maine, we evaluated retrospective and future trends in marten and lynx habitat supply over a 4-million-acre study area across the period 1973-2007, using a satellite-derived time series. At a finer scale, we evaluated current habitat status and predicted future trends (2007-2032) for martens, lynx, and five other stand- and landscape-scale condition indicators across 350,000 acres of managed forestland in northern Maine. Finally, we evaluated retrospective trends, current status, and future habitat supply for martens and federally threatened Canada lynx across The Nature Conservancy's (TNC) St. John River ownership in northern Maine under different management portfolios that attempted to maximize multiple competing objectives, including sustainable fiber, forest sustainability, and marten and lynx habitat supply. At the scale of 4 million acres, our results suggest that habitat supply for martens has declined drastically since 1973, and that habitat conditions would not improve appreciably under current management. Lynx habitat is currently at historically high levels and will decline appreciably by 2035 without landscape management. Across the 350,000-acre study area, early-successional habitat for shrubland birds and late-successional deciduous and coniferous stands were particularly rare, and our results indicate that those conditions are at high risk now and in the future. At the landscape-scale, predicted habitat for lynx represented 25 percent of forestland area and would decline drastically in the future. Further, requirements for an aggregated configuration of suitable habitat required by American martens may be especially difficult to achieve without directed conservation planning. In fact, our projections indicate that all condition indicators will decline an average of 52 percent from 2007 to 2032 if current forest harvesting trends continue. Finally, our modeling on TNC lands suggests that even with modest wood harvesting objectives, marten habitat supply is dependent on the maintenance of forest reserves, and lynx habitat will undergo a severe bottleneck without directed landscape planning in the future. Overall, our results suggest that enhanced planning and directed management for selected habitat conditions will be required to avoid future loss of forest biodiversity in the commercially managed landscapes of northern Maine.

Conserving the Stage: A Geophysical Approach to Conservation Planning in a Changing Climate

Mark Anderson, Director of Conservation Science: Eastern North America Division, The Nature Conservancy

Conservationists have proposed methods for adapting to climate change that assume species distributions are primarily explained by climate variables. The key idea is to use the understanding of species-climate relationships to identify regions of faunal stability or high species turnover. An alternative approach is to adopt an evolutionary timescale and ask ultimately what factors control total diversity, so that over the long run the major drivers of total species richness can be protected. We hypothesized that geologic factors may take precedence over climate in explaining spatial diversity patterns at local/regional scales, and we tested how well geology predicts the species diversity of 14 U.S. states and three Canadian provinces, using a comprehensive new spatial dataset. Results of linear regressions of species diversity on all possible combinations of 23 geophysical and climatic variables indicated that four geophysical factors - the number of geological classes, latitude, elevation range and the amount of calcareous bedrock - predicted species diversity with certainty (adj. $R^2 = 0.94$). To confirm the species-geology relationships, we ran an independent test using 18,700 location points for 885 rare species and found that 40 percent of the species were restricted to a single geology. Our results suggest that protecting geophysical settings will conserve the stage for current and future biodiversity and may be a robust alternative to species-level predictions.

Session Conclusions and Audience Feedback

All presenters

Biological Monitoring Sessions

Room E



Monitoring for Fish and Wildlife Management

Dave Smith, Research Biological Statistician, USGS Leetown Science Center

Monitoring is a management tool used to determine if objectives are being met, assess the status of populations or habitats being managed, or reduce the uncertainty that is impeding decision making. In a structured management process, such as strategic habitat conservation and adaptive management, monitoring is targeted to specific management decisions, and models are available to predict the consequences of those actions on the resource condition. Comparison of model predictions to monitoring results is then used as a basis for learning and reducing uncertainty. In targeted monitoring, the design (e.g., what should be measured and how much effort is required) follows from the context of management decision. The alternative is surveillance monitoring, which is sequential evaluation of resource condition without a direct linkage to management. We review recent literature on targeted and surveillance monitoring and highlight issues relevant to the management of fish and wildlife.

Development of a Salt Marsh Assessment Tool for Monitoring and Management

Hilary Neckles, Coastal Research Ecologist, USGS Patuxent Wildlife Research Center

The majority of salt marshes in the northeastern U.S have been altered or degraded by human activities. Threats from watershed land-use, direct physical alterations, and global climate change persist. Various management actions are employed to maintain and restore salt marsh biological integrity, diversity, and environmental health. Ecosystem monitoring is an essential element of decisions regarding where to apply management actions and which action(s) to implement. Through the Refuge Cooperative Research Program partnership between USGS and USFWS, we are developing

approaches for monitoring salt marsh ecosystem integrity that are integrated explicitly into conservation decisions on national wildlife refuges and are feasible to implement. Structured decision making provided an organizing framework for linking monitoring criteria to salt marsh management goals and strategies. This approach is broadly applicable to designing monitoring programs for other habitats.

Integrated Waterbird Management and Monitoring Project

Jennifer Casey, Assistant Regional Biologist, FWS Northeast Region

Managers and scientists are working together to understand and optimally manage conservation lands along the Atlantic and Mississippi Flyways to support continental populations of waterbirds (waterfowl, shorebirds and wading birds). The Integrated Waterbird Management and Monitoring Project is using standardized monitoring, adaptive management, and modeling at three spatial scales; the flyway scale to identify locations of priority stop-over and wintering habitats; the regional scale to determine optimum allocation of resources to meet flyway objectives; and the local scale to improve habitat quality and optimize waterbird use. The project focuses on collaboration among conservation partners including the U.S. Fish and Wildlife Service, the states, Ducks Unlimited and other non-governmental agencies.

Coordinated Monitoring to Inform Resource Management and Conservation Planning at Multiple Spatial Scales

Bill Thompson, Regional Inventory and Monitoring Coordinator, FWS Northeast Region

The National Wildlife Refuge System (NWRS) recently implemented a national program in support of inventory and monitoring (I&M) of natural resources and conservation planning at multiple spatial scales (refuge, landscape, region and nationwide) in the face of climate change and threats from environmental stressors. A key step in implementing the NWRS I&M program will be to solicit input from managers, biologists and/or conservation partners at each spatial scale to identify priority management issues so that I&M efforts can be focused accordingly. The I&M program then will coordinate with staff from landscape conservation cooperatives as well as those from existing I&M efforts both inside (NWRS, Migratory Birds, etc.) and outside (National Park Service, USGS, etc.) the Service to provide scientifically credible data to inform management decisions and conservation planning. Structured decision-making and adaptive management will be integral components of this process.

Session Conclusions and Audience Feedback

All presenters



**Landscape Conservation
Cooperatives Sessions**
Room F

Summary of Landscape Conservation Cooperatives (LCC) in the Northeast and Opportunities for FWS Programs

Andrew Milliken, North Atlantic Landscape Conservation Cooperative Coordinator

Jean Brennan, Appalachian Landscape Conservation Cooperative Coordinator

Craig Czarnecki, Upper Midwest and Great Lakes Landscape Conservation Cooperative Coordinator

This joint presentation will provide information on the development, purpose, and structure of LCCs in the Northeast. LCCs are partnerships that use a collaborative, science-based approach to conservation focused on providing landscapes capable of

sustaining fish and wildlife populations and addressing major threats and uncertainties including climate change. This talk will review the progress of the four LCCs in the Northeast - the North Atlantic, Appalachian, Upper Midwest-Great Lakes and South Atlantic - and how they relate to a national network of LCCs and planned Climate Science Centers. The presentation will also indicate opportunities for FWS programs and staff to be involved in the development and operation of the LCCs in the Northeast Region. This talk will set the stage for a discussion about process and opportunities for Service involvement and priority science and information needs that the LCC can help address.

Partner Perspective on Landscape Conservation Cooperatives

David Whitehurst, Virginia Department of Game and Inland Fisheries

This talk will provide a perspective on landscape conservation cooperatives from the perspective of a wildlife director of state agency that is involved in three of the LCCs in the Northeast. Topics to be addressed include why a landscape conservation approach and LCCs are important to states, how LCCs can build on what the states are doing already, how landscape conservation can address both state and federal trust species and how LCCs will help states achieve the goals in their state wildlife action plans and address climate change.

Input and Discussion Session on Landscape Conservation Cooperatives

All presenters

This session will offer the opportunity for significant input from the audience on questions, concerns, issues, ideas and a discussion between the audience and the panel of speakers. Input will be sought on ideas for a process that most effectively engages and involves Service programs and staff in LCCs in the Northeast Region. Input will also be sought on priority information and science needs from Service programs and staff that the LCC can help address. Discussion will be based on audience questions and include what are the opportunities for involvement in LCCs, what is the process by which field programs and staff can be involved in LCCs, what science and information needs of Service programs and staff can best be addressed by LCCs? The outcome of these discussions will help guide the development of a process for communication and involvement of Service staff and programs in LCCs and will help prioritize science needs for the LCCs.

Session Conclusions and Audience Feedback

All presenters



Climate Change Sessions
Baltimore/Annapolis Rooms

FWS Climate Change Action Plan and National Adaptation Strategy

Dr. Mark Shaffer, FWS National Climate Change Policy Advisor

The U.S. Fish and Wildlife Service was the first, or one of the first, federal agencies to develop an agency-specific strategic plan for dealing with the effects of climate change. That effort was accompanied by development of a two-year climate change action plan outlining specific actions and assignments that the Service would do to begin dealing with climate change. Now, at the request of Congress, the Service is leading, along with our colleagues at the National Oceanic and Atmospheric Administration, and the state wildlife agencies, the development of a national fish, wildlife and plants climate adaptation strategy. This presentation will describe and summarize the status of both of these initiatives and their relevance to biologists working in the Northeast Region.

NEAFWA Regional Vulnerability Assessment Project

*John A. O'Leary, State Wildlife Plan Coordinator,
Massachusetts Division of Fisheries and Wildlife*

In 2009, the states in Region 5 funded a proposal through the Northeast Regional Conservation Needs Program to develop a regional vulnerability assessment. The overarching goal of the project is to provide vulnerability and adaptation information that will help the Northeastern states to plan their conservation of fish and wildlife under a changing climate. The project has five specific objectives: to quantify the vulnerabilities to climate change of fish and wildlife and their habitats across the region and thereby identify those that are likely to be more or less vulnerable, and how these vulnerabilities vary spatially; to project how these habitats and species will change their status and distributions under climate change; to identify potential adaptation options that can be used to safeguard vulnerable habitats and species; to identify monitoring strategies that will help track the onset of climate change and response to adaptation actions; and to work with states to increase their institutional knowledge and capabilities to respond to climate change.

Managing Natural Resources, Cultural Sites, and Facilities in the Face of a Changing Climate: Examples from the National Park Service

Dr. Maria Honeycutt, National Park Service (on detail from National Oceanic and Atmospheric Administration)

Climate variability and change are already affecting coastal and ocean units of the National Park Service through rising sea level, lowering Great Lakes water levels, increasing ocean acidity, melting permafrost, and other impacts. The NPS is harnessing best-available science to develop landscape- and ecosystem-scale coastal adaptation strategies to protect coastal resources and promote their long-term resilience and sustainability. Selected examples will show how NPS managers are incorporating climate information into park-level plans and decisions, and describe new information and tools available from NOAA and other partners to support resource conservation decisions. Challenges remain for NPS managers at all levels to develop and implement actions that achieve the agency's climate mitigation and adaptation objectives without causing adverse and unintended consequences for parks' natural and cultural resources, facilities, and visitor experience.

Sea-level Rise Science and Decision-Making in an Uncertain Future

E. Robert Thieler, USGS Woods Hole Science Center

Assessing the potential vulnerability of the coastal zone to sea-level rise (SLR) requires integrating a variety of physical, biological, and social factors. These include landscape, habitat, and resource changes, as well as the ability of society and its institutions to adapt. The range of physical and biological responses associated with SLR is poorly understood at some of the critical time and space scales required for decision making. Limitations in the ability to quantitatively predict outcomes at local, regional, and national scales affect whether, when, and how some decisions will be made. Thus, decision makers require tools to understand and anticipate the magnitude and likelihood of future SLR impacts, as well as evaluate the consequences of different actions (or inaction). Engaging both scientists and decision makers in the development of decision tools informs science activities that will result in more useful predictions and products for management.

Session Conclusions and Audience Feedback

All presenters

4:00 – 4:15 p.m.

Break

4:15 – 5:00 p.m.
Constellation Ballroom

Summary and Discussion

All conference participants will reconvene to review the day's sessions and provide important feedback and observations.

5:00 – 7:00 p.m.

Dinner on your own

7:00 p.m. – 9:00 p.m.
Baltimore/Annapolis Rooms
Harborview Room

Poster Session Reception

Light refreshments will be served.

Conference participants will present nearly 130 posters on topics including Restoration and Land Conservation, Wetlands and Hydrology, Seabird Biology, Avian Biology, Bats, New England Cottontail, Fish and Freshwater Mussels, Herpetofauna, Invertebrates, Invasive Species, Energy, Fire Management, Planning, Funding, Climate Change, Public Use and Education, Strategic Habitat Conservation. See page 42 for a list of the posters.

Wednesday, February 16th

8:00 – 8:30 a.m.
Constellation Ballroom

Opening Remarks and Introductions

Wendi Weber, Deputy Regional Director, FWS Northeast Region

8:30 – 9:10 a.m.

Off-shore Wind

Patrick Gilman, Department of Energy

9:10 – 9:50 a.m.

On-shore Wind

Tabor Allison, Director of Research and Evaluation, American Wind Wildlife Institute
Wind energy has grown rapidly in the past decade and has become a globally significant source of emission-free electricity. Wind energy is also seen as an important tool in mitigating the effects of climate change driven by anthropogenic activity such as deforestation and fossil fuel use. Like all sources of energy, generating electricity from wind does have impacts on wildlife and wildlife habitat. Principle sources of impact include collision fatalities, especially with raptors and bats, possible barotrauma in bats, and habitat displacement in prairie and sage grouse. In this presentation, I will provide a brief summary of what is currently known about the impacts of wind energy on wildlife and wildlife habitat, both on and offshore. Topics include the steps taken by the American Wind Wildlife Institute to further understanding and address these impacts. The talk will also discuss proposed guidelines for land-based wind energy development, the role of research and mitigation in the proposed guidelines, and the AWWI's potential role in implementation.

9:50 – 10:10 a.m.

Break

10:10 – 10:50 a.m.

Hydropower Development (and Reform) Meets the Politics of Climate Change

John Seebach, American Rivers' Hydropower Reform Initiative

This talk will examine the hydropower industry's political comeback from an environmental pariah to a low-carbon darling. It will examine how climate change and the attempt to transition to a low-carbon economy has created space for new hydropower development. It will examine a range of types of proposed new projects from an environmental NGO's perspective (including efficiency upgrades, capacity additions to hydropower and non-powered dams, conduit hydropower, new hydropower technologies, and proposals to construct and operate new dams, small and large) and the political and regulatory context in which this development (proposed and actual) is taking place.

10:50 – 11:30 a.m.

The Impacts of Coal

*Alan Noguee, Director of Climate and Energy Strategy and Policy,
Union of Concerned Scientists*

Alan Noguee will review the range of impacts of the coal fuel cycle, from mining through waste disposal, on wildlife (and human health). He will also discuss challenges to comparing impacts across energy sources from the perspective of minimizing the impacts of our energy system on wildlife.

11:30 a.m. - 12:00 p.m.

Martin O'Malley, Governor of Maryland (invited)

John R. Griffin, Maryland Secretary of Natural Resources

Lunch on your own

Five concurrent 80-minute sessions, each including a series of presentations followed by a group discussion, will repeat two times this afternoon beginning at 1:20 p.m. and 3:00 p.m. Session topics include Monitoring Wind Development Effects, Wind Energy Landscape Issues, Wind and Biomass, Hydropower, and Gas and Solar Development. **You are strongly encouraged to attend a session in its entirety.** There will be a 20-minute break between the two sessions.

**Monitoring Wind
Development Effects**
Room C

**Acoustic Monitoring of Birds: Advances and Applications**

*Dr. Andrew Farnsworth, Research Associate, Conservation Science Program,
Cornell Lab of Ornithology*

Hemispheric-scale migrations involve billions of birds annually, but they occur mostly under the cover of darkness, making direct study largely impossible. In addition, a number of these nocturnal migrants are otherwise difficult to detect in breeding and non-breeding areas, posing an even greater challenge to monitoring and conservation of declining populations. Whereas advances in technologies such as radar and thermal imaging can quantify aspects of bird migration, only the recording and identification of distinctive vocalizations made by birds in flight can provide species-specific data on birds migrating at a specific place and time. Therefore, a multi-modal sensor system that includes sophisticated acoustic recording and analysis components is necessary to develop a complete understanding of nocturnal migration and to monitor hard-to-detect species. We are creating a powerful system for analyzing audio recordings of flight calls of nocturnally migrating birds, by applying technology that minimizes time-consuming human review through advanced sound analysis software to manage, detect, and classify bird sounds. Our long-term goals for this initiative include developing and implementing an automated system for recording and analyzing large amounts of avian acoustic data; applying this system to unravel the mysteries of nocturnal bird migration at continental and hemispheric scales; using acoustic data to develop risk assessment and forecast models to assist the wind-power industry to site and operate rapidly expanding facilities while minimizing impacts to migratory birds and bats; and bringing the wonders of bird migration to the general public through citizen-science applications and dissemination of real-time migration maps.

Radar ABCs

David Mizrahi, New Jersey Audubon

Radar is a powerful tool for characterizing spatial and temporal movement patterns of aerial vertebrates (i.e., birds, bats) and their flight behavior (e.g., altitude, direction, velocity) during migration and other periods of the annual cycle. In recent years, understanding various aspects of flight behavior in birds and bats has become increasingly important to evaluating potential impacts of wind resource development. Currently, several radar platforms are being employed for these kinds of evaluations, from coarse-resolution National Weather Service Doppler radars, to fine-scale radars typically used on ocean-going vessels. With the many platforms and configurations employed by radar practitioners during impact assessments, it has become increasingly difficult to make comparisons between studies or to evaluate the worthiness of data collected. Importantly, some regulatory agencies charged with making decisions about permit applications for wind resource development projects recommend or require radar as part of pre- or post-construction monitoring programs. However, agency staffs often are unfamiliar with how radar works, the inherent biases in radar data or how to interpret output from radar studies. In this talk I will review basic radar principles, describe various types of radars currently being used in impact assessments, discuss their strengths, weaknesses and biases, and provide guidelines for evaluating and interpreting radar data.

Assessing Impacts of Wind Energy Development on Airborne Fauna: Advances in Radar Aeroecology

Thomas H. Kunz, Center for Ecology and Conservation Biology, Boston University

The increasing proliferation of onshore and offshore wind-energy developments pose threats to dispersing, foraging and migrating bats and birds. Assessment of such threats to local and continental scale movements of these airborne organisms requires precise knowledge of the location of wind-energy facilities. Ultimately, such knowledge can be used to help mitigate the adverse impacts of wind-energy facilities on airborne fauna. High reflectivity values of rotating turbine blades of utility-scale wind-energy facilities can be detected using WSR-88D NEXRAD (Next Generation Radar) Level II data derived from composite reflectivity images, which have been temporally averaged to reduce signals attributed to bioscatter, weather phenomena, noise, and so forth. Wind turbines can be resolved using the resulting two-dimensional reflectivity maps because they produce relatively persistent backscattered signal when depicted against developed landscapes. These depictions can be used to validate GIS databases of actual wind-energy facilities, which are compiled from a number of different sources. These same databases can also be used to depict patterns of dispersal, foraging behavior, and migratory pathways of bats and birds adjacent to these wind-energy facilities when appropriately averaged in time. Additionally, the use of dual-polarimetric Doppler weather radars such as the NOAA X-band Polarimetric (NOXP) system makes it possible to determine the ratio of reflectivity, measured by horizontal and vertical polarization, to distinguish nightly movements of dispersing, aerial feeding insectivorous bats and birds from airborne insects upon which they feed. We suggest that local and dynamic continental-scale data on nightly and seasonal movements of birds and bats, detected by NEXRAD Level II data, in proximity to existing wind-energy facilities, or to facilities under development, should be used to inform the wind-energy industry with respect to where and when airborne fauna are at risk of being killed by wind turbines. Use of NEXRAD Level III data will also be discussed.

Panel Discussion and Q&A

All presenters



**Wind Energy
Landscape Issues**
Room D

Waterbirds and Wind: Establishing Sustainable Limits on Incidental Mortality for Seabirds Wwithin the Western Atlantic Basin

Bryan D. Watts, Center for Conservation Biology, College of William and Mary and Virginia Commonwealth University

Near-shore waters along the east coast of North America support an estimated 96 gigawatts of available wind resources in close proximity to major electricity markets. Capturing enough of this potential energy to meet current green policies would require during the next 15-year period the construction of the largest number of over-water hazards ever produced. The Atlantic Flyway supports one of the largest near-shore movement corridors of seabirds in the world, including many species of conservation concern. Buildout of the wind industry along the Atlantic Coast will add another layer of mortality to many populations that are contending with a list of human-induced sources of mortality. From a population perspective, the central question is not how many individuals are killed annually but if the focal population is able to sustain the mortality incurred and still reach management objectives. Mortality is a cumulative factor in population regulation, and defining limits on human-induced mortality is a critical component of management decisions. Here, I use a form of harvest theory referred to as potential biological removal to develop a population framework for estimating sustainable limits on human-induced mortality. The approach allows for both estimating sustainable mortality limits and prioritizing species according to population vulnerability. The approach is applied to waterbird species using the Atlantic Flyway.

Golden Eagles and Wind Energy in Eastern North America

Todd Katzner, Research Assistant Professor, Division of Forestry and Natural Resources, West Virginia University and a co-founder of the telemetry company Cellular Tracking Technologies, LLC

We evaluated interactions between migratory golden eagles and wind energy development in the central Appalachian region using high-frequency GSM telemetry. We are also camera-trapping eagles to identify relative areas of population density and overall population size, in the context of energy development. Although migration is the shortest period of the annual cycle, because landscape features concentrate raptors, small populations may be at risk during these periods if key areas are developed without attention to bird behavior.

Wind and Wildlife in Pennsylvania: Voluntary Cooperative Agreement Results and Implications

Cathy Haffner, Pennsylvania Game Commission

The Pennsylvania Alternative Energy Portfolio Standards Act, signed in 2004, requires that 18-percent of electricity sold to retail customers come from renewable energy sources within 15 years. To further understand, avoid, and minimize potential impacts to wildlife and its habitat from wind energy development, the Pennsylvania Game Commission worked collaboratively with the wind industry to develop a Voluntary Wind Energy Cooperative Agreement (Cooperative Agreement) in 2007. Since then, more than 150 pre- and post-construction bird and mammal surveys have been completed at wind sites by cooperating developers. Pre-construction surveys have enabled the Game Commission to assess risk to migrating raptors as well as advise wind energy developers on avoidance and minimization measures to conserve wildlife and their habitats. Post-construction mortality monitoring has provided needed data to evaluate impacts to birds and bats from wind energy development in Pennsylvania. Survey results and Cooperative Agreement successes and challenges will be presented.

Panel Discussion and Q&A

All presenters



Wind and Biomass
Room E

Bat Activity in the Vicinity of Proposed Wind Power Plants along the Mid-Atlantic Coast

Angela Sjollema, master's student, Frostburg State University and the University of Maryland Center for Environmental Science Appalachian Laboratory

Wind power plants are considered a renewable source of energy, but they have tremendous effects on wildlife. Bat fatalities at some wind facilities in the Appalachian Mountains have been estimated in the thousands. Other possible migration routes for bats include areas near and off the Atlantic Coast. Recently, wind power facilities have been proposed off the Atlantic Coast, rendering a comprehensive assessment of offshore bat migration dynamics necessary to prevent potential detrimental effects to their populations. Determining if there are predictors for high activity, such as favorable weather, is also vital. Bat species richness and density was studied using acoustic monitoring equipment near and offshore in the Mid-Atlantic region. Four sites were set up onshore to record year-round nightly bat calls beginning in spring of 2009 and ending fall of 2010. Offshore acoustic monitoring was conducted from boats traveling close to shore during the migration seasons of 2009 and 2010. Early findings include a substantial number of *Lasiurus borealis*, *Eptesicus fuscus* and *Lasionycteris noctivagans* near the coast. One bat, a *L. noctivagans/E. fuscus*, was recorded 8.53 km from the New Jersey coast in the spring of 2009. Fall of 2009 detections total 117 offshore calls from three boats traveling the north and Mid-Atlantic coast. Bats were recorded up to 21.88 km from shore with an average of 10.24 km. The most frequently recorded species was

L. borealis, suggesting that these bats use offshore pathways in fall. Other species detected included *L. cinereus*, *E. fuscus*/*L. noctivigans*, and *Myotis* species. Therefore, their occurrences at these distances suggest that planned offshore wind energy developments could affect migratory bats.

Mitigation Options for Reducing Bat Fatalities at Utility-scale Wind Energy Facilities

Michael Schirmacher, Conservation Biologist, Bat Conservation International

Unexpectedly high numbers of bat fatalities have been reported at utility-scale wind energy facilities, especially along forested ridge tops in the eastern United States. These fatalities raise important concerns about cumulative impacts of proposed wind energy development on bat populations particularly for species already impacted by white-nose syndrome. We will discuss the results of mitigation options that reduce bat fatalities at wind energy facilities. Operational curtailment studies indicate that bat fatalities can be reduced from 44–93 percent during selected high risk periods of the year and with marginal power losses (0.3–1 percent of total annual output). In 2009, our research using acoustic deterrents demonstrated a 20–53 percent reduction in bat fatalities compared to those without deterrents. Research and development of acoustic deterrents continued in 2010 and we will present the second-year results from a field test comparing fatalities at turbines with and without deterrents. Given the magnitude and extent of bat fatalities worldwide, the conservation implications of our research findings on solutions to bat fatality are critically important.

Sustainable Forest Biomass: Connecting Forests and Communities

Andrea Colnes, Biomass Energy Research Center

Energy supply and use is a national priority and a major focus of national, state and local policy makers across the United States. The impacts of climate change, the need to increase energy efficiency, reduce reliance on foreign oil and address related international security threats are some of the issues driving the need for a new national energy policy and practice. This presentation will address how biomass energy, harvested from the nation's lands and forests, has the potential to provide an important source of renewable, sustainable energy for the country. To develop this important energy sector successfully, however, public policy can play a critical role in addressing issues of scale, efficiency, biomass supply, environmental impacts, local economics, harvesting capability, and investment and financing. Using biomass for energy in ways that sustain the health of the nation's lands and forests and create robust and resilient energy economies depends on addressing these critical factors.

Panel Discussion and Q&A

All presenters



Hydropower
Room F

Low Impact Hydropower – It's Not Easy Being Green

Fred Ayer, Executive Director, Low Impact Hydropower Institute

John Seebach, American Rivers' Hydropower Reform Initiative

The purpose of the Low Impact Hydropower Institute certification program is to help reduce the impacts of hydropower generation by providing consumers with a credible and accepted standard for evaluating existing hydropower. The program was developed by American Rivers and the Green Mountain Energy Company, with the assistance of the Center for Resource Solutions and an implementation task force composed of representatives from the hydropower industry, environmental organizations, power marketers, and others. Hydropower presents a dilemma for green power consumers. On the one hand, hydropower uses water instead of fossil fuels to generate electricity. The burning of fossil fuels in the electricity industry creates significant air pollution, and reducing that pollution is of tremendous

importance for public health and the environment. On the other hand, hydropower generation typically requires a dam to impound or divert a river or stream into turbines. Individually and cumulatively, hydropower dams can cause significant adverse impacts to aquatic ecosystems, including the fish, wildlife, and human communities that depend on them. Not all hydropower dams create these impacts, but how can concerned consumers be sure that the hydropower they are buying in a green power market does not result in significant adverse environmental impacts?

From Divergent Views, An Enduring Vision to Reconnect the Penobscot River to the Sea

Laura Rose Day, Executive Director, Penobscot River Restoration Trust

For many decades, dam owners, the Penobscot Indian Nation, federal and state agencies, communities, and conservationists were embroiled in conflict over the fate of hydropower dams and fisheries on the lower Penobscot River, covering one-third of Maine. Today, these parties and others are working together to implement the historic Penobscot River Restoration Project, a landscape-scale agreement to vastly improve access to nearly 1,000 miles of habitat to help restore 11 species of native sea-run fish, including endangered Atlantic salmon, while maintaining hydropower. The Penobscot River Restoration Trust -- which owns three dams and will remove the lower two and bypass the third as part of the project -- will discuss the negotiation and implementation (technical, permitting, outreach) of this public-private effort. The session will explore how entities with sharply divergent views forged this intriguing collaboration by finding and focusing on common ground, with a focus on lessons, challenges and emerging issues.

American Eel: Passage Needs and Challenges

Alex Haro, Research Ecologist and Section Leader, Fish Passage Engineering Section, USGS S.O. Conte Anadromous Fish Research Laboratory

The catadromous American eel (*Anguilla rostrata*) migrates into freshwater in the juvenile (glass eel and elver) stage, feeds and grows in freshwater habitats, and migrates downstream to the ocean to spawn in the adult phase. Adult downstream migrant eels frequently encounter hydroelectric dams, which pose risks of injury and mortality from passage through turbine units or over spillways. This presentation will review the recent population decline of eels and petitions for listing as an ESA species, the ecological value of eels, and how the current range and reproductive capacity of eels may be restricted by dams. Downstream passage mitigative techniques and technologies for eels will also be reviewed, including alteration of project operations, and mechanical and behavioral guidance and exclusion technologies. The effects of cumulative downstream passage threats to eels on consecutive dams within a watershed will also be discussed.

Panel Discussion and Q&A

All presenters

Gas and Solar Development
Baltimore/Annapolis Rooms



Natural Gas Production and Environmental Research on the Marcellus Shale

Dan Soeder, Research Group Leader and Scientist, U.S. Department of Energy, National Energy Technology Laboratory

The National Energy Technology Laboratory is performing geological characterization and environmental research on the Marcellus Shale and other unconventional fossil energy resources. The goal of the characterization study is an improved understanding of links between pore structure, flowpaths, rock properties and geology in these important domestic energy resources. The goals of the environmental research are to collect rigorous data on the potential impacts of shale gas drilling and production on water resources, air quality, and ecosystems. Drilling-related impacts may include air

emissions, landscape changes, habitat fragmentation, ecological degradation, and possible contamination of surface streams and groundwater. The investigation will collect baseline data near a planned drill site location for at least a year prior to rig mobilization, and then monitor changes in environmental parameters throughout the drilling and production process. Related field investigations on the potential direct effects of hydraulic fracturing on groundwater aquifers and lab studies on the chemistry of leachate from shale drill cuttings are either in the planning stage or under way. The lack of scientific data on the environmental effects of drilling has resulted in a contentious public debate that is unencumbered by facts, and has often led to the implementation of regulatory policies based on little information. Scientific documentation of the environmental impacts from shale gas production is expected to help industry develop and improve drilling management practices, identify sensitive environmental indicators for more focused regulatory monitoring, and provide public information to civic groups concerned about environmental problems.

Water Issues Related to Marcellus Gas Development

Bryan Swistock, Water Resources Extension Specialist, Pennsylvania State University

Marcellus gas drilling activity has generated numerous questions and concerns about impacts on water resources of Pennsylvania. Unlike traditional gas well drilling in Pennsylvania, Marcellus drilling uses much larger amounts of freshwater, exceeding three million gallons for each well. The location and timing of water withdrawals to meet this demand must be carefully planned to limit impacts on aquatic biota and other water users. The large water use also results in several hundred thousand gallons of waste fluids that must be carefully collected, transported and treated or recycled to protect surface and groundwater supplies. Proper collection and disposal of waste fluids are especially important to protect the one million private water wells and springs that provide drinking water for more than three million residents of the state. Finally, the location of drilling is important to protect surface streams and groundwater, especially during high flow periods. This presentation will discuss each of these issues, including the current state regulations related to each topic, ongoing Penn State research, and voluntary measures that landowners can perform to protect their water resources.

Solar Development Issues in the Northeast

*Tim Green, Cultural and Natural Resource Manager,
Brookhaven National Laboratory*

Large-scale solar development has the potential for significant impact to ecosystems in the Northeast. Development of these energy systems will require, in many instances, significant clearing of large acreages of forest, conversion of farmland, or conversion of open space. Siting of these systems may often be difficult due to proximity to grid input points, wetlands, critical habitat, or presence of threatened and endangered species. These issues and others are discussed in the example of the 32 MW Long Island Solar Farm that is currently under installation at Brookhaven National Laboratory on Long Island.

Panel Discussion and Q&A

All presenters

4:20 – 7:00 p.m.

Dinner on your own

7:00 – 10:00 p.m.

Reception at the National Aquarium of Baltimore

Hors d'oeuvres

Thursday, February 17th

8:00 – 8:15 a.m.
Constellation Ballroom

Opening Remarks and Introductions

Wendi Weber, Deputy Regional Director, FWS Northeast Region

8:15 – 9:00 a.m.

A Great Wave Rising: the Coming Crisis of Climate Change and Rapid Development.

Jim Martin, Conservation Director, Berkley Conservation Institute

This talk is about the challenge of doing conservation at the landscape scale when the climate is going to be driving rapid change, especially at the southern edge of many ranges of wildlife. Compounding this is the development that is accompanying rapid population growth, causing the fragmentation of habitat. This talk discusses what we might be able to do about it.

9:00 – 9:30 a.m.

The Deepwater Horizon Oil Spill: Responding to One of America's Worst Environmental Disasters

Mark Musaus, Deputy Regional Director, FWS Southeast Region

The April 2010 explosion of the Deepwater Horizon oil rig in the Gulf of Mexico created the largest offshore oil spill in U.S. history. In the last 10 months, more than 1,700 Service employees - including more than 200 employees from the Northeast Region - deployed to work on this unprecedented environmental disaster. With passion and professionalism, Service employees rescued oiled birds, cleaned up beaches and marshes, and worked with partners, including students, to protect refuge lands. They provided expert scientific advice to clean-up crews to protect valuable coastal habitats, Service lands, and a range of wildlife including birds and turtles. They created an astounding support network within days of the explosion to ensure that employees had the resources they needed to respond to the crisis, lay the foundation for restoration, and tell the amazing story of that work to the world. Mark Musaus, the Deputy Regional Director in the Southeast Region, will talk about the Service's role in the spill response and the work we continue to do to restore one of the world's most ecologically diverse ecosystems.

Special Presentation:

Olivia Bouler, Save the Gulf: Olivia's Bird Illustrations

Eleven-year-old Olivia Bouler has inspired tens of thousands of Americans to take action to help restore the Gulf. Through doing what she loves – drawing – Olivia has partnered with Audubon and AOL to raise more than \$200,000 for Gulf Coast Restoration. Despite her growing network of nearly 30,00 Facebook fans, Olivia is a normal fifth grader who is making a difference for conservation. Her story has appeared on CNN, MSNBC, and the CBS Evening News, as well as in Newsday, People Magazine, and newspapers across this country and throughout Europe. Olivia dreams of becoming an ornithologist. Her book “Olivia's Birds: Saving the Gulf” published by Sterling Publishing, is coming out in April.

9:30 – 9:50 a.m

Break

Four concurrent sessions will begin today at 9:50 a.m., 1:10 p.m. and 3:10 p.m. The series of presentations (most 20-minutes each) within each session are on unique topics that will not repeat during the day. Session topics include Habitat Restoration (Parts I, II, III), Population Restoration (Parts I, II), Assessing Threats, Invasive Species (Parts I, II), North American Model of Wildlife Conservation, Funding Opportunities, Fish and Wildlife Diseases, and Communications. **Feel free to move among sessions and presentations throughout the day.** There will be a break for lunch (on your own) from 11:40 a.m. to 1:10 p.m., and a 20-minute break between the two afternoon sessions.

Habitat Restoration Part I

Room C



9:50 – 10:20 a.m.

Landscape-Scale Conservation in the Central Appalachians

Judy Dunscomb, Senior Conservation Scientist, The Nature Conservancy

The Nature Conservancy is collaborating with federal, state and NGO partners throughout the central Appalachians to develop a strategic conservation action plan for the region. This project represents a departure from business as usual for The Nature Conservancy and many of our partners due to the expansive project scale and a shift in focus away from conservation of individual species or natural communities and toward restoring and maintaining attributes of landscape pattern and process. Here we present our findings to date regarding our focal targets for conservation, the primary threats to those targets, and effective strategies for protecting the lands and waters of this iconic landscape in the face of global change.

10:20 – 10:40 a.m.

GIS: An Integral Tool For Habitat Protection in the Gulf of Maine Watershed

Bob Houston, Wildlife Biologist/GIS Specialist, FWS Northeast Region

From Beginning with Habitat, to land trust assistance, to seabird restoration to the Gulf of Maine Watershed Habitat Analysis, GIS has played an integral role in habitat protection and restoration for the Gulf of Maine Coastal Program. GIS has been used for map making, habitat suitability index modeling, and as a tool to focus landscape protection efforts. This presentation will review some of the ways GIS has been used as an effective tool in our protection and restoration efforts with partners across the landscape.

10:40 – 11:00 a.m.

New England Cottontail Recovery

Anthony Tur, Endangered Species Specialist, FWS Northeast Region

The New England cottontail (*Sylvilagus transitionalis*) was designated as a candidate for listing under the Endangered Species Act in 2006. Since that time, the U.S. Fish and Wildlife Service has been working with various conservation partners to develop a comprehensive range-wide conservation effort that addresses the threats to this species across its range. This presentation provides a summary of the structure of this effort, as well as its goals and objectives. Several accomplishments related to implementation are also presented.

11:00 – 11:20 a.m.

Ecological Forestry: Restoring, Rehabilitating and Maintaining Diverse and Resilient Forest Ecosystems

Thomas Lapointe, Forester, Silvio O. Conte NWR, FWS Northeast Region

Although not a new concept, the use of ecological forestry by resource managers is growing in popularity. Similar to the difficulties in defining the term “ecosystem,” ecological forestry also is difficult to define and therefore may be misconstrued and misunderstood. Despite how it is defined, the principles and core concepts remain the same. During my presentation, I intend to discuss the principles and core concepts of ecological forestry and how they can shape our perspectives and decisions regarding restoring, rehabilitating, and maintaining diverse and resilient ecosystems. I will use the strategies being implemented at Umbagog NWR as examples of the thought-process and decision to use active management to accomplish objectives that are based in biological diversity, yet also cater to habitat management for focal species.

11:20 – 11:40 a.m.

Building Partnerships to Effect Ecosystem Restoration in the West Virginia Spruce Belt

Ken Sturm, Supervisory Wildlife Biologist, Canaan Valley NWR, FWS Northeast Region

The Canaan Valley NWR has been working with partners to conserve and restore high-elevation conifer forests in West Virginia for many years. Red spruce forests in West Virginia have been reduced by over 90 percent from historical levels and provide unique and important habitat for a large number of rare wildlife and plant

species. Beginning in 2006 the Central Appalachian Spruce Restoration Initiative (CASRI) has methodically developed restoration goals, objectives and strategies, and implemented restoration projects on a biannual basis. It provides an example of practical application of the SHC framework model on a regional scale and will be integral as an existing, functional component of the new Appalachian LCC. CASRI has funded the planting of over 800 acres of public and private land including Canaan Valley NWR, mostly through grant funding and volunteer support.



**Population Restoration,
Part I**
Room D

9:50 – 10:20 a.m.

Atlantic Salmon in Maine: How the Structured Decision Making Process Has Been Used to Refocus Management Activities for Recovery and Restoration

Meredith Bartron, Geneticist, Northeast Fishery Center, FWS Northeast Region

The Gulf of Maine's distinct population segment of Atlantic salmon is jointly listed by the Service and NOAA's National Marine Fisheries Service as endangered under the Endangered Species Act. The Service, NFMS and Maine Department of Marine Resources, along with additional partners, work together to address various components of salmon restoration, including stocking, monitoring, assessment, and ecosystem management. Beginning in 2007, the partners initiated a structured decision process with the goals of clearly defining a management framework, improving integration among the program elements (such as monitoring, assessment, hatchery production and stocking, and research), and including the adaptive management approach in the restoration and recovery process. Outcomes to date include a tiered management framework to facilitate and guide management activities, a defined linkage to and integration with the framework and recovery planning process, and determination of which on-the-ground management activities will be completed. Currently, an implementation plan is being developed that will guide the transition between past management activities and those identified to be implemented in 2011. This presentation will provide an overview of the process used to develop the new management framework, the framework itself, and some examples of how management activities on the ground will change as a result.

10:20 – 10:40 a.m.

Adaptive Management (SHC) to Conserve Red Knots

Gregory Breese, Project Leader, Delaware Bay Estuary Project, FWS Northeast Region

Since 1998, the horseshoe crab fishery has been managed cooperatively by Atlantic coast states through the Atlantic States Marine Fisheries Commission. Because much of the concern about a reduced horseshoe crab population centers on the ecosystem services provided by high abundance of horseshoe crabs within Delaware Bay, a traditional single-species assessment is not sufficient for managing harvest of the Delaware Bay population of horseshoe crabs. To correct this deficiency, an effort began in 2007 to develop a multi-species approach for managing horseshoe crabs by employing the tools of structured decision-making and adaptive management. This adaptive management framework provides recommended harvest levels that are optimal with respect to the objectives of maintaining the crab fishery and providing sufficient resources to maintain viable populations of red knots, while providing an opportunity to learn and reduce uncertainty over time.

10:40 – 11:00 a.m.

Cross-program Recovery Efforts for Piping Plovers, Least Terns and Other Beach-nesting Birds in the Northeast Region

Anne Hecht, Endangered Species Biologist, FWS Northeast Region

Kate O'Brien, Wildlife Biologist, Rachel Carson NWR, FWS Northeast Region

Collaborative efforts among National Wildlife Refuge System, Law Enforcement, External Affairs, Migratory Birds, Federal Aid, Coastal, Contaminants, Natural Resource Damage Assessment and Restoration (NRDAR), and Endangered Species programs play a central role in conservation of Atlantic Coast piping plovers, least

terns, and other beach-nesting birds. Intensive monitoring and management on National Wildlife Refuge lands protect about 12 percent of breeding Atlantic Coast piping plovers, and provide leadership by example to other landowners. Refuges also manage beach-nesting birds on nearby non-refuge lands and provide technical assistance to other landowners and cooperators. Outreach materials inform thousands of beach users about plover and tern protection measures, and media contacts transform controversies into opportunities for public education. Law Enforcement activities resolve many potential threats across the region and lend credibility to management practices. The Coastal Program delivers resources for management and habitat enhancement to nonfederal landowners, and Wildlife and Sport Fish Restoration supports state agency partners. NRDAR has funded or is planning restoration of injuries to piping plovers caused by five Atlantic Coast oil spills. Egg analyses provide baseline information to assess threats from contaminants. The American oystercatcher is a focal species for Migratory Birds. Endangered Species activities employ a full spectrum of ESA recovery tools, including section 7 consultations, habitat conservation planning, and technical assistance. This broad-based approach provides a robust conservation program for beach-nesting birds and the ecosystem on which they depend.

11:00 – 11:20 a.m.

Experimental Stocking of American Eels in the Susquehanna Watershed

Julie Devers, Fishery Biologist, Maryland Fishery Resources Office, FWS Northeast Region
Ian Park, Fishery Biologist, Maryland Fishery Resources Office, FWS Northeast Region
Steve Minkinen, Fishery Biologist, Maryland Fishery Resources Office, FWS Northeast Region
In a 2008 addendum to the Fishery Management Plan for American eel, the Atlantic States Marine Fisheries Commission strongly encouraged member states and the Service to improve upstream and downstream passage for eels by requesting special consideration for eels in Federal Energy Regulatory Commission (FERC) hydroelectric relicensing processes and removing non-federally licensed obstructions where feasible. As a result, American eels have been elevated in several FERC relicensing processes. To better inform FERC relicensing and dam removal prioritization, the Maryland Fishery Resources Office is conducting experimental eel relocations above hydroelectric dams in the Susquehanna River watershed. These relocations will provide information regarding key assumptions about the habitat needs of eels and ecological impacts of eel reintroductions. Eel stocking to attain target population sizes has begun in two tributaries to the Susquehanna River. Fish and mussel surveys to collect 10 years of baseline and monitoring data began in 2010. Results will inform habitat decision-support tools including the Maryland and Virginia fish passage prioritizations.

11:20 – 11:40 a.m.

Population Modeling and Demography of an Endangered Mussel Species in the Clinch River, U.S.A: Quantitative Criteria to Evaluate Reintroductions and Recovery of *Epioblasma capsaeformis*

Jess Jones, Restoration Biologist, FWS Northeast Region

Currently, 71 of the 300 recognized North American freshwater mussel species are federally listed. Most recovery plans for these listed species specify population augmentation and reintroduction via artificial propagated animals as a key component of the recovery strategies. While mussel propagation and stocking efforts are progressing quickly to restore populations, advances in demographic assessment and monitoring programs have lagged behind. Hence, development of demographic metrics and standardized monitoring protocols are needed to obtain statistically defensible estimates of population size, population growth rate, recruitment rates, age-specific survival rates, and other variables necessary to evaluate success or failure of mussel stocking efforts. This information and analysis is critical in developing strategic decision tools and an adaptive approach that will provide needed guidance for mussel recovery programs. Population modeling of an endangered mussel species, *Epioblasma capsaeformis*, in the Clinch River is used as a case study to illustrate one approach to determine quantitative criteria to evaluate performance and recovery of extant and reintroduced populations.



9:50 – 10:20 a.m.

Collaboratively Prioritizing and Evaluating Desert Tortoise Recovery Across the Landscape

Cat Darst, Regional Desert Tortoise Recovery Coordinator, FWS Pacific Southwest Region

The recovery strategy for the threatened Mojave desert tortoise emphasizes partnerships and science to implement, track, and evaluate recovery. Recovery implementation teams, composed of land managers, stakeholders, and scientists, work together to prioritize recovery actions and assess results in a spatial decision-support system (SDSS). The SDSS is an interactive system that computes the output of a set of models (e.g., effects of threats on a tortoise population) based on underlying databases (e.g., spatial extent of threats, tortoise population, and management actions). The system incorporates a range-wide geospatial database of current management activities, threats, and tortoise population parameters, providing a framework for recognizing and implementing successful recovery actions. These same models can also be applied to impact analysis and designing mitigation strategies.

10:20 – 10:40 a.m.

Using LIDAR to Identify Mature Forest Suitable for the Delmarva Fox Squirrel.

Dr. Cherry Keller, Endangered Species Biologist, FWS Northeast Region

The Delmarva fox squirrel (DFS) prefers mature stands of mixed pine/hardwood forest. Most remote sensing data and vegetation maps identify dominant species of forest trees but cannot distinguish mature forest stands from young regenerating stands. Thus, a range-wide inventory of DFS habitat was not possible. Airborne LIDAR (Light Detection and Ranging) laser data provides measurements of forest canopy height that can be used to distinguish mature forest that may be suitable for the DFS. An early study found that canopy height, as measured by LIDAR, was reflective of DFS habitat measured on the ground. We used existing LIDAR data collected by the state of Maryland to develop a GIS layer of forest height classes and potential DFS habitat. We tested our assessment of habitat by comparing the LIDAR data to presence/absence of DFS from camera surveys and found that LIDAR-defined habitat was more abundant in the area surrounding camera points where DFS were detected than areas where they were not detected. The GIS layer of forest heights has been a very useful way to assess potential habitat abundance and connectivity for this species.

10:40 – 11:00 a.m.

WHSRN Site Assessment Tool (Refuge Perspective): Shorebird Vulnerability Assessment

Kevin Holcomb, Refuge Biologist, Edwin B. Forsythe NWR, FWS Northeast Region

Dorie Stolley, Senior Biologist, Rhode Island NWR Complex, FWS Northeast Region

David Brownlie, Refuge Manager, Monomoy NWR, FWS Northeast Region

We all agree in theory about the huge impacts climate change will have on conservation lands. But, what tangible actions might we take at our sites to address the potential impacts and who will be our partners in this endeavor? We introduce a decision-making tool and process to aid biologists and managers in assessing and analyzing climate change threats to coastal shorebird habitat, and can lead to on-the-ground adaptation actions. The tool has been field-tested at Monomoy, Edwin B. Forsythe, and Chincoteague NWRs. At each refuge, the tool and the adaptation options developed are being incorporated into refuge planning and habitat management decisions. In addition, the assessment process experience involving partners strengthened and expanded mission-critical refuge partnerships.

11:00 – 11:30 a.m.

Statewide Partnership to Inventory Barriers to Aquatic Organisms in Maine

Alex Abbott, GIS Specialist/Cartographer, Gulf of Maine Coastal Program, FWS Northeast Region
Jed Wright, Senior Biologist, Gulf of Maine Coastal Program, FWS Northeast Region
Repairing, removing and retrofitting barriers (e.g., installing fish ladders) are seen as some of the most effective and cost-efficient means of habitat restoration available. However, in spite of the potential benefits, surprisingly little has been done with regard to the development of quantitative/analytic planning methods for prioritizing barrier repair and removal decisions. Our presentation will summarize efforts under way since 2006 to bring together state and federal agencies and non-governmental organizations to build an inventory of fish passage barriers in Maine. We will also present systematic methods for prioritizing the repair or removal of fish passage barriers for diadromous and resident fishes. Working with a variety of partners, we have developed GIS tools and budget-constrained optimization models for deciding which barriers to repair or remove in order to maximize habitat availability for stream resident fish and diadromous fish species.

11:30 – 11:40 a.m.

Discussion

All presenters



Invasive Species, Part I Room F

9:50 – 10:20 a.m.

Effects of Non-native Earthworms on Mycorrhizal Fungi and Tree Seedling Growth

Melissa McCormick, Ecologist, Smithsonian Environmental Research Center
Invasions by non-native earthworms are of concern worldwide, yet little is known about how non-native earthworms might affect plant growth, especially tree recruitment. There is particular concern about declining recruitment of red oak and increased recruitment of red maple, a less desirable timber species. We used a series of field manipulations to test mechanisms by which earthworms can affect mycorrhizal fungi and so, indirectly, tree seedling growth.

Earthworm abundance, leaf litter species, and land use history all affected the abundance of mycorrhizal fungi in field enclosures. Red oak and beech seedlings grew less in the presence of non-native earthworms. Red maple and tulip poplar seedlings grew better when earthworms were abundant. Mycorrhizal fungi decreased when earthworms were abundant. These results suggest that non-native earthworms can have significant effects on soil microbes and tree seedlings and that land use history is important in determining what those effects will be.

10:20 – 10:40 a.m.

Waterchestnut Management: Dedication - Determination - Delivery

Mike Goehle, Aquatic Invasive Species Coordinator, Northeast Region, FWS
The establishment of waterchestnut (*Trapa natans*) is a major aquatic invasive plant problem in the Northeast, affecting recreational activities, navigation, and native ecosystems. It has either been collected or is currently established in at least 11 states in the Northeast. Once established, waterchestnut requires dedicated and long-term response in the form of mechanical or chemical control, and/or hand harvesting. While the entire strategic habitat conservation (SHC) framework plays an important role, the delivery of conservation efforts to prevent, control, and eradicate waterchestnut is arguably the most critical step of SHC. Without a powerful and long-term delivery, the re-establishment of large populations is likely. Rapidly responding to a population early in its establishment cannot be over-emphasized; however, lack of a long-term commitment to control efforts or the lack of awareness to waterchestnut's impacts can quickly result in a large established population.

10:40 – 11:00 a.m.

Nutria (*Myocastor coypus*) Eradication on Delmarva: Where We Are and Where We're Going

David Sutherland, Coastal Program Leader, Chesapeake Bay Field Office, FWS Northeast Region

The Chesapeake Bay Nutria Project is a successful exotic invasive species eradication program in the Mid-Atlantic states. This presentation is on the progress since the first year of project in 2000 and the vision for nutria eradication and wetland habitat conservation for the future. Currently, nutria are eradicated from over 150,000 acres of wetland habitat in Dorchester, Wicomico, Somerset, Talbot, and Caroline Counties in Maryland. The eradication goal of the project is to eliminate nutria from the entire Delmarva Peninsula, in the states of Delaware and Virginia. The destruction of wetlands by nutria is costing these states millions of dollars per year from the degradation of agricultural lands, commercial fisheries, water quality, recreational opportunities, and property. A report from the state of Maryland estimated that by 2050 the economy could lose \$30 million per year if the destruction of wetlands by nutria was left unchecked.

11:00 – 11:20 a.m.

Recent Expansion in the Distribution of the Invasive Northern Snakehead (*Channa argus*) in the United States

Joshua Newhard, Fish Biologist, Maryland Fishery Resources Office, FWS

The northern snakehead (*Channa argus*), a species native to Asia, has been found in various locations throughout the United States. As of summer 2010, northern snakehead sightings on the east coast have ranged as far north as Massachusetts and as far south as Florida. In Region 5, a population was discovered in the Potomac River in 2004. Since then, snakeheads have spread and have been found in almost every tributary from Great Falls down to the mouth of the Potomac. Given that the northern snakehead is a large, piscivorous fish with few predators, it has the potential to negatively impact fish populations where it is found. However, efforts to control northern snakehead populations have had varied success. Currently, research is ongoing on the Potomac to better understand this species and its potential impacts.

11:20 – 11:40 a.m.

Planning and Implementing a Multi-Jurisdictional Response

Bill Bolen, Senior Advisor, U.S. Environmental Protection Agency

Planning and implementing a successful response to an invasive species demands the full integration of jurisdictional authorities, expertise, funding authorities, and seamless coordination before and during the eradication effort. In this presentation, the Asian carp response in the Chicago area waterway system will be examined from the initial planning stage through the response event. Particular emphasis will be placed on how the incident command system was used as the method by which agency personnel from federal, state, Canadian, and local authorities were organized and successfully implemented a multi-million dollar response. The presentation will also highlight the unifying method by which the agencies continue to mount a defense to keep Asian carp from establishing itself in the Great Lakes.

Habitat Restoration, Part II Room C



1:10 – 1:30 p.m.

Appalachian Forest Restoration at the Palmerton Zinc Superfund Site

Kathleen Patnode, Environmental Toxicologist, Pennsylvania Field Office, FWS Northeast Region

Palmerton Zinc Superfund site in northeastern Pennsylvania was a zinc smelting facility that operated from the early 1900s to 1980. The facility discharged metals to the surrounding environment via air emissions and through the release of liquid and solid wastes. Approximately 2,000 acres of the Appalachian ridge to the north of the facility suffered nearly complete forest mortality. The responsible parties have tried with varying degrees of success to revegetate the ridge, while ensuring that the metals are not recirculated into the food chain. In the past five years, the responsible parties have

worked closely with EPA, the Service, National Park Service, and the state Game Commission Department of Environmental Protection on the dual mission of binding metals below ground and jump-starting a forested habitat. Through this collective effort and adaptive management, restoration of the forested habitat with minimal risk to biota is in progress.

1:30 – 1:50 p.m.

Designing Effective Monitoring Programs for Fish Population Response to Habitat Restoration

John Sweka, Fish Biologist, Northeast Fishery Center, FWS Northeast Region

Adaptive management of fish populations and their habitats depends on effective monitoring to determine if habitat restoration activities have their desired effect on populations and learn what works and what does not. Effective monitoring is often lacking in habitat restoration activities due to a lack of resources or poorly designed monitoring programs. Effective monitoring requires clearly defined objectives, incorporates the life history of the fish species of interest, and identifies appropriate spatial and temporal scales at which to monitor. Well-designed monitoring programs allow natural variation in fish populations to be separated from variation due to habitat restoration activities. In this presentation, I will illustrate how monitoring at inappropriate spatial and temporal scales can yield misleading conclusions about the effectiveness of habitat restoration. I will also discuss various types of monitoring designs that can aid managers in evaluating the effectiveness of habitat restoration activities on fish populations.

1:50 – 2:10 p.m.

Spoil to Splendor: A Story of Chesapeake Bay Island Restoration

Chris Guy, Biologist, Chesapeake Bay Field Office, FWS Northeast Region

Island habitat in the Chesapeake Bay has been disappearing at an alarming rate due to erosion, subsidence, and sea level rise. Since they were only accessible by boat, island habitats in the Chesapeake Bay remain relatively free of human disturbances and mammalian predators, and are critical habitat for nesting birds, particularly colonial water birds such as egrets and terns. The Paul S. Sarbanes Ecological Restoration Project at Poplar Island, located in Talbot County, Maryland, is a multiyear project funded by the U.S Army Corps of Engineers and Maryland Port Authority. The project will restore more than 1,140 acres of island habitat with dredged material. A variety of habitat types have been created on Poplar Island, including wetlands, grasslands, shallow water, and beach habitats. These newly created habitats provide food, refuge, and nesting opportunities for a variety of wildlife species. Wildlife management is provided by the Service and involves coordinating wildlife management activities with other federal and state agencies, universities, and private industry. Wildlife management uses an adaptive management approach to ensure that the best possible wildlife management strategies and tools are implemented to ensure successful nesting by island-dependent bird species. These wildlife management strategies and tools include: habitat creation, restoration and enhancement; nuisance species and predator control and documentation; disease response; education; wildlife surveys and monitoring; and documentation of new species.

2:10 – 2:30 p.m.

Salt Marsh Restoration: Acting Now, Preparing for the Next 100 Years

Susan Adamowicz, Ph.D., Land Management Research and Demonstration Biologist, FWS Northeast Region

We are well aware of the dire predictions for sea level rise (SLR) posed by the IPCC and other organizations. A naïve reaction would be to throw in the towel. But salt marshes are living, highly productive ecosystems. Their ability to keep pace with SLR depends upon a variety of factors, including local rates of SLR, “marsh capital,” formation history, sediment supply, nutrient levels and plant health. Two innovative restoration projects at Rachel Carson and Parker River NWRs seek to increase salt marsh resilience and extend existing salt marsh longevity. The first project involves removal of an agricultural dike, using dike material to fill sediment sinks on the marsh and allow tidal flows to import additional sediment. The second project is a two-part ditch remediation effort that replaces ditch hydrology with more natural tidal channel hydrology, increasing sheet flow and sedimentation while decreasing deep marsh oxidation and subsidence.

2:30 – 2:50 p.m.

Stream Assessment, Design, and Implementation Tools, Protocols, and Methods

Richard Starr, Chief, Habitat Restoration Division, FWS Northeast Region

The presentation will provide an overview of some of the more recent tool, protocols, and methods developed for stream assessment, design, and implementation. Some of the items that will be presented include GIS based stream stability assessment; rapid stream stability and feasibility assessment; natural channel design check list, stream functions pyramid; toe wood stabilization; bank erosion rate curves, and reference reach databases.



Population Restoration, Part II Room D

1:10 – 1:30 p.m.

Freshwater Mussel Conservation: Recovering Endangered Species and Restoring Aquatic Ecosystems

Catherine Gatenby, Manager/Project Leader, White Sulphur Springs National Fish Hatchery, FWS Northeast Region

All 70 recovery plans for endangered mussel species in the United States call for propagation and reintroduction of populations to restore endangered species. These same recovery plans also call for restoration of critical habitat prior to reintroduction of target-endangered species. A nation-wide conservation effort of the Service and partners has been underway for more than 20 years. Our actions have included identifying science needs for the recovery of endangered mussels, captive breeding and culture of freshwater mussels, augmentation of populations to prevent the listing of species and restore dwindling populations, working with partners to restore stream habitat, and developing and implementing outreach that won support from the public at all levels. A key to recovering endangered species is our ability to restore critical habitat.

This presentation will provide an overview of ongoing freshwater mussel conservation in the Service's Northeast Region. Case studies will illustrate the employment of adaptive management in implementing recovery on the ground. The presentation will also demonstrate where we have opportunities to recover endangered species and aquatic ecosystem health by restoring mussel bed habitat.

1:30 – 1:50 p.m.

Conserving and Restoring Ohio River Mussels: An Ecosystem Approach

Patty Morrison, Fish and Wildlife biologist, Ohio River Islands NWR, FWS Northeast Region

Many regional teams are up and running under the guiding umbrella of a national strategy for the conservation of native freshwater mussels. Within the Ohio River basin, there are at least three such groups: the Ohio River Valley Ecosystem (ORVE) Mollusk Group, the Ohio River Basin Fish Habitat Partnership, and the Tennessee-Cumberland Mussel Group. The ORVE Mollusk Group, formed in 1995, is a team of state, federal, private, and academic partners within the Ohio River basin who cooperate on research, monitoring, management activities, status reviews, and outreach. Key activities of the ORVE Mollusk Group include habitat protection, development and testing of sampling protocols, long-term monitoring, reintroductions of common species into historic habitat, endangered species recovery, NRDA restorations, collection and holding of broodstock mussels, captive propagation, and public education programs.

1:50 – 2:10 p.m.

Karner Blue Butterfly Recovery at the Eastern Edge of Its Range

Robyn Niver, Biologist, New York Field Office, FWS Northeast Region

The Karner blue butterfly (*Lycaeides melissa samuelis*) was federally listed as an endangered species in 1992. A recovery plan was finalized in 2003. In the Northeast, there are two recovery units for the species (Glacial Lake Albany and Merrimack/Nashua River). I will provide an overview of the status of the species and recovery efforts conducted at both recovery units. This includes work conducted primarily by our partners (e.g., N.Y. Department of Environmental Conservation, The Nature Conservancy, Albany Pine Bush Preserve Commission, N.H. Fish and Game) with

Service support provided through funding, permitting, developing of agreements, and field assistance. I will highlight the habitat restoration/management and captive propagation efforts underway and provide a summary of where we are headed.

2:10 – 2:30 p.m.

Propagation and Restoration of Rare Fishes by Conservation Fisheries, Inc: Keys to Success.

Pat Rakes, Co-Director, Conservation Fisheries Inc.

Since first attempting to propagate endangered fish in 1986, we have witnessed many successes, all involving long-term multiple partnerships. A project to restore four rare fishes into Abrams Creek has had more than 22 years of continuous support and/or funding from the Service, TWRA, USFS (Cherokee NF) and others. The project has been funded because all the fish are federally listed: smoky madtom, (*Noturus baileyi*) (E); yellowfin madtom, (*N. flavipinnis*) (T); citico (formerly duskytail) darter, (*Etheostoma sitikuense*) (E); and spotfin chub, (*Erimonax monachus*) (T). Restoration results have revealed the general lack of understanding of crucial life history, ecology, habitat requirements and population genetics, which now drive research on the restored populations. Further restoration efforts in the nearby Tellico River exhibit accelerated success from lessons learned. Additional example restoration projects include the Barrens topminnow, (*Fundulus julisia*), and the boulder darter, (*E. wapiti*), each with unique suites of obstacles—funding, biology, politics—and many additional partners, such as NRCS, Tennessee Tech University, WWF, and International Paper. Without the extended patience and understanding of funding agencies and partners that such efforts are necessarily adaptive learning processes, success is unlikely.

2:30 – 2:50 p.m.

The Law Enforcement Nexus - Bog Turtles, Piping Plovers and SHC

Dede Manera, Special Agent, FWS Northeast Region

Two recent cases are presented that highlight cooperative efforts by the Service's Office of Law Enforcement and Northeast Region biologists to protect critical habitat and species. Both cases involve Endangered Species Act enforcement, recognizing critical habitat for endangered species, and protecting vulnerable species and the habitats they depend on. One of the cases resulted in OLE, the New Jersey Field Office and the state of New Jersey coordinating with a town to establish a 5-year training and communications agreement to help the town better understand its obligations under the ESA and provide an avenue for improved dialogue between the parties.

North American Model of Wildlife Conservation

Room E



1:10 – 1:30 p.m.

Keynote Presentation: The North American Model of Wildlife Conservation

John Organ, Chief, Wildlife and Sport Fish Restoration, FWS Northeast Region

John McDonald, Wildlife Research Specialist, FWS Northeast Region

The cornerstone of our profession has been aptly named as the North American Model of Wildlife Conservation (Model), which has advanced the conservation of fish and wildlife resources and their habitats for more than a century. The Model is a set of principles that collectively represents the foundation for wildlife conservation in the United States and Canada. It was established to reverse the decline in wildlife that reached catastrophic levels in the late 19th and early 20th centuries, and to provide current and future generations of citizens with access to wildlife. Implementation of the Model in the U.S. has been primarily through a “user pay – user benefit” system of conservation funding, and has resulted in the purchase of lands, restoration of wildlife, development of science-based management programs and the sustainable use of wildlife through regulated hunting, fishing and trapping programs. This has resulted in a conservation funding stream like no other in the world, which has yielded conservation outcomes for a countless number of species and has helped increase our nation's biodiversity. The Model has been adapted over

the last century and a half, as society and wildlife conservation challenges have evolved. We will discuss the viability of the Model in terms of its adequacy for addressing future challenges.

1:30 – 1:50 p.m.

States on the Edge: Engagement with, Relevancy of, and Funding for the Model

Ron Regan, Executive Director, Association of Fish and Wildlife Agencies

State fish and wildlife agencies are on the cutting edge of delivering the Model and they have produced a remarkable record of wildlife conservation accomplishments in the United States. Research and monitoring programs have documented the distribution and abundance of birds, mammals, fish, reptiles and amphibians. Habitat management and restoration efforts have improved forest, grassland, and aquatic habitats at a landscape scale for countless species of fish and wildlife, and population management and enforcement programs have restored many species throughout their historical ranges. Prominent funding sources that have supported fish and wildlife conservation in the U.S. have been the 1937 Pittman-Robertson Act and the 1950 Dingell-Johnson Sport Fish Restoration Act, in addition to revenues generated in each state through the sale of hunting and fishing licenses. In 2009, on the wildlife side alone, more than \$1.1 billion in funding came from such license sales (\$764 million) and P-R funds (\$336 million), which are used to support state agency conservation efforts. In 2006, however, birders in the U.S. were estimated to have spent \$12 billion on trip expenditures, and \$24 billion on equipment expenditures, none of which directly funds wildlife conservation. As fish and wildlife agencies continue to stretch existing staffs and budgets to the limit, while also facing new challenges and changing demographics, considerations must be made for developing new funding sources to ensure that all people who enjoy wildlife contribute to conservation.

1:50 – 2:10 p.m.

Engaging the Public in Sustaining Tools of Modern Wildlife Management

Colleen Olfenbittel, Furbearer and Black Bear Biologist, North Carolina Wildlife Resources Commission

One of the underlying principles of the North American Model is that wildlife is owned and valued by the public and held in trust by the government for the benefit of future generations. The public's knowledge, support and active participation in wildlife conservation programs are critical to our ability to successfully manage wildlife and fulfill this public trust doctrine. However, not all conservation programs are readily accepted by all members of society, including some wildlife professionals. Regulated trapping is one conservation activity that has played an integral role in endangered species protection, wildlife restoration, research, habitat management, and control of invasive mammals throughout the U.S. and Canada. Within the Northeast Region, biologists have successfully used modern traps to protect seabird and shorebird nesting colonies, reduce nutria damage to coastal marsh habitats, restore river otter, fisher and snowshoe hare populations, and conduct research on species such as Canada lynx and pine martens. Despite its demonstrated importance in modern wildlife management, attitudes towards trapping are wide-ranging due to misconceptions that traps cause unnecessary pain and are not effective management tools. Continued use of trapping as an important and sustainable wildlife management tool in conservation programs will hinge on support from professional biologists and the public. In order to instill and maintain support for trapping as a safe, efficient, and acceptable means of managing wildlife, scientifically based best management practices (BMPs) for trapping were developed. This presentation will describe the BMP process and how it led to improvements in trapping technology and the welfare of trapped animals.

2:10 – 2:30 p.m.

Advancing the Model in a Changing World: Reflections on Societal Values and Trends

Steve Williams, President, Wildlife Management Institute

Shortcomings of the Model have become evident over recent years as we continue to face new and increasing challenges as wildlife professionals. Among state and federal agencies and NGOs, there can be conflicts in how we seek to achieve our respective missions, which share a very common thread: work with partners to promote the use and appreciation of wildlife by the public. However, in doing so, we often neglect to

include the public-at-large as our single most important partner in accomplishing this mission. For without people as active participants, regardless of public support or opposition toward hunting, fishing and trapping programs, it will be impossible for natural resource professionals to balance the needs of people with the needs of wildlife. The result will likely include a dramatic shift or complete erosion of the Model. Several initiatives are currently underway to prevent this from occurring, and require a better understanding of agency roles, responsibilities and opportunities at all organizational levels. Leadership by the Service in reinforcing the commitment toward traditional stakeholders and building upon that foundation to bring them together with non-traditional groups will strengthen the ability to achieve conservation success.

2:30 – 2:50 p.m.

Discussion

All presenters

Invasive Species, Part II Room F



1:10 – 1:30 p.m.

The More Eyes the Merrier: Early Detection Efforts in the Adirondack Park

Hilary Smith, Director, Adirondack Park Invasive Plant Program, The Nature Conservatory

The Adirondack Park is a six-million-acre landscape of public and private land with some of the most ecologically intact lakes, rivers, and forests in the United States. It remains relatively free of invasive species, which presents an exciting opportunity in conservation at a scale rarely seen throughout the country. In 1998, governmental and nongovernmental organizations formed a regional partnership, the Adirondack Park Invasive Plant Program (APIPP), to take advantage of this opportunity and work with local communities to develop programs in spread prevention, rapid response, and management. The Aquatic Invasive Species Project and Terrestrial Invasive Species Project are APIPP's flagship programs with more than 300 trained volunteers surveying more than 200 water bodies and thousands of acres of land for invasive species. This presentation will discuss program goals, strategies, and activities and highlight ways in which partnerships and public involvement are essential to effective early detection programs.

1:30 – 1:50 p.m.

The Pepperweed Project: A Case Study in Building community Support for Biological Programs

Sarah Janson, Biological Technician, Parker River NWR, FWS Northeast Region
Parker River National Wildlife Refuge began the Pepperweed Project in 2006 after noticing a new invasive species spreading in the area salt marshes. Since then, a project has engaged the community and gained a wide base of support. While the project is specifically an early response to an invasive plant, the strategies we employ may be helpful to any refuge planning a project that needs broad community backing and participation. Through strategic partnerships, we connected with local high school students; that, in turn, attracted local newspapers' interests, leading to engagement with landowners and the broader community. With a wide variety of volunteers, other partners were interested in getting involved and assisting with pepperweed control. Without direct prompting, the community developed a sense of environmental connectedness and the importance of ecological integrity.

1:50 – 2:10 p.m.

Restoring Shrublands for Priority Species: Implementing Conservation and Adaptive Learning in Times of Environmental Uncertainty

Nancy Pau, Wildlife Biologist, Parker River NWR, FWS Northeast Region
Shrub-dependent species have shown some of the highest population declines in the Northeast. Recent research indicates shrubland habitats are preferred by many landbirds, including forest and grassland specialists during the post-fledging and

migration periods. Northeast Region refuges are located along key migratory sites and have a unique opportunity to provide habitat for migratory birds where they are most vulnerable to mortality. There is uncertainty about how to best manage shrub habitats against invasive plants while maintaining structure and habitat value to benefit trust resources (breeding and migratory landbirds and New England cottontail). Four New England refuges (Parker River NWR, Rachel Carson NWR, Great Meadows NWR and Rhode Island NWR Complex) are using an adaptive management framework to address this uncertainty while reverting fields to shrub habitat and converting a forested or invasive-dominated shrub habitat to native shrubland. Monitoring data will inform a model that assesses which treatment options best meet habitat objectives at two-year intervals.

2:10 – 2:30 p.m.

SDM and Adaptive Management Study on Phragmites Control in the Northeast Paradigm Shift in Invasives Control

Laura Eaton-Poole, FWS Northeast Region

Current *Phragmites australis* management is generally thought to be insufficiently effective, expensive and even resulting in unintended consequences – such as impacts on non-target species, increased resistance to approved herbicides, or possible de-stabilization of marsh habitats in the face of rising sea level. Phragmites control efforts constitute a major proportion of management actions/costs across coastal refuges in the Northeast, yet considerable uncertainty exists regarding the ability of current treatment regimes, especially chemical treatments, to significantly reduce Phragmites in marsh habitats over consecutive seasons and restore desirable vegetative cover. To achieve the overarching goal of integrated management within refuges and at the regional level, we are developing refuge-based management models and decision-support tools that are linked to coordinated and standardized assessment protocols. We will incorporate management costs, constraints and objectives into the decision-support tool so that we can evaluate and inform expenditures at both local and regional (watershed) scales.

2:30 – 2:50 p.m.

Vegetation Management: A Critical Piece to Recovering a Listed Species

*Julie Slacum, Chief, Division of Strategic Habitat Conservation,
Chesapeake Bay Field Office, FWS Northeast Region*

The northern bog turtle (*Clemmys muhlenbergii*) is a federally threatened species occurring in seven states ranging from Massachusetts to Maryland. Within the last 20 years, the population has declined by over 50 percent. Primary threats to the species include loss, fragmentation, and degradation of habitat, and illegal collection. Bog turtles require emergent wetlands with a mosaic of shallow water, soft muddy bottom, low grasses and sedges, and interspersed wet and dry areas. Historically, these wetlands were maintained by grazing animals, beaver, and fire. However, development and a decrease in grazing of these sites result in woody vegetation and non-native plants invading the wetlands, which alters hydrology and decreases available nesting and basking habitat essential for the bog turtle's survival. We have been working with the state and NRCS to conduct vegetation management through prescribed grazing, and herbicide application to successfully restore bog turtle habitat throughout Maryland.

**Habitat Restoration,
Part III**
Room C



3:10 – 3:30 p.m.

Penobscot River Restoration Project: Tools and Lessons for Cooperative Success

Alex Hoar, Regional Hydropower Coordinator, FWS Northeast Region

The Penobscot River Restoration Project has set precedent for accomplishing river restoration. This was recognized by the Department of Interior as it selected recipients of the 2008 Cooperative Conservation Award. The vision of restoring the Penobscot River by reconnecting it to the sea was advanced through negotiation among varied interests that agreed where hydro dams would no longer continue to function in the

watershed. Partners participated from the federal, state, Indian, industry, and private sectors. The two lower-most hydro dams would be removed and another upstream would be decommissioned and bypassed - with no net loss of hydropower in the watershed. As a result, significant and enduring benefits for fish, wildlife and people will be produced. Many facets, lessons learned, and take-home messages that have been key to the success of the project, including tools and strategies that can be replicates, are presented.

3:30 – 3:50 p.m.

Aquatic Passage: Cooperation is Our Opportunity

Paul T. Anderson, Staff Engineer, Washington Office, U.S. Forest Service

Cooperation presents us with opportunities to streamline and leverage our efforts in aquatic restoration. Aquatic passage and other kinds of habitat connectivity issues can rarely be solved by one group or agency. It is far too easy to become focused on our agency mission and miss the opportunity to partner with other agencies that hold the key to our joint success. Partnerships like the development of programmatic biological opinions are arduous work but are the key to larger scale habitat connectivity. Successful programmatic BOs require top-level management commitment and a vision that sees the potential for a positive enduring relationship. This talk discusses the large-scale, multi-agency opportunities and some elements of the negotiation process, the commitment necessary for a successful partnering environment, and the necessary leadership commitment.

3:50 – 4:10 p.m.

Strategic and Cooperative Conservation Efforts in Action: Insights On How the Maine Fishery Resources Office Completed More Than 100 Stream-road Crossing Projects on Private Lands in Downeast Maine (2005-2010)

Scott Craig, Project Leader, Maine Fishery Resources Office, FWS Northeast Region

The Maine Fishery Resources Office (MEFRO) has spearheaded a strategic approach to restoring ecological stream function (aquatic connectivity) that embraces cooperative conservation with a myriad of state, federal, and non-governmental entities and private landowners. The presentation will discuss how MEFRO and Project SHARE (Salmon Habitat and River Enhancement) developed a strategic plan that has resulted in the completion of over 100 aquatic connectivity projects at stream-road crossings within designated critical habitat of endangered Atlantic salmon in Downeast Maine. The strategic plan focused efforts within two subwatersheds that have high conservation merit in terms of both existing high quality salmonid habitat and projected long-term protection from threats such as urbanization and increased road development. Identification of priority focus areas allows financial resources to be directed in a cost-effective manner that increases the potential for long-term success of restoration activities. Project design (stream simulation), principle funding sources and costs will also be discussed.

4:10 – 4:30 p.m.

Evolution of the SHC approach in the St. Lawrence Valley: Implementing the Fish Enhancement, Mitigation, and Research Fund

Scott Schlueter, Project Manager, Fish Enhancement, Mitigation and Research Fund, New York Field Office, FWS Northeast Region

The St. Lawrence River Valley was one of the first focal areas in the region selected to implement SHC. The Fish Enhancement, Mitigation and Research Fund (FEMRF), managed by the Service, has provided the financial resources to advance efforts on aquatic species, with a focus on the fisheries resource. The \$24-million FEMRF was established as part of the settlement agreement reached in the licensing of the St. Lawrence-Franklin D. Roosevelt Power Project (Project) operated by the New York Power Authority, near Massena, New York. The purpose of the FEMRF is to benefit fisheries resources in the Lake Ontario/St. Lawrence River basin and to continue research on the American eel and other species that may be affected by the Project. FEMRF strategic planning, conservation design, and conservation delivery will be highlighted, with a focus on a multi-partner conservation strategy for the enhancement of St. Lawrence River native fish populations. The strategy involves a “toolkit” approach to address habitat restoration and enhancement.

4:30 – 4:50 p.m.

Implementation of Multi-Partner Natural Channel Restoration in the Chesapeake Headwaters

Carl Schwartz, State Coordinator, Partners for Fish and Wildlife, New York Field Office, FWS Northeast Region

Over five miles of Canasawacta Creek were targeted to improve brook trout populations, reduce streambank erosion and reduce sediment. Through the years, channelization eliminated most brook trout habitat by removing large rocks and woody debris. The straightened channel funneled flows but required nearly annual clearing because the bedload aggraded from the over-widened stream. When this maintenance was no longer permitted by New York Department of Environmental Conservation (DEC), portions of the channel were higher than the adjacent State Route 23. Bank erosion necessitated repeated relocation of power poles and New York State Department of Transportation requested armoring the bank to protect the highway. The Partners for Fish and Wildlife Service of the New York Field Office, along with the Montezuma National Wildlife Refuge and the Lower Great Lakes Fish and Wildlife Resources Office, worked with the NYDOT, DEC, Canasawacta Creek Watershed Alliance, Chenango County Soil and Water Conservation District and the U.S. Department of Agriculture, Natural Resources Conservation Service, to design and implement the project involving returning reaches of the stream to pre-channelization meanders, installing about 100 structures such as log vanes, cross vanes, modified Newbury weirs, stream barbs, rock clusters and woody debris. Six flood events have occurred in the watershed since construction and pre-construction brook trout inventory will be compared to post construction at a later date.

Funding Opportunities

Room D



3:10 – 3:30 p.m.

The North American Wetlands Conservation Act (NAWCA) Grant Program

Mitch Hartley, Coordinator, Atlantic Coast Joint Venture, FWS Northeast Region

The North American Wetlands Conservation Act (NAWCA) Grant Program is a competitive funding source available to Service offices and all their conservation partners. NAWCA standard grants (up to \$1 million) are awarded twice annually and small grants (up to \$75,000), are awarded once per year. NAWCA provides matching funds for wetland habitat protection (fee or easement), restoration, or enhancement activities. A minimum 1:1 non-federal match is required, but 2:1 match is typical of standard grants. Match usually is in the form of other lands in a project area that have been (or will be) protected or restored 1 to 2 years prior to the application, or 1 to 2 years after the grant award. Match can include partner funds promised, bargain sales, donations, or in-kind services. Successful projects usually include a host of different partners cooperating on landscape-level conservation within national priority areas for bird habitats, adding or improving protected habitats within a mosaic of other protected lands.

3:30 – 3:50 p.m.

Funding Opportunities for Coastal Wetland Habitat Protection and Restoration through the National Coastal Wetlands Conservation Grant Program

Colleen Sculley, Grants Specialist, Division of Wildlife and Sport Fish Restoration Program; Stewart Fefer, Project Leader, Gulf of Maine Program; Dan Murphy, Assistant Supervisor, Division of Habitat Conservation, Chesapeake Bay Field Office, FWS Northeast Region

The U.S. Fish and Wildlife Service (Service) through National Coastal Wetlands Conservation Grants (NCWCG) provides \$18 to \$21 million annually for matching grants for acquisition, restoration, management or enhancement of coastal wetlands through a nationwide competitive program. State agencies from coastal states that border the Atlantic, the Gulf of Mexico, Pacific and Great Lakes are eligible to apply. While state agencies are the only eligible applicant for NCWCGs, the funds can be sub-granted to other entities, including non-profit organizations. Our presentation will briefly review the grant application and ranking process and highlight examples of how

various programs within the Service can effectively partner with state agencies to develop and implement projects to meet coastal resource protection and restoration throughout the Northeast Region.

3:50 – 4:10 p.m.

Funding Opportunities through the National Fish & Wildlife Foundation (NFWF)

David O’Neill, Director, Eastern Partnership Office, NFWF

The National Fish and Wildlife Foundation (NFWF) is a 501(c)(3) non-profit that preserves and restores our nation’s native wildlife species and habitats. Created by Congress in 1984, NFWF directs public conservation dollars to the most pressing environmental needs and matches those investments with private funds. The Foundation’s method is simple and effective: we work with a full complement of individuals, foundations, government agencies, nonprofits, and corporations to identify and fund the nation’s most intractable conservation challenges. Visit our website at www.nfwf.org.

4:10 – 4:30 p.m.

Opportunities to Fund Priority Research Using USGS Science Support Partnership (SSP) and Quick Response Program (QRP) Funds

Dr. Rick O. Bennett, Regional Scientist, Northeast Region, FWS Northeast Region

Through the SSP, USGS dedicates \$500,000 each year for science support identified by the Northeast Region. SSP proposals may request funds for multiple years, not to exceed three years in total funding requested. Through the QRP, USGS sets aside \$50,000 each year to respond to immediate, current year research needs. Research proposals are submitted for consideration in response to a request for proposals (RFP) issued in the spring of each year. Priorities identified in the RFP are developed through program input with final selections made by the Regional Directorate Team (RDT). SSP and QRP research proposals are submitted for consideration through the Fish and Wildlife Information Needs and Studies database. A set of criteria are used to evaluate and score eligible proposals. SSP and QRP proposals are evaluated and scored based on merit, scope, involvement of Service programs, urgency, and whether the proposal met RFP criteria. Final selections of SSP and QRP proposals are made by the RDT.

4:30 – 4:50 p.m.

Discussion

All presenters

Fish & Wildlife Diseases
Room E



3:10 – 3:30 p.m.

White-Nose Syndrome

Jeremy Coleman, National White-Nose Syndrome Coordinator, FWS Northeast Region

White-nose syndrome (WNS) continued to spread in 2010, and is anticipated to continue its rapid advance into new territory. In 2010, newly affected bat hibernacula were confirmed in Tennessee, Ontario, and Quebec, and the fungus *Geomyces destructans* has been detected on bats in Delaware, Missouri, and Oklahoma. The fungus and/or the disease have now been found on bats in 14 U.S. states and two Canadian provinces. In 20 hibernation sites with both pre- and post-WNS infection bat population counts, the cumulative decline has been 92 percent in the two or three years since the sites were documented as infected, with colony losses at some sites exceeding 99 percent. Thus far, there has been no clear evidence of resistance among affected bat species, and several smaller colonies are on the brink of extirpation. The need to further understand the etiology and pathology of WNS drives much of the WNS research currently underway, and the revelation that *G. destructans* has been found on bats in Europe without observed mortality has provided important new avenues of investigation.

3:30 – 3:50 p.m.

Implementing the National Avian Health and Disease Program in the Northeast

*Samantha Gibbs, Avian Disease Coordinator, Migratory Bird Program, FWS Northeast Region
Chris Dwyer, Migratory Game Bird Biologist, FWS Northeast Region*

Increasing pressures on wild bird populations from habitat fragmentation, climate change, shifting migration patterns, globalization of markets, illegal trade/transport and increased zoonotic and emerging disease issues have led the Service's Migratory Bird Program to shift away from HPAI H5N1 surveillance to a more comprehensive National Avian Health and Disease Program. The objectives of the national effort are to: establish avian health baselines, identify existing and emerging avian health and disease risks, ensure disease preparedness and prevention, and work with others to develop, guide and implement appropriate and effective management actions. This presentation will provide a brief overview of recent disease/health issues affecting migratory birds in the Northeast, and perspectives on stepping down the national plan at the regional level to develop new partnerships and support cross-program objectives.

3:50 – 4:10 p.m.

USFWS Fish Disease Surveillance in the Northeast

John Coll, Lab Director, Lamar Fish Health Center Complex, FWS Northeast Region

As with all other animals, fish have many of disease organisms that can adversely affect them at the individual as well as population level. The large and varied geography of Region 5 gives rise to the occurrence of a wide array of fish species, including anadromous or migratory fishes, with both similar and very diverse disease organisms. This session will provide a discussion of major diseases of priority fish species occurring in natural and hatchery/propagation settings, new or emerging fish pathogens, and fish health management practices currently being utilized by the Service.

4:10 – 4:30 p.m.

Disease Threats to Amphibian Populations in the Northeast

Dr. Evan Grant, Principal Investigator, Northeast Amphibian Research and Monitoring Initiative, U.S. Geological Survey

Approximately 43 percent of amphibian species are in decline, with one in three species in threat of extinction. Emerging infectious diseases are partly responsible for some of these declines. Chytridiomycosis and ranaviral disease have been associated with mass mortality of amphibians across the globe, and are considered important diseases in the northeastern U.S. Two primary challenges to investigating disease dynamics and developing strategies for management are: addressing difficulties with observing disease dynamics in the wild, and determining how environmental, spatial, and community processes interact to cause outbreaks and disease persistence. This session will provide recommendations on addressing these challenges within the context of temporal and spatial disease dynamics and their impacts on populations.

4:30 – 4:50 p.m.

Establishment of a Northeast Wildlife Disease Cooperative

*Dr. Julie Ellis, Research Assistant Professor,
Tufts Cummings School of Veterinary Medicine*

The northeastern U.S. is a hotspot for emerging infectious diseases; West Nile virus and Lyme disease were detected here before anywhere else in the country. Despite our apparent vulnerability, however, the Northeast lacks a designated wildlife disease laboratory capable of investigating potential disease outbreaks or conducting surveillance to anticipate the emergence of new diseases before they become widespread. To address these issues, agencies and collaborators have proposed a Northeast Wildlife Disease Cooperative (NWDC). The NWDC would function as a collaborative effort of the Northeast states, federal wildlife agencies, and non-profit groups to provide expertise and state-of-the-art diagnostics for the Northeast, and assist in wildlife disease surveillance and investigation throughout the region. The cooperative would draw on the respective strengths of its veterinarians, researchers, public health officials and wildlife managers to detect, diagnose and respond to wildlife disease outbreaks.

Communications
Room F



3:10 – 4:10 p.m.

Climate Change Communications – Scientific Messages that Resonate

Karen Akerloff, Doctoral Student, Environmental Science & Public Policy, George Mason University

David Eisenhauer, Public Affairs Specialist, FWS Office of External Affairs

Terri Edwards, Public Affairs Specialist, FWS Northeast Region

Scientists are the most trusted source of information on climate change in the United States, but large percentages of Americans cannot name even one scientist when asked. As communicators on climate change, conservation biologists have an opportunity to deepen public understanding of the issue by contributing both their expertise and credibility. This presentation will provide tools for ways to think about how U.S. audiences are responding to climate change, using the “Global Warming’s Six Americas” research developed at George Mason and Yale universities. Each of these six groups – spanning those who are alarmed about global warming, to those who are dismissive – has a distinct set of beliefs, attitudes, behaviors and policy preferences that can help communicators in thinking about how to shape their own messages. This presentation will answer the question, “What do Americans most want to know about climate change?” and address how to reach audiences more effectively using the fish, wildlife and natural landscapes that Americans cherish as the basis for the conversation. It also will examine current U.S. Fish and Wildlife Service climate change communications tools, strategies and key messages, and allow participants to share their own experiences and insights as communicators.

4:10 – 4:50 p.m.

Goin’ Mobile: Using New Technology to Tell Your Story

Michael Davidson, National New Media Specialist, FWS Office of External Affairs

Alexa Marcigliano, Web and Social Media Manager, Northeast Region, FWS

This session will explore many aspects of social media, including using social media to network, conduct outreach, and tell the story of your, and the Service’s, work. The session will focus on three areas - an overview of social media tools and applications presented with a special emphasis on how these tools are currently being used in the Service; best practices for using social media to network and conduct research in the scientific community; and how social media can be used to communicate with a variety of audiences.

4:50 – 7:00 p.m.

Dinner on your own

7:00 – 10:00 p.m.
Constellation Ballroom

Region 5’s Got Talent!

Desserts will be served

A relaxing evening of song, dance and fun as we showcase our talents! Special thanks to all of the volunteer performers, especially Bill Zinni and the members of the FWS House Band.

Friday, February 18th

- 8:30 – 8:50 a.m. **Opening remarks and Introductions**
Wendi Weber, Deputy Regional Director, FWS
- 8:50 – 9:00 a.m. **Special Presentation**
- 9:00 – 9:30 a.m. **Deputy Director Dan Ashe**
- 9:30 – 10:00 a.m. **Break**
Who Wants to Win \$5,000? (see inset)
- 10:00 – 11:30 am **Town Hall Meeting with Regional Director Marvin Moriarty and Deputy Director Dan Ashe**
Throughout the week, we asked you a series of questions about your needs to help lead the Service’s landscape conservation efforts. Regional Director Marvin Moriarty will summarize and respond to your feedback. Participants can ask additional questions, provide feedback or ideas about how to move forward, and discuss how we can work together in this new era of landscape conservation.
- 11:30 am Announcement of Who Wants to Win \$5,000? Recipient
Closing Remarks and Next Steps

Who Wants to Win \$5,000?

Every participant in the Town Hall Meeting on Friday, February 18th will have a chance to earn \$5,000 for your office. As you enter the Town Hall Meeting, your name will be entered in a drawing. At 11:30 am, a name will be selected from all the entries. The individual selected will receive \$5,000 to be used toward his or her office needs. To be selected, **the individual must be present at the drawing.** Couldn't your field station use an extra \$5,000?