Integrating Science into Policy: Local Adaptation for Marsh Migration
NALCC Lead Organization: Maine Department of Inland Fisheries & Wildlife

Project Summary
Maine's Climate Change Adaptation Plan: *People and Nature Adapting to a Changing Climate: Charting Maine's Course* identified preparing for sea level rise (SLR) and enabling marsh migration as key actions to be taken on by the state's resource agencies.

As a home rule state, the majority of "on the ground" adaptation and mitigation strategies will be implemented at the local level. For 10 years, Maine's Beginning with Habitat program (BwH) has focused on a collaborative approach to encouraging strategic conservation at the local level through targeted outreach, and partnership development with local and regional entities. This established program provides an ideal mechanism for delivering LCC science and suggested approaches for preparing for the anticipated ecological stresses associated with climate change.

This candidate demonstration project will complete LiDAR mapping to the entire coast (*funding secured*); map Highest Annual Tide elevations, existing coastal wetlands of 5 or more acres, and undeveloped coastal uplands / freshwater wetland communities with potential to receive migrating marshes under 0.6, 1 and 1.8 meter SLR scenarios; incorporate modeled marsh migration priority areas into the established BwH outreach package; and establish a working group that will identify willing municipal partners and coastal land trusts through an RFP process to develop localized adaptation plans focused on conserving lands capable of providing opportunity for marsh migration. Local partner selection will be determined based on preliminary community scoping and outreach sessions in order to gain perspectives on community commitment, existing technical capacity, staff and board member availability, and existing regulatory and incentive based tools.

The expected outcomes of this project include: (1) complete coastal mapping of areas capable of supporting coastal wetland migration under several SLR scenarios developed using transferable methodology; (2) engagement of 3-5 partner municipalities in developing adaptation strategies that protect the ability of coastal wetlands to migrate, or in the case of fringing marshes, continue to receive sediment necessary for elevational build up with SLR; (3) incorporation of priority areas into coastal land trust strategic conservation plans; (4) reparation of case studies and outreach materials including economic analyses of coastal wetland ecosystem services to be prepared for local decision makers.

Applicable NALCC Science
Anderson's *Resilient Sites for Terrestrial Conservation in the Northeast and Mid-Atlantic Region* to screen prioritized marsh migration areas against projected long-term resiliency measures; and McGarigal and Compton's *Designing Sustainable Landscapes in the North Atlantic Landscape Conservation Cooperative* to verify that prioritized sites have capacity to respond to needs of representative species.

Geography and Partners
This project will address tidal waters of Maine from Washington to York Counties. Principal partners include the State Planning Office Coastal Program; Natural Areas Program; Geological Service, Nature Conservancy, and Wells NERR.

Nature of Funding and Project Completion Date
Funding for this project has been received from EPA Region 1 Wetland Program Development; Maine Outdoor Heritage Fund; and NOAA. Funds received from NALCC will be used to translate spatial data to outreach materials accessible for local planners and conservation groups; and to facilitate local actions that will result in on-the-ground implementation of protective

measures necessary for marsh migration. Work associated with this project is expected to be completed by December 2013.

Alignment with NALCC Demonstration Project Criteria

√   aligns with the Northeast Regional Conservation Framework
√   facilitates science translation, adoption, and delivery, including utilization of NALCC-funded science tools
√   promotes multi-partner coordination at local levels
√   aligns project selection process with science project selection process
√   makes NALCC's work "real and tangible" for our conservation partners and other key audiences (e.g., municipalities, regional planning entities)
√   informs local conservation planning efforts, but does not advocate predetermined regulatory approaches

Utilizing Science to Amplify Priority Conservation Opportunities in the Appalachian Forests of the North Atlantic Landscape Conservation Cooperative Geography
NALCC Lead Organization: National Wildlife Federation

Project Summary
The super-region's efforts to achieve durable, landscape-level conservation will benefit from a broadly shared vision for a "climate-smart" Wildlife Corridor in the Appalachian forest region of the NALCC geography – a sustainable, connected mosaic of forest habitats and waters that are home to thriving intact ecosystems. As a catalytic first step, we will work with NALCC partners and other key stakeholders to build an Appalachian Forest Conservation ~ A Blueprint for a Legacy Landscape that will: (1) identify five priority conservation areas (Demonstration Sites) in the Appalachian forest region of the NALCC geography; (2) include a conservation priorities map, ecological inventory, and social values matrix that illustrates pathways by to connect identified Demonstration Sites; (3) showcase the partners or networks working to protect the identified Demonstration Sites or, in the event no such partners or networks exist, promote their development; (4) highlight examples of the most significant threats to the biodiversity of each Demonstration Site; (5) and help coalesce and amplify ongoing conservation initiatives with intersecting footprints (e.g., Staying Connected Initiative, Wildlands Network's Eastern Wildway Initiative, The Nature Conservancy's Northern Appalachians).

Applicable NALCC Science
We will utilize four primary scientific tools to identify the Demonstration Sites and build the Blueprint.
➢ *Resilient Sites for Terrestrial Conservation in the Northeast and Mid-Atlantic Region (The Nature Conservancy – Anderson et al.)*to identify geophysical settings with significant physical complexity (landform variety, elevation range, and wetland density) and permeability (local connectedness and regional flow patterns) as the foundation for identifying sites with the highest estimated resilience within each ecological region
➢ *Designing Sustainable Landscapes in the North Atlantic Landscape Conservation Cooperative (LCC and University of Massachusetts Amherst - McGarigal et al.)* to assess landscape ecological integrity (intactness, resiliency, buffering, diversity, and connectivity) and habitat capability for representative species under alternative future scenarios to identify and map priorities for conservation (land protection, management and restoration)
➢ *Landscape conservation design and synthesis of regional information for State Wildlife Action Plan Updates (LCC and Northeast States)*
➢ Social value metrics including visitation, proximity to population centers, the degree to which the site is perceived as an "iconic" place, and whether the site is home to "iconic" species

The Demonstration Sites will be identified based upon the best and most recent science and the extent of their significance and/or the opportunity they provide as a learning/education tool. Consequently, they will be based both on the application of NALCC science and maximum communication opportunity (communication opportunity = NALCC science translation + NALCC science application/implementation). As a result, Demonstration Sites will showcase NALCC science to the broadest possible audience of interested stakeholders and citizens. And, local, state, sub-regional and regional conservation efforts will be better coordinated, supported by NALCC science (e.g. landscape design and resilience to climate change), and more effective.

Geography and Partners
This project covers a super-region within the NALCC landscape. As such, it complements local, state, and regional scale projects with which it is associated in this recommendation. Further, it will involve federal, state, local governments, and national, regional and local land trusts, and conservation partners at the regional, local, and national scale.

Nature of Funding and Project Completion Date
$20,000 (a portion of the $60,000 FY 12 demonstration recommendation) will launch this project and leverage additional funding. The Blueprint will be finalized in June 12/31/13.

Alignment with NALCC Demonstration Project Criteria

√   aligns with the Northeast Regional Conservation Framework
√   facilitates science translation, adoption, and delivery, including utilization of NALCC-funded science
      tools
√   promotes multi-partner coordination at regional, sub-regional, state and local levels
√   aligns project selection process with science project selection process
√   makes NALCC's work "real and tangible" for our conservation partners and other key audiences
      (e.g., municipalities, regional planning entities)
√   informs local conservation planning efforts, but does not advocate predetermined regulatory
      approaches

**Boundary Mountains Demonstration Project: Using LCC Science to Inform Landscape Planning
NALCC Lead Organization: The Trust for Public Land**

Project Summary
The purpose of the Boundary Mountains demonstration project is to show how NALCC science products can be used to inform conservation planning for a habitat "hot spot" within the LCC. Through this demonstration project, TPL will integrate multiple NALCC science products into a parcel-level GIS conservation plan for the 2.7 million-acre Boundary Mountains focus area of ME and NH. TPL will coordinate with LCC staff to assure that all relevant NALCC science products are utilized and integrated appropriately. The Boundary Mountains conservation plan will be used by TPL and a wide range of public and private partners working within this landscape to inform conservation project selection and design, guide outreach and technical assistance to private landowners, and identify restoration opportunities. Aligning this plan with LCC science will demonstrate how landscape-level information at the LCC scale can be translated to help partners deliver more effective on the ground delivery of habitat conservation across priority habitat focus areas within the NALCC. Making this linkage supports the Northeast Conservation Framework design for coordinated, range-wide conservation of priority species.

Applicable NALCC Science
Priority species within this landscape include Canada lynx, American marten, Bicknell's thrush, eastern brook trout, and Atlantic salmon. TPL and its partners have traditionally focused on large pieces of the Boundary Mountains landscape (e.g. Mahoosuc Range, High Peaks, et al.) based on their significance within the State Wildlife Action Plans of ME and NH, the Eastern Brook Trout Joint Venture, Staying Connected, Northern Forest Alliance priority areas, and other relevant data. The Boundary Mountains conservation plan is designed to reshape and better integrate the on the ground work in this landscape to reflect new information developed by the NALCC and other sources. The recent release of initial components of the *Designing Sustainable Landscapes* data has illuminated important landscape-level connections that had been previously overlooked. For example, TPL and the Technical Advisory Team for the Boundary Mountains planning project have redesigned the initial planning area in response to *Resilient Sites for Terrestrial Conservation in the Northeast and Mid-Atlantic Region (The Nature Conservancy – Anderson et al., 2012)*. The redesign has added 700,000 acres to the original 2 million-acre planning area, and has significantly increased the complexity of the project. Additional work will be needed to model parcel-level priorities within the context of this and other new data.

TPL and its partners will also integrate (at minimum) the following LCC-funded science products:
  ➢ Additional elements of *Designing Sustainable Landscapes in the North Atlantic Landscape Conservation Cooperative (LCC and University of Massachusetts Amherst—McGarigal et al.)*
  ➢ *Forecasting Streamflow (LCC and University of Massachusetts—Lecher, et al.)*
  ➢ *Landscape conservation design and synthesis of regional information for State Wildlife Action Plan Updates (LCC and Northeast States)*

Geography and Partners
The 2.7 million-acre Boundary Mountains landscape covers the upper Androscoggin and Kennebec watersheds, and the prominent Mahoosuc Range and High Peaks. It is the narrowest east-west "pinch point" in the 26 million-acre Northern Forest and lies adjacent to the Canadian border. The landscape includes a diverse mix of federal, state, local, and private conservation land, including Umbagog NWR. Partners include U.S. Fish and Wildlife Service, National Park Service, U.S. Forest Service, States of Maine and New Hampshire, Appalachian Mountain Club, The Wilderness Society, The Conservation Fund, Forest Society of Maine, Bethel Land Trust, Rangeley Lakes Heritage Trust, Northern Forest Center, Tri-County CAP, Quebec-Labrador Foundation, and myriad other partners.

Nature of Funding and Project Completion Date
TPL has committed $140,000 to develop the Boundary Mountains conservation plan with its multi-partner Technical Advisory Team. The requested $20,000 (a portion of the $60,000 FY 12 demonstration recommendation) will cover staff time of GIS technicians and time and expenses related to convening the

Technical Advisory Team. The funding will also be used to make the final products accessible so that we maximize the potential for education and replication. This includes public meetings with stakeholders within the Boundary Mountains region, presentations to interested parties from other geographies within the NALCC, and development of an online web mapping application so that interested parties can utilize the plan or review it for educational purposes. The Boundary Mountains conservation plan and associated public meetings and products will tentatively be finalized by the end of calendar year 2012.

Alignment with NALCC Demonstration Project Criteria

√ aligns with the Northeast Regional Conservation Framework
√ facilitates science translation, adoption, and delivery, including utilization of LCC-funded science tools
√ promotes multi-partner coordination at state and local levels
√ aligns project selection process with science project selection process
√ makes NALCC's work "real and tangible" for our conservation partners and other key audiences (e.g., municipalities, regional planning entities)
√ informs local conservation planning efforts, but does not advocate predetermined regulatory approaches