**(Draft)**

**Guidance for Core Team**

**Connecticut River Watershed Landscape Conservation Design Pilot**

**February 24, 2013**

**Purpose**

This document provides initial guidance for a core team to develop, test and implement a collaborative Landscape Conservation Design Pilot (Pilot) in the Connecticut River watershed.

**Objectives for the Connecticut River Landscape Conservation Design Pilot**

The objectives of the Pilot are twofold:

1. to demonstrate landscape conservation design in the Connecticut River watershed, using a collaborative process and products to help partners target specific strategies and actions to conserve ecosystems and the fish, wildlife and plants they support; and
2. to establish a process for conducting landscape conservation design in landscapes elsewhere within the region and beyond by learning from the Pilot, revising based on experience and partner input, and making it available for broad application.

**Scope of the Pilot**

The geographic scope of the Pilot is the **Connecticut River watershed**. The initial planning scope is focused on guiding **conservation** actions recognizing that recreation, sustainable economic development, and other socio-cultural considerations are important features of the landscape that must be incorporated in future iterations of landscape conservation designs. A range of available tools and information for **terrestrial, wetland, and aquatic systems**, and associated species, will be used in developing the design.

**Role of Core Team Members**

Core team members are expected to participate fully in the Pilot and represent the capacity, mission, priorities and expertise of their programs and organizations. They are expected to keep their organizations informed and seek participation, review, and input from colleagues as needed to further inform the Pilot process. There will likely be an extended team or teams that will include additional partners that are interested in being involved in particular stages of the process, or want to be regularly informed, and/or have specific expertise to contribute.

**Participants**

The initial core team will include conservation partners from federal and state agencies and private organizations working at various scales in the Connecticut River watershed. U.S. Fish and Wildlife Service (FWS) representatives will include staff from all resource programs (e.g. National Wildlife Refuges, Ecological Services, Fisheries, Migratory Birds, Wildlife and Sport Fish Restoration and Science Applications) who will participate and help facilitate the Pilot. FWS will coordinate with partner agencies and organizations and request participation through the North Atlantic Landscape Conservation Cooperative (LCC), Friends of the Silvio O. Conte National Fish and Wildlife Refuge, and other partnerships.

**Definition**

Landscape conservation design is a planning process and set of products to guide decisions for effectively conserving ecosystems and the fish, wildlife, and plants they support. Attributes of landscape conservation design include those listed below.

* **Multiple-scale**: assessments and planning at the scale of landscapes such as large watersheds or ecological regions are informed by larger (regional, national, range-wide) scales and inform actions at smaller (small watershed, community, refuge) scales.
* **Collaborative:** collaborative, partner-directed process for agreeing on objectives for a landscape and the actions needed to most effectively achieve those objectives.
* **Science-based**: uses the best available science and technology (including model-based approaches) to guide development and translation of information to support decisions.
* **Future-looking:** includes assessments of projected impacts of climate change and land use change on ecosystems and species.
* **Spatially-explicit:** results in maps and tools that target where to focus how much of what actions to achieve objectives.
* **Outcome-driven:** planning and tools are developed to achieve specific desired outcomes for ecosystems and species.
* **Iterative:** incorporates learning and feedback to improve future iterations
* **Conservation framework:** part of a conservation framework (such as Strategic Habitat Conservation) that links together planning, delivery and evaluation

**Proposed Landscape Conservation Design Approach**

Landscape conservation design options will be based on collaboratively setting objectives and working with University of Massachusetts (UMass) and LCC staff to model and integrate combinations of the conservation features below.

Species:

* Representative/Surrogate Species (at least 13 species representing more than 50 priority species); and
* Species not represented by surrogates – rare species and those with very unique habitat requirements

Ecosystems:

* Integral ecosystems based on the assessment of Ecological Integrity as part of the UMass/LCC *Designing Sustainable Landscapes* project and utilizing the Northeast Terrestrial Habitat Classification and Map developed for the northeast states and North Atlantic LCC by The Nature Conservancy;
* Resilient ecosystems based on geophysical attributes based on The Nature Conservancy’s *Resilient Landscapes* approach; and
* Local and regional connectivity

Landscape designs will be based on integrating these elements into one or more options that balance/optimize the extent and patterns (including core areas, buffer areas and connecting corridors) that can support these elements at the present time and in the future based on projections of future land use and climate changes.

The resulting designs will provide a template for habitat conservation (land protection, ecological restoration, and management) in the Connecticut River geography with a regional context – i.e. the potential contribution of the watershed conservation actions to regional objectives. Products will be provided as maps and electronic tools that can be customized by users.

**Deliverables**

Deliverables will include:

* Common conservation goals and objectives for ecosystems and species in the watershed collaboratively developed by partners;
* Information, maps, and tools that show landscape conservation design options for prioritizing how much of what conservation actions are needed where in the Connecticut River watershed to achieve objectives; and
* A process paper describing lessons learned that can be applied to landscape conservation design in other landscapes.

**Measures of Success**

Success has several components including those listed below. Additional measures of success should be developed by the core team.

* Agreement on common conservation goals and objectives for ecosystems and species in the Connecticut River watershed that are informed by watershed and regional priorities;
* The ability to refine and use science-based regional and landscape-scale information and tools to prioritize and make better conservation decisions, including identifying what priority strategies (including habitat protection, management, and restoration) would most efficiently achieve goals and objectives including biological outcomes for fish, wildlife, and plant species;
* Conservation design information that is understandable, accessible, useful, and available at scales and in formats needed by partners to guide conservation decisions, including at local scales;
* Conservation design tools and information that is used for planning and decision-making by National, State, and local agencies and organizations (e.g. used in developing National Wildlife Refuge Comprehensive Conservation Plans, National Forest Plans, State Wildlife Action Plans, local land trust planning, and city/town master plans);
* The ability of partners to assess their contribution towards common goals and objectives, and to better coordinate with others in the conservation community to implement strategies;
* The opportunity to learn and provide input on the Landscape Conservation Design process and products that increases the effectiveness of future planning and actions in the Connecticut River watershed, other landscapes in the region and across the LCC national network (participation by partners from other landscapes will enhance this component).

**Communications**

The core team will serve as lead messengers for communications to FWS and partner agencies, supported by communications staff from FWS Science Applications and External Affairs. Key products/actions will include:

* a website housing centralized information, stories, images, and multimedia;
* outreach and presentation materials for communicating to target audiences
* support for webinars and livestream broadcasts
* support and coordination for targeted partner/Congressional outreach

**Next Steps and Draft Timeline for Pilot Area Work (dates subject to change)**

* (January 2014) Identify FWS team members for Connecticut River pilot area and assign leader
* (January 2014) Initial individual and group calls or meetings with FWS staff and State Fish and Wildlife Directors
  + review charge
  + review existing partnerships and governance in the watershed
  + review available and soon-to-be available information
  + request participation
* (February – June 2014) Participation in collaborative and iterative Connecticut River watershed landscape conservation design process including the following steps:
  + Establish conservation goals for the watershed;
  + Develop goals and objectives for species and ecosystems;
  + Weight relative importance of species and ecosystems in the design;
  + Weight relative importance of current and projected future conditions in the design;
  + Review resulting landscape conservation design options that best meet conservation goals;
  + Decide on tools or subsets of information (e.g. conservation priority areas for land protection, ecological restoration and management) needed to make conservation decisions; and
  + Develop a process for sharing information
* (March – May 2014) Partner workshop(s) to get input on landscape conservation design and how to make tools more useful
* (June 2014) Interim report out on results to Service and LCC Steering Committee
* (July 2014) Final report out and recommendations for implementation across the Region

**Background**

Geography:  
The Connecticut River watershed includes portions of New Hampshire, Vermont, Massachusetts, Connecticut, Maine, and Canada. This geography is equivalent to the Silvio O. Conte National Fish and Wildlife Refuge legislated project area and encompasses about 7.2 million acres and about 400 miles of New England’s longest river. Stretching from northern New Hampshire and Vermont down through Massachusetts and Connecticut to Long Island Sound, it descends from the highest elevation in New England to sea level and includes tremendous diversity in elevation, latitude, and aspect.

This geography was selected for the pilot landscape design effort because the multi-species modeling tools and foundational habitat data layers are more complete and available than anywhere else in the region at this point in time and because of the strength of the existing partnerships in the watershed.

Strategic Habitat Conservation

In 2006, the U.S. Fish and Wildlife Service (FWS) adopted Strategic Habitat Conservation (SHC) as the agency’s conservation approach to achieve its mission in the face of broad-scale challenges such as climate change, development, urbanization, and habitat fragmentation. SHC is a framework that enables FWS and its partners to work more adaptively and strategically at the landscape scale and to measure progress toward desired biological outcomes. The FWS Northeast Region SHC Team met for several years (2008-2009) and articulated key steps for implementing SHC in the region, including steps for selecting a subset of priority species – termed representative species – as a key part of biological planning and conservation design. Another regional team subsequently developed and implemented a process with FWS staff and partners for selecting the first set of representative species.

In 2012, FWS national leadership developed draft guidance for SHC and asked that each region identify surrogate species (equivalent to representative species) as an important first step of SHC and seek feedback about SHC and surrogate species. The Northeast Region established a Conservation Design Team that conducted workshops throughout the region in the fall of 2012. In 2013, FWS leadership issued interim SHC guidance that asked that each region identify a landscape in their region, select a set of surrogate species for that landscape and develop objectives for these surrogate species. The Northeast Region has selected the Connecticut River watershed as that pilot landscape.

Landscape Conservation Cooperatives

In 2010, the Department of the Interior established 22 Landscape Conservation Cooperatives (LCCs) across the country - regional, self-directed, science management partnerships with the fundamental objective to define, design and help partners deliver landscapes that can sustain natural and cultural resources at desired levels nationwide. There are four LCCs partially or wholly in the Northeast Region. The North Atlantic LCC (based in the FWS Northeast Regional Office), working with the University of Massachusetts Amherst (UMass), developed the *Designing Sustainable Landscapes* approach for ecological assessment and landscape conservation design using selected representative species from the Northeast SHC team (along with complementary ecosystem approaches). UMass has now developed an initial set of *Designing Sustainable Landscapes* products for the Northeast Region, including representative species habitat models. A number of other LCC-supported assessment and design projects will directly support landscape conservation design (see list of these projects at the end of this document). The LCC, northeast states and other partners developed a common Northeast Conservation Framework to relate conservation science needs to an overall framework of planning, conservation delivery and evaluation based in part on Strategic Habitat Conservation (see above).

Regional Conservation Needs Program

Starting in 2006, Northeast State fish and wildlife agencies came together to develop the Regional Conservation Needs (RCN) program to address regional conservation challenges and to identify and prioritize needs that required coordinated action on a regional scale. This innovative program (www.rcngrants.org) is supported by a 4% contribution of State Wildlife Grant funds from each of the 13 Northeastern states that results in an annual grant opportunity to provide funding for projects that address regional conservation needs identified by the states. Several projects funded through the RCN process including regionally-consistent habitat maps and assessments will directly support landscape conservation design in the Northeast region and in the Pilot. Regional information will also provide regional context and information for updating State Wildlife Action Plans.

National Fish, Wildlife and Plants Climate Adaptation Strategy

In 2012, an intergovernmental working group of federal, state and tribal agency representatives completed this framework for climate change adaptation designed to enable decision makers to take action over the next 5-10 years to help living resources adapt to climate change. The first goal in the framework is to “Conserve habitat to support fish, wildlife, and plant populations and ecosystem functions in a changing climate.” The first strategy under that goal is to “Identify areas for an ecologically-connected network of terrestrial, freshwater, coastal, and marine conservation areas that are likely to be resilient to climate change and to support a broad range of fish, wildlife and plants under changed conditions.” Developing landscape conservation designs in the Connecticut River watershed and beyond will directly support that goal and strategy.

National Wildlife Refuge System Planning

In June 2013, the FWS National Wildlife Refuges Planning Implementation Team released a final report entitled “A Landscape-Scale Approach to Refuge System Planning.” The report recommends that refuges focus the next generation of planning on landscape conservation designs, developed by the greater conservation community through partnership in LCCs. Landscape conservation designs are consistent with SHC and are a partnership-driven conservation strategy that identifies desired future conditions and management prescriptions at multiple scales across jurisdictions. Developing Landscape Conservation Designs in the Connecticut River watershed and beyond will directly support this refuge planning approach.

Integrating These Approaches in a Pilot

In collaboration with partners, the FWS and North Atlantic LCC are ready to test the application of landscape conservation design tools by collaboratively implementing and learning from a Pilot in the Connecticut River watershed consistent with the goals of SHC, the LCCs, and the regional and national efforts listed above.

**Resources that will be available by winter 2014 to support Landscape Conservation Design in the Northeast Region and Connecticut River Watershed**

Regional Landscape Conservation Design - North Atlantic Landscape Conservation Cooperative

* *Designing Sustainable Landscapes* – UMass Amherst
  + Integrated landscape change; assessment and design model for species and ecosystems
  + Regional species-habitat availability/capability models for at least 13 Representative Species under current conditions (February 2014); 30 Representative Species habitat models by June 2014
  + Regional Ecological Integrity – the current condition of ecosystems (January 2014)
* Resilient landscapes, ecosystems and connectivity – The Nature Conservancy’s “conserving the stage” approach to climate resiliency, geophysical settings and connectivity
* Synthesis of Northeast Regional Species and Habitats – regional context for State Wildlife Action Plan updates
  + Over 70 regionally-consistent biotic (habitat classifications, habitat structural layers, etc.) and abiotic (geophysical features, climate, soils, etc.) spatial data layers from multiple sources
  + Point locations (275,000) for nearly 500 species of high regional concern and responsibility (Regional Species of Greatest Conservation Need – RSGCN)
  + Distribution models for a subset of these RSGCN species (February-March 2014)

Connecticut River Watershed

* Watershed and sub watershed-scale consistent biotic and abiotic spatial data as above
* Watershed and sub watershed-scale Representative Species habitat capability models for at least 10 species under current conditions and predicted future conditions considering development and climate change (February 2014)
* Watershed and sub watershed-scale Ecological Integrity – condition and intactness - under current conditions (completed) and predicted future conditions (Feb 2014)
* Downscaled climate data through 2080, two scenarios (completed)
* Urban growth models through 2080, two scenarios (February 2014)
* Landscape Conservation Design for prioritizing land acquisition, ecological restoration and habitat management. Optimization based on goals collaboratively defined in the Pilot
* Integration of available local data (e.g. Massachusetts BioMap2, Vermont BioFinder), SGCN/rare species, TNC resiliency, etc.
* Statistical evaluation of how well surrogate species represent the habitat needs of other species (March-May 2014).

**Other North Atlantic LCC projects that will support conservation planning and design**

*Forecasting Changes in Aquatic Systems and Resilience of Aquatic Populations in the NALCC: Decision-support Tools for Conservation* (brook trout) – flow and temperature models and initial brook trout occupancy models have been completed for Connecticut River Watershed, will be refined and expanded to broader areas in 2014

*Decision support tool to assess aquatic habitats and threats in North Atlantic watersheds and estuaries* (Downstream Strategies) – development phase may include model of river herring or other species for Connecticut River Watershed - completion January 2015

*Partners in Amphibian and Reptile Conservation Areas (PARCA) species habitat and climate niche envelopes for amphibian and reptiles in the northeast* – initial products available in December 2014

*Completing Northeast Regional Vulnerability Assessment Incorporating the NatureServe Climate Change Vulnerability Index* – reports complete end of August 2013

*Evaluation of Sea-level Rise Impacts of the Atlantic Coast* (Northeast Climate Science Center) Available January 2014