

National Wildlife Refuges: Portals to Conservation

Joseph F. McCauley

Region Five Chief of Realty,
National Wildlife Refuge
System, U.S. Fish and Wildlife
Service, Hadley, MA

Abstract: Scientific uncertainty regarding the potential effects of climate change on natural ecosystems will make it increasingly challenging for the National Wildlife Refuge System to fulfill its mission to conserve wildlife and fish habitat across the diverse ecosystems of the United States. This is especially true in the contiguous 48 states, where 70 percent of the land and water resources are in private ownership. One answer is to employ science-driven landscape planning and design, establish refuge boundaries defined by those of major watersheds or ecological regions, and then use our presence in communities to encourage and deliver land conservation and habitat improvement on both private and public lands. Refuges thereby become a portal to conservation for private landowners who can really make the biggest difference in the long-term sustainability of wildlife and their habitats. This paper summarizes results from using this approach in the Connecticut River watershed, and its potential value in supporting public-private habitat conservation strategies adapted to a changing climate.

INTRODUCTION

The National Wildlife Refuge System (Refuge System) is among the largest, most diverse collection of lands and waters in the United States, dedicated primarily to the conservation of fish, wildlife and their habitats (USFWS 2011). The Refuge System had its beginnings at Pelican Island in Florida, when in 1903 President Theodore Roosevelt set aside a 5-acre mangrove swamp for breeding pelicans. Since then, the Refuge System has grown to encompass more than 560 units, totaling over 150 million acres, in every state and territory of the Nation. The Refuge System protects wildlife habitats from the Arctic to the Florida Keys, and from Maine's coastal islands to the desert Southwest. Considerable investments continue to be made in the prairie pothole region, which produces millions of ducks each year and where energy exploration and high commodity prices threaten dwindling grasslands and wetlands. Threatened and endangered species like the manatee, piping plover, whooping crane and nearly 300 other species facing potential extinction can be found on national wildlife refuges. The Refuge System provides habitat to more than 700 species of birds, 220 mammals,

250 reptiles and amphibians, and more than 1,000 fish species (USFWS 2011). Nonetheless, the Refuge System alone cannot conserve the habitat necessary to sustain fish and wildlife populations of the United States. In fact, because many refuges have unprotected land within their acquisition boundaries it would take another 100 years just to fill out existing refuge boundaries, given the rate of land acquisition over the last decade (USFWS unpublished data).

The total area protected by refuges in the lower 48 states is about 18 million acres. This represents less than 1% of the total area of lands and waters in the contiguous United States. Since 70% of these total lands and waters are in private ownership (USDA 2002), private landowners are key to successfully sustaining fish and wildlife populations.

Adding to this the impacts of climate change it becomes clear that new strategies must be employed if the Refuge System is to meet its 1997 mandate from Congress “to contribute to the conservation of the ecosystems of the United States” through the National Wildlife Refuge System Improvement Act (U.S. Congress 1997, P.L. 105-57). In response, the U.S. Fish and Wildlife Service (FWS) developed several collaborative approaches to conserve fish and wildlife habitat at a landscape scale: employing the concept of Strategic Habitat Conservation (SHC), encouraging development of Landscape Conservation Cooperatives, and working within communities to encourage local involvement and action. This paper provides brief summaries of these strategies and uses the Silvio O. Conte National Fish and Wildlife Refuge to demonstrate the success that is possible by working with communities within large refuge boundaries.

STRATEGIC HABITAT CONSERVATION

The SHC model begins with science-driven landscape assessments, planning and design, incorporating predicted changes in land use, human population growth, climate and other factors that impact fish and wildlife populations over time. The scale of landscapes used for planning and design purposes vary, but typically reflect the combination of abiotic and biotic factors that create similarities in habitats and corresponding wildlife use. Landscape design begins by identifying conservation features (such as priority habitats and species), and targets for these features, which may also help define the geographic scope of the project area. Once conservation objectives are established, such as species population objectives, limiting factors are analyzed including stressors from predicted climate change. Models and maps are developed around the conservation targets, prioritizing areas and actions needed based on life history analyses and incorporating uncertainty. Implementation is done through collaboration with partners including migratory bird joint ventures, state natural resources agencies, other federal agencies, tribes, non-profit organizations, hunters, anglers and landowners to develop strategies to address the limiting factors. These collaborative actions necessitate standardized protocols for inventorying and monitoring the effects on populations and habitats, and are essential to document success and failure, and to develop research needed to fill information gaps, and further refine techniques. The answers found through rigorous analysis of these actions in turn refine landscape design, and the process continues.

THE EVOLUTION OF COLLABORATIVE PARTNERSHIPS

A fundamental tenet of modern conservation practice is that collaboration is essential to achieve success in conserving natural resources. There are many local, regional and national examples of

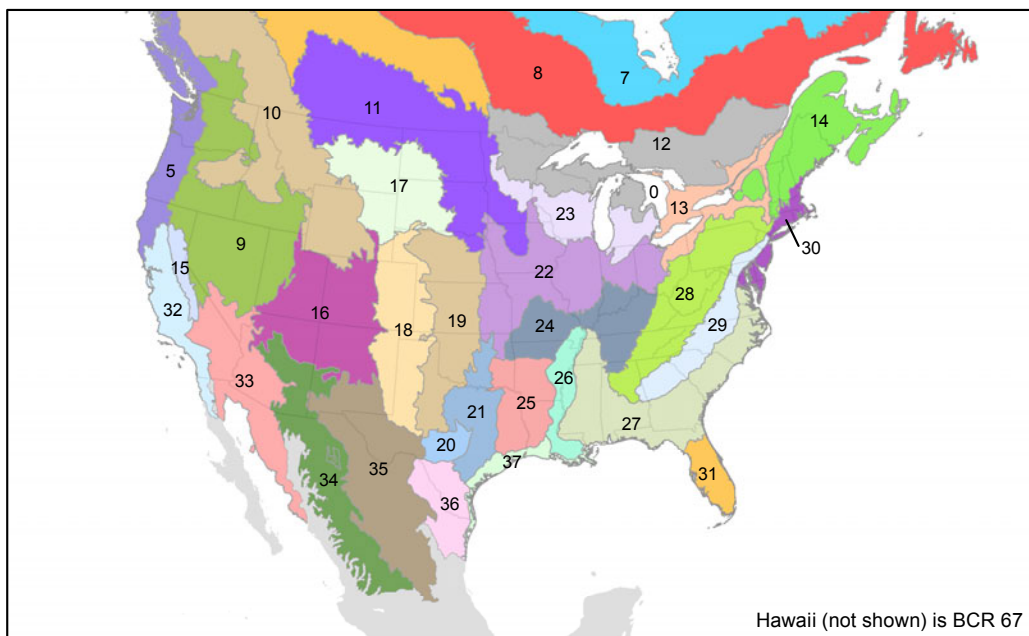
partnerships that have achieved great success in protecting, managing, enhancing and restoring lands and waters to benefit fish and wildlife. It is important to keep innovating and expanding our collaborative efforts, particularly considering climate change. Climate change requires us to reconsider concepts such as managing for “historic conditions,” an approach espoused by many land management agencies, and by FWS as recently as 2001. FWS policy on “biological integrity, diversity, and environmental health” of the Refuge System (2001) defines “historic conditions” as “composition, structure, and functioning of ecosystems resulting from natural processes that we believe, based on sound professional judgment, were present prior to substantial human related changes to the landscape.” Though the policy is still in effect, it is widely recognized that revisions are necessary to acknowledge that achieving habitat conditions present before the industrial revolution will not be possible as a changing climate influences many ecological processes for which we have no definitive solutions. There is no precedent for what we are experiencing, making innovation, experimentation and collaboration more critical now than ever before.

Joint Ventures—One of the best examples of collaborative landscape conservation is the North American Waterfowl Management Plan (NAWMP). For decades the NAWMP has promoted Joint Ventures, self-directed partnerships that worked within specific geographic boundaries to implement the plan by conserving habitat for waterfowl. The success of this model prompted the evolution of joint ventures that incorporated the full suite of bird species into their conservation partnerships. The North American Bird Conservation Initiative (NABCI) was formed in 1998, and established in Bird Conservation Regions (BCR) that spanned North America, with ecologically based geographic boundaries.

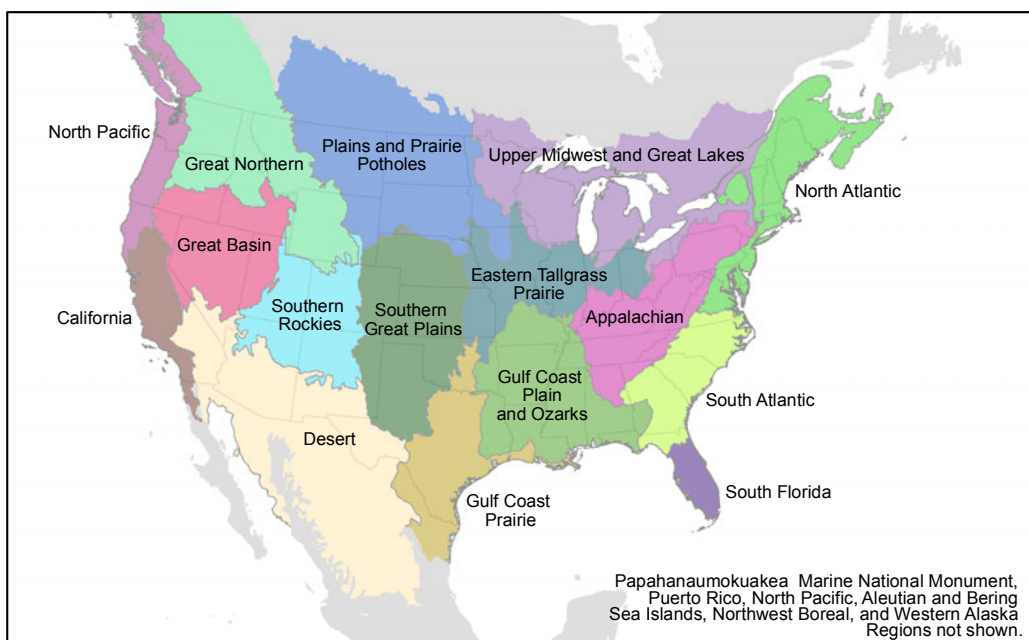
Landscape Conservation Cooperatives—Joint ventures were cutting edge in the 1990s, using modeling and GIS technology effectively to design and plan conservation actions at the landscape scale. The efforts of the joint ventures did not go unnoticed by leadership within the FWS. The late Sam Hamilton, then Director of the FWS, was prominent among those who recognized the joint venture model—using self-directed partners and current technology, and science-driven methodologies, to develop decision support tools—was the wave of the future. The Bird Conservation Regions, with their underlying, ecologically based geographic framework, helped provide the basis for what came next: addressing all species and incorporating climate change impacts through establishment of 22 Landscape Conservation Cooperatives (LCC) across the United States and adjacent parts of Canada and Mexico, based on an amalgamation and modification of BCR boundaries (see figure 1).

As described in the FWS’s publication, *Rising to the Urgent Challenge: Strategic Plan for Responding to Accelerating Climate Change* (2010), LCCs are “formal partnerships between Federal and State agencies, Tribes, non-government organizations, universities and others to share conservation science capacity (including staff) to address landscape scale stressors, including habitat fragmentation, genetic isolation, spread of invasive species, and water scarcity, all of which are accelerated by climate change. LCCs are envisioned as the centerpiece of the Service’s and the Department of the Interior’s (via Secretarial Order 3289) informed management response to climate change impacts on natural resources.” These 22 LCCs are developing collaboratively and starting to deliver landscape conservation science to guide conservation decisions, including landscape designs to prioritize refuge acquisitions.

Bird Conservation Regions and Landscape Conservation Cooperative Boundaries



Bird Conservation Regions



USFWS Landscape Conservation Cooperatives

Figure 1. Bird Conservation Regions and Landscape Conservation Cooperatives (LCC) across the United States

BRINGING IT TO GROUND TO SAVE DIRT

This historical perspective is important to understand the major changes occurring within the National Wildlife Refuge System. The development of the SHC model and LCCs will provide decision support tools for conservation at multiple scales. This will allow refuge managers to look beyond their boundaries and make decisions on land protection and management that will make the greatest contributions to conservation in the landscapes. This has not always been the case, and only with the recent approaches and technological advances have managers had the information necessary to understand refuges' role within their larger landscapes.

The real revolution however, is the way in which refuge boundaries are being created and the extended reach refuges can have within communities inside and adjacent to refuge boundaries. In the past, refuge boundaries were typically drawn around concise areas that were identified by the FWS and conservation partners, as having particular value in achieving the mission of the Service and Refuge System. Boundaries were carefully drawn to exclude developed areas or other areas that did not contain important wildlife habitat. The FWS then worked with willing sellers, as land acquisition budgets allowed, to protect all the lands and waters within the boundary. This model served the NWRs well for 100 years, protecting habitats for breeding, migrating, and wintering birds, threatened and endangered species, and big game. Advances in landscape ecology and conservation biology, coupled with advances in remote sensing and other technologies, eventually began to shape the way that the FWS established refuge boundaries. A refuge that epitomizes the new landscape approach to refuge boundary establishment in the FWS Northeast Region is the Silvio O. Conte National Fish and Wildlife Refuge in Connecticut, Massachusetts, Vermont and New Hampshire.

Silvio O. Conte National Fish and Wildlife Refuge—The Conte refuge was established in 1997. Like all refuges, it was not considered to be “established” until the first tract of land was acquired. The idea of the Conte refuge originated much earlier, when in 1991, Congress passed Public Law 102-212, the Conte Refuge Act, in honor of the late Congressman Silvio O. Conte of Massachusetts. Rep. Conte introduced the bill before his death in 1991 and envisioned a Connecticut River restored to its former stature, with clean water, abundant fish and wildlife populations, and a resource for all to enjoy, and from which to derive sustainable economic benefits. The goals of the Conte Refuge Act were as follows:

- Conserve, protect and enhance the Connecticut River watershed populations of Atlantic salmon, American shad, river herring, shortnose sturgeon, bald eagles, peregrine falcons, osprey, black ducks, and other native species of plants, fish and wildlife;
- Conserve, protect and enhance the natural diversity and abundance of plant, fish and wildlife species and the ecosystems upon which these species depend within the refuge;
- Protect species listed as endangered or threatened, or identified as candidates for listing, pursuant to the Endangered Species Act of 1973, as amended;
- Restore and maintain the chemical, physical and biological integrity of wetlands and other waters within the refuge;
- Fulfill the international treaty obligations of the United States relating to fish and wildlife and wetlands; and

- Provide opportunities for scientific research, environmental education, and fish and wildlife-oriented recreation and access to the extent compatible with the other purposes stated in this section.

The Connecticut River runs 400 miles, from the Canadian border to Long Island Sound. Its watershed encompasses 7.2 million acres. The planners charged with putting Rep. Conte's vision into practice faced some significant challenges: never before had the FWS attempted to positively influence conservation across an entire watershed of the magnitude of the Connecticut River, involving four states, and hundreds of municipalities.

They began by talking to people. Beginning in 1993, the FWS held more than 130 meetings across the watershed, including 27 public meetings. Workbooks were distributed to solicit ideas, opinions and concerns on important topics such as agriculture and forestry, biological resources, local economies, environmental education, public use and access, and water use and water quality. The information gained was incorporated into a Draft Environmental Impact Statement (EIS), which was issued for public review and comment in May of 1995. The FWS' proposed action centered around 4 major themes:

- land protection (public and private);
- working with private landowners on voluntary conservation projects;
- increasing environmental education efforts and programs; and
- developing and maintaining partnerships to achieve mutual conservation goals.

Another extensive outreach effort then occurred during the public comment period, with more formal and informal meetings and sessions held in 16 communities across all four states. The Final EIS and Action Plan was completed in October 1995, and on October 3, 1997, the refuge was formally established with the donation of a 3.8-acre island by the Connecticut River Watershed Council. It is fitting that an island, surrounded by the waters of the Connecticut, was the refuge's first acquisition, and even more so that it was donated by a watershed organization, for the Northeast Region's first watershed refuge.

For its 110-year history, the Refuge System has been a land-based network. To be established as a national wildlife refuge, there had to be an interest in land, which could include fee title, conservation easement, or lease. There are currently no virtual refuges, where the FWS has a presence, promoting and demonstrating conservation, but no land interest. That concept may be changing, as the FWS implements the recommendations of, *Conserving the Future*, the 2011 vision document for the Refuge System. It calls for the FWS to make the Refuge System and its message of conservation more relevant to diverse cultures and ethnicities, with a focus on urban areas. This may result in the presence of refuge themes within urban partnerships that do not require FWS land ownership. Three of the five alternatives evaluated in the Conte refuge's EIS did not include land protection by the FWS. The alternative selected did include FWS land protection, but not in a traditional way.

Land protection—The 7.2 million-acre boundary of the Conte refuge differs from a traditional refuge acquisition boundary in that it authorizes FWS land acquisition only within designated areas of the watershed. In the final EIS, the FWS identified 48 Special Focus Areas plus smaller

sites that contain “important, scarce and vulnerable wetlands and scattered rare species sites” (USFWS 1995). It is within these areas that the FWS is authorized to negotiate with willing sellers to purchase interests in land, including conservation easements, and accept donations of land. Even within the Special Focus Areas, the FWS’s authority is limited. The area encompassed by the Special Focus Areas is approximately 180,000 acres. The FWS has established its authority to protect up to 97,510 acres, with the expectation that partners will protect additional land within the Special Focus Areas. As of September 30, 2012, the FWS had protected 35,525 acres as part of the Conte refuge.

The criteria for inclusion as a Special Focus Area included the following:

- Habitat for federally listed (endangered, threatened or candidate) species;
- Habitat for a number of rare species and/or rare or exemplary natural communities;
- Important fisheries habitat;
- Important wetlands;
- Habitat for waterbirds (waterfowl, herons, rails);
- The potential to protect a substantial area of contiguous habitat for declining area-sensitive species;
- Large blocks of unusual habitat type; and
- Landbird breeding and migratory stopover habitat.

Today we have more information and better decision support tools to identify priority areas for protection, but in 1995 these criteria represented our best effort to insure that Federal funds were applied to the most critical areas. Even if the FWS reached its target of protecting 97,510 acres within the Special Focus Areas, it is unlikely that would be sufficient to achieve the vision that Silvio Conte had for the Connecticut River. However, direct land protection by the FWS was only one of the four major themes included in the Final Conte Refuge EIS. The other three centered around working with private landowners on conservation projects, environmental education and partnerships. The successful implementation of all four themes will provide the greatest chance for a healthy and sustainable watershed. Land protection however, is essential and is the cornerstone that leads to communication and collaboration.

Working outside the boundary—Figure 2 shows the focus areas where the Conte refuge’s land holdings occur. The circles around the properties represent a 25-mile radius from those lands, incorporating the area where the refuge has the most direct presence and influence on conservation. When the FWS obtains an interest in land and assumes stewardship responsibilities for that land, it becomes a stakeholder in that community. That requires the FWS to look around at adjoining lands and land uses to understand how to best protect the conservation investment that has been made. It could involve discussions with landowners about their willingness to sell additional lands to the FWS, because larger amalgamations of land holdings facilitate conservation and management, but landowners are often equally protective of their investments. The focus areas FWS has identified contain not only important wildlife habitats but also some of the most beautiful and high-value recreational areas. Lands adjacent to water, wetlands and large forested blocks are attractive to wildlife and people. It is therefore understandable that an adjoining landowner may not be interested in selling, and this interests presents opportunities.

U.S. Fish and Wildlife Service
Silvio O. Conte National Fish and Wildlife Refuge

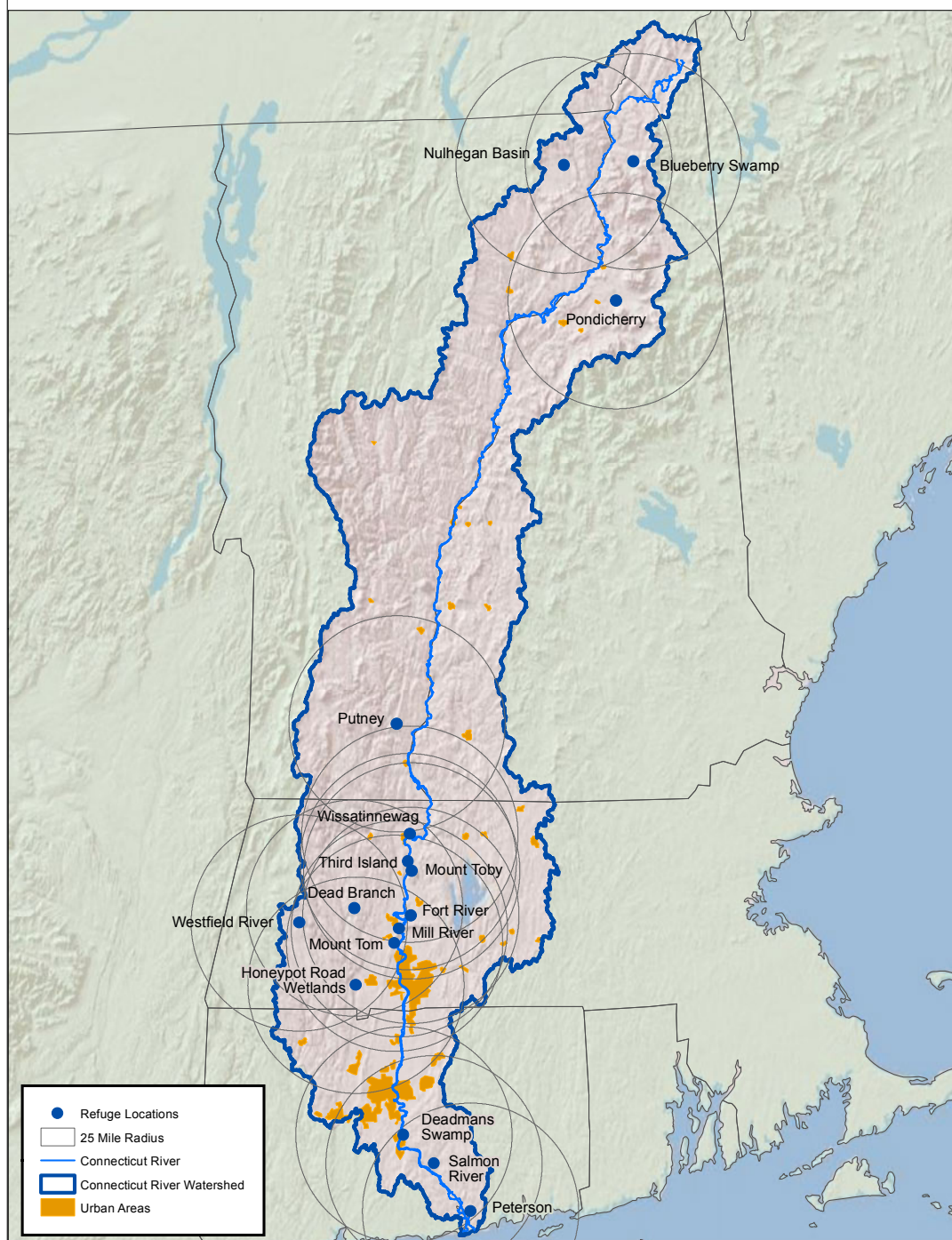


Figure 2. U.S. Fish and Wildlife Service Silvio O. Conte National Fish and Wildlife Refuge.

People who value their land are often interested in knowing more about it and how they can make it more attractive to wildlife. They may appreciate technical advice on invasive species control, or information on plants that may provide food or cover for wildlife. For more intensive projects, like restoring a drained wetland, they may seek financial assistance in the form of a grant where the costs of the project are shared by those with mutual interests. There are incentive programs for landowners from the FWS, including the Partners for Fish and Wildlife program and the many coastal program offices. In addition, the FWS works closely with United States Department of Agriculture (USDA) in all four states of the Connecticut River Watershed to help implement cost sharing programs, such as Forest Legacy and the many programs offered by the Natural Resources Conservation Service (NRCS). The Conte refuge has memoranda of understanding with NRCS in each of the four states to share resources toward achieving mutual objectives in working with private landowners.

The process for applying and navigating various requirements can be daunting for many people. The NRCS has staff to assist landowners, but like all federal agencies, they are stretched thin. The Conte refuge recognized that personal contacts with landowners can mean the difference between an idea or desire for a conservation project and actually accomplishing it. In October 2011, the refuge combined resources with NRCS to hire a biologist on a term appointment to work directly with private landowners and partners to coordinate what can be complex processes.

One current project being coordinated by the refuge involves working with NRCS, the U.S. Department of Transportation, Federal Emergency Management Agency, Trout Unlimited (TU),

The Nature Conservancy, and American Rivers to inventory road crossing culverts and dams on public and private lands that may be negatively impacting fish passage or stream health. Many culverts are improperly sized or perched above the streambed, causing erosion and inaccessibility to spawning grounds. Obsolete dams are another obvious impediment to fish passage.

On the Kinne River in Chester, Massachusetts, the refuge coordinated with NRCS, TU and the State to assist a private landowner in removing a six-foot concrete dam. Problems with this dam became apparent during Hurricane Irene, as did many other issues involving small streams in New England. The refuge helped coordinate permitting requirements, funding and contracting for the dam removal, providing the extra effort that made the project a reality. Phase two of this project will involve replacing two improperly sized culverts to open up more than five miles of stream to native brook trout.

Another example of a successful program started by the refuge with an eye toward private lands is its “Adopt-a-Habitat” initiative. The program is intended to establish long-term relationships that will spur schools, organizations and individuals (adults and youth) to adopt and manage local areas within the watershed. Program participants will manage public and private land in order to promote healthy habitat for plants, wildlife and people. The Adopt-a-Habitat initiative offers an opportunity to accomplish more for wildlife and habitat on lands not governed by FWS. In the process, relationships are established and a commitment to wildlife and habitat is fostered, making the FWS and the refuge more relevant to the public.

Environmental education and the WOW Express—The outreach and offers of collaboration from the Conte refuge extend far beyond adjoining landowners. The Connecticut River watershed is

home to approximately 2.4 million people, from urban dwellers to corporate interests that control tens of thousands of forested acres. Maintenance of watershed health and vitality is a long-term process and commitment. As promised during establishment of the refuge, environmental education remains an important aspect of the refuge's work in the nearly 400 communities that exist within the watershed. In his book, *Last Child in the Woods* (2005), Richard Louv investigates the relationship between children and nature, past and present, and highlights the potential negative health effects that result from the separation of young people from their natural environments. There are also implications for the future of land conservation as the youth of today become the decision-makers of tomorrow.

The Conte refuge has specific goals to provide opportunities for teachers, students and others to explore and learn about wildlife and their habitats, both on and off the refuge. On-refuge, they have built fully accessible interpretive trails with site-specific information about habitats and related wildlife use and conservation. These and other sites also serve as wildlife observation trails, platforms for nature photography, access for hunting and fishing, and sites for structured environmental education. The refuge has also created an innovative tool to help educate and inform people of all ages about the concepts of conservation, ecology and ecosystem services across the entirety of the watershed.

The Watershed on Wheels, or WOW Express, is a traveling exhibit designed to engage children of all ages in the beauty and wonder of the Conte refuge. It includes three engaging components: a walk-through immersion exhibit featuring the diverse sights and sounds of plants and animals from habitats found in the Connecticut River watershed; a watershed table showing how rivers form and change; and seven interactive kiosks exploring the cultural, economic and environmental significance of the watershed the Conte refuge seeks to conserve. The WOW Express travels to schools and natural resource-related fairs, festivals, and conferences throughout the four states of the watershed.

From April 2012 to July 2013, the WOW Express visited more than 70 communities. The more structured environmental education visits touched nearly 4,000 students and 377 teachers from 30 schools in the four states. Including visits to summer camps and more than 50 special events, the WOW Express reached more than 18,500 people across the watershed in the most recent 11-month period when it was most active. Most staffed refuges in the Refuge System offer opportunities for environmental education and interpretation, but few can match the reach of the Conte refuge both in terms of geography and population.

Partnerships—Developing partnerships to achieve mutual objectives is now ubiquitous in the NWRS and almost every staffed refuge in the System can point to a successful partnership that they help facilitate. The breadth and depth of partnerships that the Conte refuge has inspired in a short time is stunning.

Some partners, such as the Connecticut River Watershed Council, predate the Conte refuge in their efforts to promote conservation at the watershed scale. However, even these more advanced initiatives benefit from the elevation of the area to national status via inclusion within the Refuge System. What is most impressive is that partners with a diversity of interests have found common ground within the watershed and coalesced around the refuge. The Friends of Silvio O. Conte National Fish and Wildlife Refuge is a coalition of more than 40 groups, representing

Audubon chapters, local, regional and national land trusts, fisheries interests, outdoor recreationists, museums, farming interests and all levels of government. Each member has gravitated to the refuge as a galvanizing force for watershed conservation, each seeing their own interests being advanced by joining forces with others, under the mantle of a national wildlife refuge. In October 2013, the refuge Friends group was awarded the FWS National Land Protection Award at the Land Trust Alliance rally for their efforts.

LOOKING TO THE FUTURE

The Conte refuge provides not only an example of the evolution and innovation of the National Wildlife Refuge System, but also shows where the Refuge System is heading. The refuge's Comprehensive Conservation Plan is nearing completion, with an expected final plan due in 2014. Among the issues being addressed in the plan are a re-examination of land protection goals and a re-emphasis on other major themes of cooperatively working with private and other public landowners, focusing on environmental education and maintaining and expanding partnerships. These efforts are augmented by projects from the North Atlantic Landscape Conservation Cooperative (NALCC).

The NALCC is in the second phase of a project entitled *Designing Sustainable Landscapes*. This project is designed to support the overall goals of the NALCC, which are as follows:

- (1) Assess the current capability of habitats in the NALCC to support sustainable populations of wildlife;
- (2) Predict the impacts of landscape-level changes (e.g., from urban growth, conservation programs, climate change, etc.) on the future capability of these habitats to support wildlife populations;
- (3) Target conservation programs to effectively and efficiently achieve objectives in State Wildlife Action Plans and other conservation plans and evaluate progress under these plans; and
- (4) Enhance coordination among partners during the planning, implementation and evaluation of habitat conservation through conservation design.

This modeling framework will ultimately allow LCC partners to assess landscape change, analyze changes in ecological integrity and habitat capability for representative species, and identify priorities for land protection and conservation priorities for existing conservation lands. This effort is being piloted in three places in the Northeast Region, including the Connecticut River Watershed and will be available across the region by July, 2014. The LCC is also working to deliver the information and tools from this and other projects to partners at regional, state and local levels. National wildlife refuges can play a key role by working with partners to utilize this conservation planning information in their landscapes.

While much of the work of the LCCs will help inform refuge managers, land protection planners, state partners, and other organizations, it will also provide important tools to inform conscientious private landowners. As the skepticism about the reality and potential impacts of climate change diminishes with continued evidence, landowners will want more information. They need to know whether to expect drought or deluge, about which plants will persist on their properties, and how rising sea levels and more intense storms will affect shorelines. Through LCCs

and other cooperative entities, this information will be widely disseminated, but where we have national wildlife refuges, the information has a better chance of being used to benefit fish and wildlife and their habitats.

New national policies developed by the FWS will directly affect the way that land protection occurs within the National Wildlife Refuge System. A new Strategic Growth Policy (in draft at this time) proposes to sharpen the focus of future refuge land acquisitions on three primary conservation targets: declining migratory birds, threatened and endangered species, and waterfowl. New land protection planning policies are also under development that would require landscape conservation designs to be produced before any new refuge establishment or major expansion. The landscape designs now being developed by the NALCC through their *Designing Sustainable Landscapes* initiative, that incorporate climate change impacts and other predicted stressors of wildlife and the environment, are examples of what the FWS is promoting nationwide. A new prioritization tool is under development to help allocate annual funding for refuge acquisitions. What all these initiatives have in common is that they employ the SHC principles at a landscape scale and the realization that we must focus our limited resources in the most strategic way to sustain vulnerable wildlife, and remain relevant to the American people in the Anthropocene.

CONCLUSION

Over its 110-year history, the Refuge System has adapted and responded to wildlife exploitation, the Dust Bowl, pending extinctions, disease, and other environmental catastrophes. Compared to climate change, these stressors were obvious and measureable over a relatively short time span. Fortunately, improvements in our understanding of landscape ecology and conservation biology, combined with incredible advances in technology and advanced modeling capability, provide hope for the future. FWS policies are catching up and provide blueprints for success. Of the last 10 national wildlife refuges established, five have boundaries of more than 700,000 acres. The Conte refuge demonstrates what is possible: working with partners to identify and protect the best habitat, connecting with people to help them help wildlife, inspiring the next generation of decision-makers, and doing it in manner that fosters communication and collaboration.

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