

Appendix M



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Puritan tiger beetle

Conservation Plans and Initiatives Guiding the Development of the CCP

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Introduction

We considered the conservation goals and objectives of existing Federal trust resource plans and regional ecosystem plans that relate to CT River watershed to help determine how the Silvio O Conte National Fish and Wildlife can best contribute to species conservation and ecosystem function, while also achieving its legislative purposes. To the extent practicable, we will be consistent with respective states' fish and wildlife conservation plans, and the conservation programs of Tribal, public, and conservation partners within the watershed. Regional and state outdoor recreation plans were also considered. The following plans were reviewed and considered during development of the Silvio O. Conte Refuge Final CCP/EIS goals and objectives.

Migratory Birds

North American Bird Conservation Initiative (NABCI)

North American Bird Conservation Initiative (NABCI) is a continental partnership initiative to integrate and effectively implement existing and emerging, international, national, and regional bird conservation plans. NABCI originated in 1998 from the Commission for Environmental Cooperation (CEC), an international organization created by Canada, Mexico and the United States under the North American Agreement on Environmental Cooperation (NAAEC). The CEC was established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and promote effective enforcement of environmental law. The NAAEC complements the environmental provisions of the North American Free Trade Agreement (NAFTA) (<http://www.nabci-us.org/main2.html>; accessed August 2016).

In 1999, a NABCI Committee was formed in the U.S, representing a coalition of government agencies, private organizations, and bird initiatives working to advance integrated bird conservation based on sound science and cost-effective management that will benefit “all birds in all habitats.” The NABCI Committee is a forum of government agencies, private organizations, and bird initiatives helping partners across the continent meet their common bird conservation objectives. The NABCI Committee’s strategy is to foster coordination and collaboration on key issues of concern, including coordinated bird monitoring, conservation design, private land conservation, international conservation, and institutional support in state and Federal agencies for integrated bird conservation.

NABCI strives to integrate the individual bird conservation plans discussed below within regionally specific areas—Bird Conservation Regions (BCRs). Integration usually involves creating an integrated BCR plan based upon the separate plans noted below; these plans outline conservation (habitat and species) priorities, implementation, and evaluation. BCRs are ecologically distinct regions in North America with similar bird communities, habitats, and resource management issues. There are 37 BCRs across North America. Priority species are designated in a similar fashion in each BCR, based on their level of concern in continental conservation plans, regional “step-down plans,” the importance of the BCR to their continental or global distribution (i.e., the BCR responsibility), and the perceived level of threat to the species and/or their habitat within the BCR.

The primary purposes of BCRs, as proposed by the mapping team in 1998 and approved in concept by the US Committee in 1999, are to:

- Facilitate communication among the bird conservation initiatives.
- Systematically and scientifically apportion the US into conservation units.
- Facilitate a regional approach to bird conservation.
- Promote new, expanded, or restructured partnerships.
- Identify overlapping or conflicting conservation priorities.

The Connecticut River watershed and the Conte Refuge are part of two BCRs: Atlantic Northern Forest (BCR 14) and the New England Mid-Atlantic Coast (BCR 30).

Blueprint for Design and Delivery of Bird Conservation in the Atlantic Northern Forest (BCR 14).

BCR 14 generally covers the northern half of the watershed, largely Vermont and New Hampshire, and encompasses almost all of Maine. It contains 10 Globally Important Bird Areas (IBAs), three of which occur within the Connecticut River watershed. The BCR implementation plan, or “blueprint” for “all bird conservation” identifies several priority habitats found within the bounds of the Refuge including: freshwater lakes, palustrine emergent marshes, forested wetlands, deciduous forests, coniferous forests, mixed forests, shrub/scrub early successional forests, and grasslands. Several of the highest priority birds are found in the watershed: American woodcock, bay-breasted warbler, Bicknell’s thrush, American black duck, Canada warbler, and wood thrush.

We used this plan to help identify priority bird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to birds. The draft plan for BCR 14 is posted on the Atlantic Coast Joint Venture Web site at: http://www.acjv.org/documents/bcr14_blueprint.pdf (accessed August 2016).

New England/Mid-Atlantic Coast (BCR 30)

This largely coastal BCR extends from lower Maine to the tidewater areas of Virginia along the Atlantic Coast, and includes much of the lower Connecticut River watershed in Massachusetts and Connecticut. There are 35 IBAs within this BCR, although none exist within the largely urbanized lower Connecticut River watershed. Habitat loss and fragmentation is the principal threat to all habitats in this BCR. Coastal marshes and mature forests are the highest priority habitats in this BCR. Another concern is declining habitat quality, particularly in salt marshes, early succession, forested habitats, and wetlands. Invasive plants are an existing and growing threat to habitat integrity. Predation is a concern throughout the BCR for beach-dependent species and coastal marsh-dependent birds such as breeding waterfowl, shorebirds, terns, and rails. Highest priority birds in this BCR include the American black duck, American oystercatcher, red knot, ruddy turnstone, sanderling, American woodcock, semipalmated sandpiper, dunlin, black rail, blue-winged warbler, piping plover, prairie warbler, wood thrush, saltmarsh sparrow, Nelson’s sparrow, and seaside sparrow.

We used this plan to help identify priority bird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to birds. The BCR 30 final plan is available at: http://www.acjv.org/BCR_30/BCR30_June_23_2008_final.pdf (accessed August 2016).

North American Waterbird Conservation Initiative and Plan (2006)

The Waterbird Conservation for the Americas initiative (Waterbirds initiative) is an independent, international, broad-based, and voluntary partnership created to link the work of individuals and institutions having interest and responsibility for conservation of waterbirds and their habitats in the Americas. Waterbirds are species that are dependent on aquatic habitats to complete portions of their life cycles. Waterbirds covered by this initiative include 209 species known commonly as seabirds, coastal waterbirds, wading birds, and marshbirds.

We used this plan to help identify priority waterbird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to waterbirds. For more information on the initiative, visit: <http://www.waterbirdconservation.org/> (accessed August 2016).

Birds of Conservation Concern (BCC)–U.S. Fish and Wildlife Service (2008)

Birds of Conservation Concern (BCC) 2008 identifies the bird species, beyond those already designated as federally threatened or endangered, that are the highest conservation priorities for the U.S. Fish and Wildlife Service (USFWS 2008). The report covers three different geographic scales: the entire United States, including island “territories” in the Pacific and Caribbean; U.S. Fish and Wildlife Service Regions; and Bird Conservation Regions (BCRs), as defined by the North American Bird Conservation Initiative (NABCI). It is primarily derived from three major bird conservation plans:

1. The Partners in Flight (PIF) North American Landbird Conservation Plan.
2. The U.S. Shorebird Conservation Plan.
3. The North American Waterbird Conservation Plan.

All three of these bird conservation plans identify species of concern based on several factors, including population trends, threats, distribution, abundance, and relative density. We used this report to help identify

bird species of conservation concern for Conte Refuge. The report is available online at: <https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf> (accessed August 2016).

North American Waterfowl Management Plan (NAWMP)

During the 1980s, recognizing the importance of waterfowl and wetlands to North Americans and the need for international cooperation to help in the recovery of a seriously declining wildlife resource, the U.S. and Canadian governments, and later Mexico, developed a strategy to restore waterfowl populations through habitat protection, restoration, and enhancement. The North American Waterfowl Management Plan was originally written in 1986, and revised in 1998 and 2004, envisioned a 15-year effort to achieve landscape conditions that could sustain continental waterfowl populations. This plan outlined a strategy among the signatory countries to protect North America's remaining wetlands and to restore waterfowl populations through habitat protection, restoration, and enhancement. The 2004 Plan establishes a new 15-year planning horizon for waterfowl conservation in North America by assessing the needs, priorities, and strategies required to guide waterfowl conservation in the 21st Century. The 2004 Plan can be accessed online at: http://www.acjv.org/documents/nawmp_2004.pdf (accessed August 2016).

Implementation of this plan is accomplished at the regional level within 15 regional habitat "Joint Venture" areas. A "Joint Venture" is a self-directed partnership of agencies, organizations, corporations, tribes, or individuals that has formally accepted the responsibility of implementing national or international bird conservation plans within a specific geographic area or for a specific taxonomic group, and has received general acceptance in the bird conservation community for such responsibility. In support of bird conservation goals, joint venture partners conduct biological planning, habitat protection and restoration, monitoring and evaluation, and communications and outreach.

Conte Refuge is located within the Atlantic Coast Joint Venture (ACJV) area, which covers all the Atlantic Flyway states from Maine to Florida and Puerto Rico. The goal for the ACJV is to "protect and manage priority wetland habitats for migration, wintering, and production of waterfowl, with special consideration to black ducks, and to benefit other wildlife in the joint venture area."

The ACJV Implementation Plan was revised in 2005. It steps down continental and regional waterfowl population and habitat goals from the NAWMP 2004 Plan Update to the ACJV area. It presents habitat conservation goals and population indices for the ACJV consistent with the 2004 Update, provides current status assessments for waterfowl and their habitats in the joint venture, and updates focus area narratives and maps for each state. The Connecticut River watershed contains three focus areas: The Lower Connecticut River of Connecticut, the Connecticut River shared by New Hampshire and Vermont, and the Lake Memphramagog focus area of northeastern Vermont. This 2005 Implementation Plan also provides a baseline of information needed to move forward with a thorough approach for setting future habitat goals.

We used this plan to help identify priority waterfowl species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to waterfowl. The 2005 Implementation Plan can be accessed at: <http://www.acjv.org/> (accessed August 2016).

Partners in Flight Conservation Plans

In 1990, Partners in Flight (PIF) was conceived as a voluntary, international coalition of government agencies, conservation organizations, academic institutions, private industry, and other citizens dedicated to reversing the trends of declining bird populations and to "keeping common birds common." The foundation of PIF's long-term strategy for bird conservation is a series of scientifically based bird conservation plans, using physiographic provinces as planning units. In 2004, PIF published the first North American Landbird Conservation Plan (Rich et al. 2004). The 2016 Plan Revision refines and updates the relative vulnerability assessments of North American landbirds, presents new scientific assessments and tools, and provides recommendations to advance conservation actions. The 2004 and 2016 plans will continue to be to guide bird management on the Conte Refuge. The plans provide several different means of ranking species and their habitats within a regional area based on a variety of factors including global threats, high concern for regional or local populations, or responsibility for conserving large or important populations. The 2016 plan includes a Watch List that identifies 86 species of highest conservation concern at the continental (range-wide) scale. The purpose of the Watch List is to foster proactive conservation that will help recover populations of the most at-risk species and keep the remaining species from becoming endangered.

We used the 2004 plan to help identify priority migratory bird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to migratory birds. For more information on the PIF plan, visit: <http://www.partnersinflight.org/> (accessed August 2016).

Southern New England Bird Conservation Plan (Physiographic Area #09)

This physiographic area extends from Long Island Sound through the Connecticut River valley to the northern border of Massachusetts. According to this plan, the greatest conservation challenge facing land managers today is the ever-increasing number of people residing in the area. To meet this challenge, the plan identifies priority land bird species and habitat types, and recommends specific objectives aimed at protecting those species and their habitats. Examples of high priority species within the Connecticut River watershed include the piping plover, upland sandpiper, American woodcock, salt marsh sharp-tailed sparrow, seaside sparrow, American black duck, wood thrush, cerulean warbler, prairie warbler, blue-winged warbler, worm-eating warbler, golden-winged warbler, and Louisiana waterthrush. All eight priority habitat types identified in the plan are represented within the bounds of the Connecticut River watershed. We used this plan to help identify priority migratory bird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to migratory birds.

Northern New England Bird Conservation Plan (Physiographic Area #27)

This physiographic area lies across the middle portion of the Refuge from central New Hampshire and Vermont to the slopes of the Berkshire Mountains in western Massachusetts. Forested landscapes comprise most of the region; however, the human population has increased significantly in the recent past. Single-family housing in both rural and suburban settings is becoming an important issue for conservation. Agriculture and forest management are key to habitat availability. Priority species found within the Refuge include Canada warbler, chestnut-sided warbler, and American woodcock. Five of the seven priority habitats lie within the refuge. These include freshwater lakes and wetlands, mature conifer forest, northern hardwood and mixed forests, early succession forest edge, and grassland and agricultural land. We used this plan to help identify priority migratory bird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to migratory birds.

Eastern Spruce-Hardwood Forest Bird Conservation Plan (Physiographic Area #28)

This physiographic area includes the northern portion of the Refuge, and is the largest physiographic area in the Northeast. Virtually the entire planning unit is dominated by either sugar maple-beech-birch forest, or red spruce-balsam fir forest, or a combination of the two. The region is lightly populated with concentrations found along the coast and in major river valleys. Forest management has been a significant influence on the both the economy and ecology. Generally speaking, timber management has resulted in forest landscapes that are younger with a greater dominance of northern hardwoods. Priority birds in the Refuge and within the watershed include: Bicknell's thrush, veery, bay-breasted warbler, Canada warbler, blackburnian warbler, chestnut-sided warbler, olive-sided flycatcher, spruce grouse, Cape May warbler, and American woodcock, and red crossbill. Six of the nine priority habitats in the physiographic area are found in the watershed including mature conifer (spruce-fir) forests, early succession forest edge, and freshwater wetlands. We used this plan to help identify priority migratory bird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to migratory birds.

U.S. Shorebird Conservation Plan

The U.S. Shorebird Conservation Plan was developed for the purpose of creating conservation goals, identifying critical habitat, and promoting education and outreach programs to facilitate shorebird conservation. Several groups and individuals, including local, state, and Federal agencies, non-governmental organizations, business-related sectors, researchers, educators, and policy makers helped with the development of this plan. The plan has set goals at the hemispheric, national, and regional levels. At the regional level, the Conte Refuge is part of the North Atlantic Planning Region, which shares the boundaries of BCR 14 and 30 noted above. The plan is available online at: <http://www.shorebirdplan.org/> (assessed August 2016).

We used this plan to help identify priority shorebird species for the refuge and to develop our objectives, subobjectives, and strategies in chapter 4 and appendix A related to shorebirds.

The Atlantic Flyway Shorebird Business Strategy—A Call to Action, Phase 1 2013

The Atlantic Flyways Shorebird Business Strategy's Phase 1: A Call to Action was released in February 2013. This strategy contains a set of Service-coordinated shorebird actions aimed at reversing shorebird declines across the Atlantic flyway. Its overall goal is to increase current shorebird populations levels by 10 to

15 percent by 2020. The business strategy differs from other conservation plans by focusing on a set of well-developed actions that link funding to specific, measureable conservation measures. In particular, it focuses on seven key strategies: reducing threats to populations, managing and protecting habitat, strengthening conservation regulations, developing shore bird conservation constituencies, engaging partners, assessing and monitoring populations, and reducing gaps in knowledge.

To achieve this, the shorebird business strategy emphasizes prioritizing conservation actions, funding sources, and outcomes for 15 focal shorebird species. The team chose these focal species to serve as representatives for other species that share similar conservation needs to simplify and make conservation planning more efficient. Focal species include species that are either highly imperiled, of high conservation concern, represent important habitat types in the flyway, or have existing conservation plans to make implementation more practical. Of the 15 focal species, at least 5 occur in the Connecticut River watershed: greater yellowlegs, lesser yellowlegs, piping plover, red knots, and semipalmated sandpiper.

Please view the business strategy online for more information on specific objectives and details on phases 2 and 3: http://manometcenter.pairserver.com/sites/default/files/publications_and_tools/AtlanticFlywayShorebirdBusinessStrategy.pdf (Accessed August 2016).

National Bald Eagle Management Guidelines (2007)

The bald eagle is protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The MBTA and the Eagle Act protect bald eagles from a variety of harmful actions and impacts. The Service developed these National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of the Eagle Act may apply to their activities. A variety of human activities can potentially interfere with bald eagles, affecting their ability to forage, nest, roost, breed, or raise young. The guidelines are intended to help people minimize such impacts to bald eagles, particularly where they may constitute “disturbance,” which is prohibited by the Eagle Act.

The guidelines are intended to:

- Publicize the provisions of the Eagle Act that continue to protect bald eagles, in order to reduce the possibility that people will violate the law.
- Advise landowners, land managers and the general public of the potential for various human activities to disturb bald eagles.
- Encourage additional nonbinding land management practices that benefit bald eagles.

While the guidelines include general recommendations for land management practices that will benefit bald eagles, the document is intended primarily as a tool for landowners and planners who seek information and recommendations regarding how to avoid disturbing bald eagles. Many States and some tribal entities have developed state-specific management plans, regulations, and/or guidance for landowners and land managers to protect and enhance bald eagle habitat, and we encourage the continued development and use of these planning tools to benefit bald eagles.

We used this plan to help develop strategies in chapter 4 and appendix A related to bald eagles. The guidelines are available online at: <https://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf> (accessed August 2016).

Atlantic Coast Piping Plover (*Charadrius melodus*) Recovery Plan. The only suitable habitat for the piping plover within the watershed is a mile-long sand spit at the mouth of the Connecticut River, known as Griswold Point. This beach, owned by The Nature Conservancy, provides suitable habitat for several nesting pairs.

In 1996, a revision was made to the original 1988 Atlantic Coast Piping Plover Recovery Plan (U. S. Fish and Wildlife Service 1996). The primary objective of the revised recovery program is to remove this species from the List of Endangered and Threatened Wildlife and Plants. The plan hopes to do this by: (1) achieving well-distributed increases in numbers and productivity of breeding pairs, and (2) providing for long-term protection of breeding and wintering plovers and their habitats. The strategies within the plan provide for the ensured

long-term viability of piping plover populations in the wild. The Atlantic Coast Piping Plover Recovery Plan is available at: <http://www.fws.gov/northeast/pipingplover/recovery.html> (accessed August 2016).

Atlantic Flyway Council – Atlantic Flyway Mute Swan Management Plan 2003-2013

Prepared by the Snow Goose, Brant, and Swan Committee, Atlantic Flyway Technical Section, Atlantic Flyway Council, July 2003. The goal of this management plan is to reduce mute swan populations in the Atlantic Flyway to levels that will minimize negative ecological impacts to wetland habitats and native migratory waterfowl and to prevent further range expansion into unoccupied areas. The management plan is available online at: http://www.michigan.gov/documents/dnr/AFC_mute_swan_plan1_364878_7.pdf (accessed August 2016).

Final Environmental Impact Statement: Resident Canada Goose Management, June, 2009

This final Environmental Impact Statement outlines various ways to reduce, manage, and control resident Canada goose populations and reduce related damage. Between 1995 and 2005, the population of resident Canada geese increased an average of 1 percent each year across the Atlantic Flyway. This increase led to both economic and natural resource issues, including damaged private property, parks and other open spaces, and agricultural fields. The final plan is available from refuge headquarters.

Atlantic Population of Canada Geese – Status and Management, June, 2009

The Atlantic Population (AP) of Canada geese was once considered the largest Canada goose population in North America and the staple of waterfowl hunters in the Atlantic Flyway. Breeding surveys of key AP nesting areas in northern Quebec documented a precipitous decline in AP numbers from 118,000 nesting pairs recorded in 1988 to 29,000 pairs in 1995. This dramatic change in numbers of AP geese prompted State, Federal, and Provincial wildlife agencies in 1995 to suspend the sport hunting season of AP geese in the United States and in the Canadian Provinces of Ontario and Quebec. Since the ban was placed, the status of AP geese appears to have improved substantially. In the spring of 1997, the index of breeding pairs surveyed in the Ungava Region of Quebec increased to 63,000. The recovery of AP Canada geese will depend on renewed cooperation and involvement of all user groups to strengthen our commitment to this valuable resource. Additional information is available at: <https://www.fws.gov/birds/management/managed-species/resident-canada-goose-management-atlantic.php> (accessed August 2016).

Association of Fish & Wildlife Agencies Resident Game Bird Working Group – Spruce Grouse Continental Conservation Plan (2007)

The Spruce Grouse Continental Conservation Plan was developed under the auspices of the Resident Game Bird Working Group of the Association of Fish and Wildlife Agencies. The primary objectives of the plan are to provide a range-wide estimate of population and habitat and to assemble current assessments of threats, management recommendations, and research needs on spruce grouse. The plan is available online from refuge headquarters.

We used this plan to inform our proposed management strategies in chapter 4 and appendix A related to spruce grouse and their habitats.

Vermont Fish & Wildlife Department – Vermont Recovery Plan for the Spruce Grouse (2000)

The Vermont Recovery Plan for the Spruce Grouse goes over the history, current status, threats, and recovery plans for spruce grouse. It is believed that between 150 and 300 adult birds occur in this population and periodic surveys since 1990 show a stable if not slightly increasing population. Full recovery of spruce grouse in Vermont will require the establishment of 2 additional sub-populations, most likely on the State Lands located in the southern Essex County towns of Victory and Granby, and in the northern Essex County town of Norton. The plan is available online from refuge headquarters.

We used this plan to inform our proposed management strategies in chapter 4 and appendix A related to spruce grouse and their habitats.

Fish and Aquatic Resources

U.S. Fish and Wildlife Service – Fisheries Program Northeast Region Strategic Plan (2009). The Northeast Region Strategic Plan (USFWS 2004), developed in cooperation with over 40 partners and stakeholders, addresses the decline of fish and other aquatic resources in the Northeast Region, and the economic impact

of those declines. The plan outlines the Fisheries Programs mission, vision, and priorities for conserving fish and habitat.

We used this plan to identify priority fish species for the refuge and to help develop objectives, subobjectives, and strategies in chapter 4 and appendix A related to fish and their habitats. The plan is available from refuge headquarters.

National Fish Habitat Action Partnership

The National Fish Habitat Action Partnership (NFHAP) is an ambitious effort designed to address the urgent crisis of declining fish habitat nationwide. The plan was initiated in 2001 and is modeled after the North American Waterfowl Management Plan, widely recognized as a huge success in facilitating wetland protection and restoration through strong “joint venture” partnerships. Fish Habitat Partnerships are the primary work units of the National Fish Habitat Action Partnership. These partnerships are formed around important aquatic habitats and distinct geographic areas (e.g., Southeast Aquatic Resources Partnership,) “keystone” fish species (e.g., eastern brook) or system types (e.g., large lakes, impoundments, estuaries). Through the Association of Fish and Wildlife Agencies, the states led development of the NFHAP in cooperation with the Service, National Marine Fisheries Service (NMFS), and other key partners. The two Federal agencies with lead fishery management responsibility, the Service and NMFS, served as the primary liaisons with other federal agencies and the Federal Caucus. For more information on NFHAP, visit: <http://fishhabitat.org/> (accessed August 2016).

Two key partnerships under the NFHAP cover the Connecticut River watershed, the Eastern Brook Trout Joint Venture (see below) and the Atlantic Coastal Fish Habitat Partnership.

Eastern Brook Trout Joint Venture’s Eastern Brook Trout: Action Strategies and Eastern Brook Trout Status and Threats

In the U.S., brook trout are declining throughout their range (Hudy et al. 2005). In 2004, in recognition of the need to address regional and range-wide threats to wild brook trout, a group of public and private entities formed the Eastern Brook Trout Joint Venture (EBTJV) with a mission to halt the decline of brook trout and restore fishable populations. Its unique partnership has grown and now includes state and Federal agencies, regional and local governments, businesses, conservation organizations, academia, scientific societies, and private citizens. It was the nation’s first pilot project under the National Fish Habitat Action Plan, and is a geographically focused, locally driven, and scientifically-based effort to protect, restore, and enhance aquatic habitat throughout the range of the Eastern brook trout. The EBTJV has developed several documents, including *Conserving the Eastern Brook Trout: Action Strategies*, to help prioritize and guide brook trout conservation and restoration efforts in the U.S. The plan is available at: <http://easternbrooktrout.org/reports/ebtjv-conservation-strategy> (accessed August 2016). The EBTJV also developed the report “Eastern Brook Trout: Status and Threats” that identifies current threats to Eastern brook trout, proposes a general strategy to deal with these threats, and outlines potential corrective measures. Conservation strategies for Massachusetts, New Hampshire, and Vermont are available online at: <http://easternbrooktrout.org/reports/eastern-brook-trout-status-and-threats/view> (accessed August 2016).

Whenever feasible, we have used the recommendations in these reports to help develop strategies in chapter 4 and appendix A related to eastern brook trout and their habitats. Native brook trout are found on our existing divisions and units, and on several divisions proposed for acquisition in this CCP. We will continue to consult with Service and state fisheries biologists involved in the development of the EBTJV Conservation Strategy to assist us in developing objectives and strategies related to brook trout and other associated aquatic resources in future habitat management plans.

Connecticut River Atlantic Salmon Commission (CRASC)–A Management Plan for American Shad in the Connecticut River Basin (1992). The goal of this plan is to restore and maintain a spawning shad population to its historic range in the Connecticut River basin and to provide and maintain sport and commercial fisheries for the species. Management objectives include achieving and sustaining an annual adult population of 1.5 to 2.0 million individuals entering the mouth of the Connecticut River. Another objective is to achieve annual passage of 40 to 60 percent of the spawning population (based on a 5-year running average) at each successive upstream barrier on the main stem (Holyoke Dam (MA), Turners Falls Dam (MA), and Vernon Dam (VT)). Adult American shad passage counts at Holyoke Fish Lift have averaged 306,000 for the period 1976–2014. The record high passage at Holyoke Fish Lift was 720,000 in 1992. The most recent five years (2012–2015) has yielded higher than average shad counts, with Vernon Dam ladder setting a new shad passage record of

39,000 in 2015. Substantial portions of the historic shad habitat in the basin is not accessible due to ineffective fishways, remaining barriers or other issues that require more study. Declines in American shad abundance, as monitored in rivers along the East Coast, is of great management concern at this time. Of particular concern is the fact that directed fisheries are very low or closed in many jurisdictions. The final plan is available online at: http://www.fws.gov/r5crc/pdf/shad_management_plan.pdf (accessed August 2016). We will continue to work with partners, including CRASC and the Service's Connecticut River Coordinator's Office, to identify actions the refuge can take to help conserve American shad in the Connecticut River watershed.

Connecticut River Atlantic Salmon Commission (CRASC) – A Management Plan for River Herring in the Connecticut River Basin (2004). River herring were abundant historically in streams throughout New England but have experienced a decline in this century. There is ample evidence of the existence of river herring throughout the lower Connecticut River basin and up to Bellows Falls Dam (VT). One important factor limiting herring populations appears to be restricted access to spawning and rearing habitat due to dams. However, the population has continued to decline despite recent habitat restoration efforts, suggesting other detrimental factors like unfavorable marine conditions and/or overabundance of striped bass.

The goal of this plan is to seek to restore and maintain a spawning river herring population within its historic range in the Connecticut River basin. Other more specific management objectives include: Achieve and sustain annual passage of 300,000 to 500,000 adults at the Holyoke fish passage facility (this represents a return to the numbers documented in the 1980s); Achieve annual passage of 40-60% of the spawning run at each successive upstream barrier on the Connecticut River from Holyoke to Bellows Falls (based on % of habitat available between each barrier); Maximize outmigrant survival for juveniles and spent adult river herring; and Support tributary restoration programs (fish passage, barrier removal, and broodstock trap-and-transport), for a partial list. The declines in river herring documented only by passage counts at Holyoke Fish Lift have been staggering and of great management concern. In fact, since 2003, no harvest of herring has been allowed in Connecticut or Massachusetts. In 2015, a total of 87 herring were counted passing Holyoke, down from the 630,000 herring counted in 1985.

The final plan is available online at: http://www.fws.gov/r5crc/herring_plan.html (accessed August 2016). We will continue to work with partners, including the Service's Connecticut River Coordinator's Office, to identify actions the refuge can take to help conserve river herring in the Connecticut River watershed.

Connecticut River Atlantic Salmon Commission (CRASC) – River Herring Restoration Status and Plans in the Connecticut River Basin (2015). This plan provided a current review of existing target areas for river herring restoration and included a summary of all current fish passage facilities (15 as of report), locations, design, distance, next upstream barrier and status that include river herring as a target species. Planned fish passage measures with all related information was also summarized for nine barriers. Passage priorities are presented, as are restoration measures that include capture and transfer of prespawn fish. Evaluation of river herring population status and trends is discussed and the most current distribution map of the basin which include 15 fishways is shown. The plan is available at: http://www.fws.gov/r5crc/river_herring_program.htm (accessed August 2016).

Atlantic States Marine Fisheries Commission, Amendment 3 to the Interstate Fishery Management Plan – for Shad and River Herring (2010) (American Shad Management)

The Atlantic States Marine Fisheries Commission (Commission) developing an amendment to its Interstate Fishery Management Plan for Shad and River Herring (FMP) under the authority of the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The current plan identifies goals and objectives to address depressed and declining shad stocks on the East Coast. States were also required to develop for review and approval Sustainability Plans in order to allow either/or commercial and recreational harvest by 2013. States were also required to develop American Shad Habitat Plans for review and approval by 2014. The State of Connecticut developed the required Sustainability Plan that allows for continued harvest in both Connecticut and Massachusetts after review. New Hampshire and Vermont defaulted to catch-and-release only fishing without approved plans. The USFWS Connecticut River Coordinator's Office, working with the state partners, produced a Connecticut River American Shad Plan that was approved in 2014. These plans may all be accessed on the ASMFC web site: <http://www.asmfc.org/species/shad-river-herring> (accessed August 2016).

Atlantic States Marine Fisheries Commission, Amendment 2 to the Interstate Fishery Management Plan – for Shad and River Herring (2009) (River Herring Management Plan)

The Atlantic States Marine Fisheries Commission (Commission) developed an amendment to its Interstate Fishery Management Plan for Shad and River Herring (FMP) under the authority of the Atlantic Coastal

Fisheries Cooperative Management Act (ACFCMA). Shad and river herring management authority lies with the coastal states and is coordinated through the Commission. Many populations of blueback herring and river herring, have faced anthropogenic threats since colonial times, including fishing and both habitat loss and degradation. The closure of river herring fisheries by Atlantic coastal states and observed declines in river herring abundance have led to questions about the adequacy of current management of the species to promote healthy fish stocks. The Commission and the public have also expressed concern over the lack of monitoring of river herring populations, fisheries and by catch. This document has been developed to address these questions and concerns. The final plan is available online at: http://www.asmfc.org/uploads/file/amendment2_RiverHerring.pdf (accessed August 2016).

Atlantic States Marine Fisheries Commission, American Shad Habitat Plan for the Connecticut River (2014)

The Atlantic States Marine Fisheries Commission (Commission), required development of habitat plans for American shad as part of Amendment 3. The USFWS Connecticut River Coordinator, working with the basin agency state partners, developed and submitted the required plan that was approved in 2014. The plan provides the most current status historic habitat and current habitat, including tributaries and provides a review of current fish passage, first barriers and most current upstream barrier. Under Threat Assessment, an extensive narrative on the threat of barriers to migration is provided that addresses adult upstream passage, adult downstream passage and juvenile downstream passage. The report highlights the need for continued development, evaluation, and research on fish passage issues that remain a common issue for many existing dams with fishways as well as those being considered for fishway development or modification. This plan can be accessed at: <http://www.asmfc.org/species/shad-river-herring> (accessed August 2016).

Final Recovery Plan for the Shortnose Sturgeon (1998), National Marine Fisheries Service

Shortnose sturgeons were originally listed as an endangered species by the FWS on March 11, 1967 under the Endangered Species Preservation Act (32 FR 4001, Appendix I). More than a century of extensive fishing for sturgeon contributed to the decline of Atlantic and shortnose sturgeon populations along the east coast. Heavy industrial development during the twentieth century in rivers inhabited by sturgeon impaired water quality and impeded these species' recovery. This Recovery Plan provides a framework for addressing a multitude of biological concerns, and outlines federal agency responsibilities under the Endangered Species Act, with the sole purpose of insuring long-term survival of the shortnose sturgeon. The final recovery plan is available at: http://www.nmfs.noaa.gov/pr/pdfs/recovery/sturgeon_shortnose.pdf (accessed August 2016).

We will continue to work with partners, including the Service's Connecticut River Coordinator's Office, to identify actions the refuge can take to help conserve shortnose sturgeon in the Connecticut River watershed.

Atlantic States Marine Fisheries Commission, Interstate Fishery Management Plan for American Eel (2000), including subsequent addendums (2006 and 2008)

This fishery management plan describes the current status of the American eel, threats and ecological challenges affecting eels, goals and objectives for the species and management actions needed to achieve these goals. The two main goals are:

- Protect and enhance the abundance of American eel in inland and territorial waters of the Atlantic States and jurisdictions and contribute to the viability of the American eel spawning population.
- Provide for sustainable commercial, subsistence, and recreational fisheries by preventing overharvest of any eel life stage.

The plan, available at: <http://www.asmfc.org/> (accessed September 2013), also identifies issues facing eels that need additional research. The 2006 addendum updated the plan to establish a mandatory catch and effort monitoring program for American eels, while the 2008 addendum recommended stronger regulatory language to improve upstream and downstream passage of American eel to state and Federal regulatory agencies.

We will continue to work with partners, including the Service's Connecticut River Coordinator's Office, to identify actions the refuge can take to help conserve American eel in the Connecticut River watershed.

Dwarf Wedgemussel (*Alasmidonta heterodon*) Recovery Plan

This mussel is known from several sites on the main stem of the Connecticut River and several major tributaries (Mosher 1993). It was listed as federally endangered in 1990 following documentation of substantial

population losses. A recently completed 5-year review considered the populations in the watershed to be stable (U.S. Fish and Wildlife Service 2007). The Connecticut River population has the largest remaining population consisting of three distinct segments separated by dams. The recovery plan and 5-year review are available at: http://ecos.fws.gov/docs/recovery_plan/930208b.pdf and http://ecos.fws.gov/docs/five_year_review/doc1098.pdf (accessed August 2016).

We will continue to work with partners, including the Service's Connecticut River Coordinator's Office, to identify actions the refuge can take to help conserve dwarf wedgemussel in the Connecticut River watershed.

Connecticut River Atlantic Salmon Commission (CRASC)–Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River (1998).

The Strategic Plan was prepared by the Connecticut River Atlantic Salmon Commission's Technical Committee as an update to the 1982 Plan. Technical Committee members consist of the senior or lead fishery biologists for each of the four basin state agencies as well as the federal agency partners. The Plan's Goal was to protect, conserve, restore and enhance the Atlantic salmon population in the Connecticut River basin for public benefit, including recreational fishing. Since that Plan's completion, marine survival rates have been greatly reduced, impacting adult salmon returns, that from 2000 to 2009 have ranged from 40 to 214 fish. Program goals included stocking 10 million fry and 100,000 smolts annually into identified habitat. Effective downstream passage measures at hydroelectric plants continue to be worked on by the agencies and may benefit many other species, such as American shad. In 2012, active restoration projects were concluded with a final juvenile stocking occurring in spring 2013 in Vermont, Massachusetts and Connecticut. Adult salmon are being monitored as they return, which will continue into the near future but salmon detections are expected to strongly decline after 2017. The Connecticut River Atlantic Salmon Commission and its Technical Committee meets typically four times a year and meeting are open to the public. There are also 12 active subcommittees that deal with specific issues such as American Shad, River Herring, Sea Lamprey, Fish Passage and Sturgeon and include diverse memberships from other agencies and universities. Salmon restoration and recovery program biologists from all the New England states meet annually to update the United States' annual report for the North Atlantic Salmon Conservation Organizations annual meeting which has USA delegates. The plan is available at: <http://www.fws.gov/r5crc/pdf/strplan.pdf> (accessed August 2016).

Mammals

U.S. Fish and Wildlife Service–Recovery Outline: Contiguous United States Distinct Population of the Canada Lynx (2005)

This document serves as an interim strategy to guide recovery efforts and inform the critical habitat designation process for the contiguous United States population of the Canada lynx until a draft recovery plan has been completed. This outline provides a general overview of the available information on the contiguous United States lynx distinct population segment, and provides preliminary recovery objectives and actions based on our understanding of current and historical lynx occurrence and lynx population dynamics in the contiguous United States. The recover outline is available online at: <http://www.fws.gov/mountain-prairie/species/mammals/lynx/final%20lynx%20recoveryoutline9-05.pdf> (accessed August 2016).

We used this document to help develop objectives, subobjectives, and strategies in chapter 4 and appendix A related to Canada lynx. We also continue to conduct research on the refuge and work with the Service's New England Ecological Services Field Office to identify the latest information on lynx. We will use this information to help develop more specific management strategies to benefit lynx in future habitat management plans.

U.S. Fish and Wildlife Service–New England Cottontail (*Sylvilagus transitionalis*) Spotlight Species Action Plan (2009)

The New England cottontail is a candidate species for Federal listing under the Endangered Species Act. The New England cottontail requires very specific habitat conditions and relies on thicket habitats which are declining through its historic range due to development, changes in land use, and forest succession. The goal of the New England Cottontail Spotlight Species Action Plan is to reduce the amount of habitat-based threats to New England cottontails. Strategies highlighted in the plan include: managing refuge habitats for New England cottontail, working with the Natural Resources Conservation Service to encourage landowners to manage thicket habitat, and coordinating conservation efforts among Federal agencies, States, and other conservation groups. The spotlight action plan is available online at: <http://newenglandcottontail.org/resource/appendix-g-new-england-cottontail-spotlight-species-action-plan> (accessed August 2016).

We used this information to help determine areas proposed for refuge land acquisition and to develop objectives, subobjectives, and strategies in chapter 4 and appendix A related to New England cottontails and their habitats.

Invertebrates

Puritan Tiger Beetle (*Cicindela puritana*) Recovery Plan

Distribution in the watershed is limited to a meta-population in Connecticut and a small, singular population in Massachusetts (U. S. Fish and Wildlife Service 1993). Both are found on beaches along the main stem of the Connecticut River. The Service owns a tract of land that supports part of the Connecticut population. The rest of the suitable habitat is in a mix of ownerships.

A recently completed 5-year review updates the status of this beetle (U. S. Fish and Wildlife Service 2007). The Connecticut meta-population showed a general upward trend, except during the two year period before the report was published. Although the Massachusetts population is small, there have been some recent increases, probably related to larval augmentation efforts led by the Refuge. The original recovery plan and 5-year review can be viewed at: http://ecos.fws.gov/docs/recovery_plan/930929a.pdf and http://ecos.fws.gov/docs/five_year_review/doc1114.pdf (accessed August 2016).

We used this information to develop objectives, subobjectives, and strategies in chapter 4 and appendix A related to puritan tiger beetles and their habitats, particularly for the refuge's Dead Man's Swamp Unit.

Rare Plants, Wetlands, and Other Natural Communities

Northeastern Bulrush (*Scirpus ancistrochaetus*) Recovery Plan

This endangered emergent, wetland plant ranges from Maryland and Virginia to New England (U.S. Fish and Wildlife Service 1993). It is found in the deeper emergent zones of small wetlands characterized by variable water levels. Habitat loss and pollution were key factors in the decline of this bulrush. One population is found on an existing unit of the Conte Refuge. The recovery plan is available at: http://ecos.fws.gov/docs/recovery_plan/930825.pdf (accessed August 2016).

We used this information to develop objectives, subobjectives, and strategies in chapter 4 and appendix A related to northeastern bulrush, particularly for the refuge's Putney Mountain Unit.

Jesup's Milkvetch (*Astragalus robbinsii* var. *jesupii*) Recovery Plan

This plant exists only in the Connecticut River watershed and is confined to calcareous bedrock outcrops which are annually ice scoured (U.S. Fish and Wildlife Service 1989). The three known sites occur along a 16-mile stretch of the Connecticut River in the towns of Plainfield and Claremont, NH and Hartland, VT. Habitat alteration and collecting have been the major threats to this plant. More recently, invasive plant species have also become a threat. Trampling of plants by people portaging canoes and kayaks also poses a threat to one site. The recovery plan is found at: http://ecos.fws.gov/docs/recovery_plan/891121.pdf (accessed August 2016).

Currently, this species does not occur on any refuge lands. We will continue to work with partners to help conserve this species.

Small Whorled Pogonia (*Isotria medeoloides*) Recovery Plan

This threatened plant inhabits upland sites in mixed-deciduous or mixed-deciduous/coniferous forests in second or third growth successional stages. It is rare but widely occurring at about 85 sites in 15 states and Canada (U.S. Fish and Wildlife Service 1992). There are only two known small populations within the Connecticut River watershed, one in Connecticut and one in Massachusetts. Destruction of habitat from commercial and residential development has been a primary threat to the species. Plant collectors decimated the only known population in Connecticut several years ago after its location was published in a newspaper. The recovery plan can be reviewed at: http://ecos.fws.gov/docs/recovery_plan/921113b.pdf (accessed August 2016).

Currently, this species does not occur on any refuge lands. We will continue to work with partners to help conserve this species.

U.S. Fish & Wildlife Service–Natural Communities and Rare Vascular Plants of West Mountain Wildlife Management Area and Nulhegan Basin Division of the Silvio O. Conte National Wildlife Refuge; Mapping, Description, and Ecological Management Recommendations (2002)

In 2002, the natural communities of Nulhegan Basin Division and nearby West Mountain Wildlife Management area were inventoried and mapped. As part of this study, rare, uncommon, and invasive plants were inventoried on the refuge as well. We used this unpublished report to help identify priority habitats, natural communities, and plant species for the refuge. The report is available from refuge headquarters.

The Nature Conservancy–The Active River Area: A Conservation Framework for Protecting Rivers and Streams, 2008.

This Nature Conservancy (TNC) publication is a comprehensive guide to preserving rivers and streams. River health depends on a wide array of processes that require dynamic interaction between the water and land through which it flows. The areas of dynamic connection and interaction, or “active river areas,” provide a frame of reference from which to conserve, restore and manage river systems. The guide uses this “active river area framework” to offer a more holistic vision of a river than solely considering the river channel as it exists in one place at one particular point in time. Rather, the river becomes those lands within which the river interacts both frequently and occasionally.

We used this plan to help develop our objectives, subobjectives, and strategies in chapter 4 and appendix A for rivers and riparian areas. This publication is available online at: http://www.floods.org/PDF/ASFPM_TNC_Active_River_%20Area.pdf (accessed August 2016).

State Comprehensive Wildlife Conservation Strategies/Wildlife Action Plans

In 2002, Congress created the State Wildlife Grant Program and appropriated \$80 million in grants to states. The purpose of the program is to help state and Tribal fish and wildlife agencies conserve fish and wildlife species of greatest conservation need. These grants are available to state fish and wildlife agencies “for the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished.”

To be eligible for these grants, each state and U.S. territory had to develop a statewide “Comprehensive Wildlife Conservation Strategy” by October 1, 2005, commonly known as the State Wildlife Action Plan. Each plan identifies the “species of greatest conservation need,” yet address the “full array of wildlife” and wildlife-related issues, and is designed to “keep common species common.” In brief, these plans employ adaptive management and include information on the distribution and abundance of species of wildlife; key habitats and community types; descriptions of problems and solutions of adversely affect species; priority conservation actions; monitoring priorities for species and their habitats; provide for plan evaluation procedures; and include steps incorporating review by state, federal and Tribal conservation agencies and organizations, and review by the public.

In developing this final CCP/EIS, we used the state wildlife action plans from the four states in the Connecticut River watershed (Connecticut, Massachusetts, New Hampshire, and Vermont) to supplement information on species and habitats and their distribution in our in the Connecticut River watershed, help us identify priority species and habitats for the refuge, and develop management strategies for species and habitats of conservation concern in chapter 4 and appendix A of the final CCP/EIS.

In 2015, all the states completed a required update to their 2005 plans. We reviewed each 2015 plan for updated resource information and to consider changes in species’ status at the state level. None of the changes in status warranted a change our list of priority refuge species of concern.

The four 2005 plans are available as follows:

- Connecticut Comprehensive Wildlife Conservation Strategy (2005 plans): http://www.ct.gov/deep/cwp/view.asp?a=2723&q=329520&deepNav_GID=1719 (accessed September 2015)
- Massachusetts Comprehensive Wildlife Conservation Strategy (2005 plans): <http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/massachusetts-wildlife-conservation-strategy.html> (accessed September 2015)
- New Hampshire Comprehensive Wildlife Conservation Strategy (2005): (available at refuge headquarters)

Vermont Comprehensive Wildlife Conservation Strategy (2005): (available at refuge headquarters)

The four 2015 plans can be accessed here: <http://northatlanticlcc.org/the-cooperative/plans-and-reports/state-wildlife-action-plans>

Invasive Specie

The National Strategy for Management of Invasive Species–National Wildlife Refuge System

This Refuge System strategy establishes a comprehensive plan for dealing with the critical problem of invasive species on refuges, and generally within the United States. Developed within the context of the National Invasive Species Management Plan (as called for by Presidential Executive Order 13112), this National Strategy provides clear guidance to regional and field offices as they conduct invasive species management efforts. It facilitates making refuges better neighbors to our external partners at the local, state, and Federal level. The National Strategy provides specific action items to achieve the following four invasive species management goals: 1) increase awareness; 2) reduce the impacts to refuge habitats; 3) reduce impacts to neighboring lands; and 4) use and develop new integrated pest management approaches. The plan is available online at: <http://www.fws.gov/invasives/pdfs/NationalStrategyFinalRevised05-04.pdf> (accessed August 2016).

The Invasive Plant Control Initiative Strategic Plan for the Connecticut River Watershed/Long Island Sound Region, Silvio O. Conte National Fish and Wildlife Refuge. The refuge is very active in invasive plant issues and coordinates the activities of the New England Invasive Plant Group (see above). The refuge developed the Invasive Plant Control Initiative Strategic Plan, which highlights agencies and organizations already working on invasive plant issues in the watershed and New England, identifies needs, and describes the actions that would best serve the region within the 5 years between 1999 to 2004. Many of the priority actions listed in the plan are being undertaken by various agencies and organizations. We also include some of the plans action as strategies in chapter 4 and appendix A.

Invasive Plant Atlas of New England (IPANE)

The Invasive Plant Atlas of New England (IPANE), originally based at the University of Connecticut, is a Web-based informational resource, including a regional atlas, of approximately 100 species known or suspected to be invasive in New England. The atlas supports an early detection and alert system for new invaders. The IPANE Web site includes images and descriptive data, identification tips, management links and a database documenting the existence and spread of species in New England. IPANE data are used to detect new invaders; understand the habitat requirements of each species; ascertain patterns of spread, and model the likely “potential distribution” of various species. Field data were previously collected and submitted by volunteers trained by the New England Wild Flower Society and trained professionals. Current entries are made into the site via EDDMapS (Early Detection and Distribution Mapping System) which administers the IPANE website and database, along with its national database. The website includes a wide range of other information about invasive plants in New England: <http://www.eddmaps.org/ipane/> (accessed September 2016).

Identifying Priority Areas for Invasive Plant Control Within the Connecticut River Watershed

Connecticut River Watershed Invasive Species Partnership, June 2014.

A GIS analysis to identify areas important to protect from invasive species was conducted by a subcommittee of the partnership. Areas resilient to climate change and important floodplains as identified by The Nature Conservancy were concluded to be the most important targets for protection. Additional maps showed how these areas relate to boundaries of existing cooperative invasive species partnerships, as well as state priority areas including rare species habitat and important natural communities. Recommendations include focus areas for the formation of additional invasive species partnerships.

Watershed Plans

Connecticut River Joint Commissions–Connecticut River Water Resources Management Plan, Riverwide Overview (2009)

The Connecticut River is New England’s largest and most powerful river. This plan encourages continued economic development that is compatible with the well-being of the river. Stewardship of both the quality and the quantity of water flowing in the river is the responsibility of us all. This plan aims to stimulate stewardship and build partnerships across town lines, across the river, and across the array of interests of those who live and work on each side, aided by state and federal agencies with an interest in safeguarding the river’s resources. The plan is available online at: <http://www.crjc.org/pdf/files/WATER.final.pdf> (accessed August 2016).

Connecticut River Watershed Plan–Massachusetts (2003)

This 5-year Watershed Action Plan (2003-2007) covers the Connecticut River watershed in Massachusetts, and builds upon other planning efforts as well as those conducted by other local, state, and Federal agencies. The Action Plan provides a framework for the implementation of short-term projects to help address the Massachusetts State Executive Office of Environmental Affairs' five priority issues within the Connecticut River watershed:

1. Riparian corridors.
2. Water quality and nonpoint source pollution.
3. Water quantity.
4. Wildlife habitat and fish passage.
5. Public access and recreation.

The plan addresses these priority issues and identifies potential partner organizations and additional funding sources that could be used to implement the proposed watershed projects. The plan is available at: <http://www.mass.gov/eea/docs/eea/water/wap-connecticut-2003.pdf> (accessed August 2016). The Massachusetts State Executive Office of Environmental Affairs also prepared or provided funding for 5-year Watershed Action Plans for three major tributary rivers including the Deerfield River (2004-2008; <http://www.mass.gov/eea/docs/eea/water/wap-deerfield-2004.pdf>, accessed August 2016), Miller's River (2005-2009; <http://www.mass.gov/eea/docs/eea/water/wap-millers-2004.pdf>, accessed August 2016) and Chicopee River (2005-2010; <http://www.mass.gov/eea/docs/eea/water/wap-chicopee-river.pdf>, accessed August 2016).

Long Island Sound Study

The 11,000 square mile Connecticut River watershed is by far the largest watershed draining into Long Island Sound, and is one of nine watersheds that are part of the Long Island Sound Study. In 1994, the states of Connecticut and New York and the United States Environmental Protection Agency approved the Comprehensive Conservation and Management Plan for Long Island Sound under EPA's National Estuary Program. Developed by the Long Island Sound Study, the Plan identifies the specific commitments and recommendations for actions to improve water quality, protect habitat and living resources, educate and involve the public, improve the long-term understanding of how to manage the Sound, monitor progress, and redirect management efforts.

Using the plan as a blueprint, the Long Island Sound Study has continued to refine and add detail to commitments and priorities, including with the 1996 Long Island Sound Agreement and the 2003 Long Island Sound Agreement. Some of the key aspects of the Long Island Sound Study for habitat management are to establish a soundwide system of reserves, consisting of the most significant and essential habitats, use of existing state and federal programs to restore and enhance tidal wetlands and other habitats, and use of existing state and federal programs to manage and restore populations of harvestable and endangered and threatened species. The Policy Committee of the Long Island Sound Study (LISS), consisting of the environmental commissioners for the states of Connecticut and New York, and the area regional administrators of the U.S. Environmental Protection Agency, met on Sept. 28, 2006 to establish the inaugural areas of the Long Island Sound Stewardship Initiative, develop guidelines to disburse \$6 million in research as part of a cross sound cable fund; and to update strategies to fulfill the objectives of the cleanup plan for Long Island Sound. The plan is located at: http://longislandsoundstudy.net/wp-content/uploads/2011/10/management_plan.pdf (accessed August 2016).

Recreation Plans

Connecticut River Recreation Management Plan (2009)

The Connecticut River Recreation Management Plan represents an updated and expanded discussion of recreation-related issues raised in the 1997 Connecticut River Corridor Management Plan. The 1997 plan, created by the Connecticut River Joint Commissions (CRJC) in cooperation with their five local subcommittees, fulfills the requirements of RSA 483, the New Hampshire Rivers Management and Protection Act. Focusing on recreation issues of river-wide significance in New Hampshire and Vermont, this overview is based upon discussions by the Connecticut River Joint Commissions (CRJC) and its five local river management advisory subcommittees for the

Headwaters, Riverbend, Upper Valley, Mount Ascutney, and Wantastiquet regions. Each region created its own distinct plan, yet many of the same themes emerge and are reflected in CRJC's overview of the issues and opportunities that are important throughout the Connecticut River valley. The Commissions consulted a wide range of studies and findings for this document, including the most recently completed Comprehensive Statewide Outdoor Recreation Plans for New Hampshire and Vermont. The plan is available online at: http://www.crjc.org/pdffiles/Connecticut_River_Rec_Management_Plan-Web.pdf (accessed August 2016).

Statewide Comprehensive Outdoor Recreation Plans (SCORP)

The Federal Land and Water Conservation Fund (LWCF) program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States. The SCORP satisfies a requirement of (LWCF) that each state have an approved SCORP on file with the National Park Service (NPS) in order to participate in the LWCF program. It also typically fulfills each state's own statutory requirement that there be an outdoor recreation planning program. The four states within the Connecticut River's watershed all have SCORPs:

- Connecticut Statewide Comprehensive Outdoor Recreation Plan (2011-2016)
- http://www.ct.gov/deep/lib/deep/outdoor_recreation/scorp/scorp_2011_webversion.pdf (accessed August 2016)
- Massachusetts Statewide Comprehensive Outdoor Recreation Plan (2012)
- <http://www.mass.gov/eea/docs/eea/dcs/draft-scorp.pdf> (accessed August 2016)
- New Hampshire Statewide Comprehensive Outdoor Recreation Plan (2013-2018) <http://www.nhstateparks.org/about-us/division/reports.aspx> (accessed August 2016)
- Vermont Statewide Comprehensive Outdoor Recreation Plan (2005-2009) Vermont Comprehensive Wildlife Conservation Strategy (2005): (available at refuge headquarters)

Other Regional Information Sources

We also consulted the plans and resources below as we refined our management objectives and strategies, especially those with a local context (all accessed August 2016 unless noted otherwise).

Connecticut

The Connecticut Statewide Forest Resource Plan 2004-2013: <http://www.ct.gov/deep/cwp/view.asp?Q=322794>

Massachusetts

Applicable District Forest Resource Management Plans from the Massachusetts Department of Conservation and Recreation: <http://www.mass.gov/eea/agencies/dcr/conservation/forestry-and-fire-control/forest-management-planning.html>

New Hampshire

New Hampshire Forest Resources Plan: <http://www.nhdf.org/library/pdf/NHFRP01.pdf>

White Mountain National Forest Plan:
<http://www.fs.usda.gov/whitemountain>

Connecticut Lakes Natural Area Stewardship Plan: (available at refuge headquarters)

Vermont

Green Mountain National Forest Plan:
http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5334042.pdf

The Vermont Division of Forestry, Forest Resource Plan 1999-2008: (available at refuge headquarters). The 2010 plan is available: http://fpr.vermont.gov/forest/vermonts_forests/action_plan (accessed September 2016)

Vermont Department of Forests, Parks, and Recreation Management Plan for the Former Champion Lands: (available at refuge headquarters)

Connecticut River

Connecticut River Joint Commissions, Connecticut River Management Plan: <http://www.crjc.org/corridor-plan/plan-TOC.html>

The Nature Conservancy's Connecticut River project: <http://www.nature.org/wherewework/northamerica/states/connecticut/preserves/art22544.html?src=search>

Trust for Public Lands, Connecticut River Program: <http://www.tpl.org/what-we-do/where-we-work/massachusetts/connecticut-river.html>

New England

Northern Forest Canoe Trail plan; available online at: <http://www.northernforestcanoetrail.org/>

Appalachian Trail, National Park Service, Strategic Plan and other resources: http://www.nps.gov/appa/naturescience/upload/AT_Resource_Management_Plan_Ch_1.pdf

Connecticut River Watershed Council, Inc., The Connecticut River Boating Guide: Source to Sea, 2007 <http://ctriver.org/publications>