U.S. Fish and Wildlife Service

Strategic Plan Fiscal Year 2007 to 2011

Region 5

Partners for Fish and Wildlife Program

Coastal Program

August 2007

U.S. Fish and Wildlife Service
Northeast Regional Office
300 Westgate Center Drive
Hadley, MA 01035

TABLE OF CONTENTS

Introduction 1

Goal One: Conserving Habitat 2

Partners for Fish and Wildlife and Coastal Program Focus Areas 9

- Gulf of Maine Coastal Focus Area 9
- Inland Maine Focus Area (Crystal Bog) 19
- Western Maine Native American Focus Area 21
- Lake Champlain Valley Focus Area 23
- Connecticut River System Focus Area 27
- Southern Gulf of Maine/Nantucket Sound Focus Area 39
- Long Island/Narragansett Bay Focus Area 47
- New York/New Jersey Harbor Focus Area 63
- Central New York State Focus Area 72
- Great Lakes New York and Pennsylvania Focus Area 78
- Susquehanna River Focus Area 89
- New Jersey Embayments Focus Area 96
- Delaware River Focus Area 103
- Delaware Bay Focus Area 115
- Chesapeake Bay Focus Area 129
- Potomac River and Highlands Focus Area 155
- Ohio River Focus Area 169
- James River Focus Area 175

Region 5 5-year Performance Targets 181

Goal Two: Broaden and Strenthen Partnerships 184

- Regional Objectives 184
- Key Strategic Activities 185
- Performance Measures 187

Goal Three: Improve Information Sharing and Communication 187
Regional Objectives 187
Key Strategic Activities 187
Performance Measures 189
Goal Four: Enhance Our Workforce 189
Regional Objectives 189
Key Strategic Activities 190
Performance Measures 191
Goal Five: Iincrease Accountability 191
Regional Objectives 192
Key Strategic Activities 192
Performance Measures 194
Stakeholder and Partner Involvement 194
List of stakeholders involved in Part I of Region 5's Strategic Planning Process 195

I. Introduction

The primary focus of the Partners for Fish and Wildlife (Partners) and Coastal Programs is on the conservation of Federal Trust Resources; i.e., priority and critical habitat types (e.g. coastal and inland wetlands, native grasslands, rivers and streams) and their associated species of concern: migratory birds; threatened, endangered and candidate species; inter-jurisdictional fish; and other species of conservation concern. In addition to the varied inland habitats in the Northeast, Region 5 is comprised of an extensive coastline extending from Maine to Virginia. These coastal areas and shorelines support a myriad of terrestrial and marine ecosystems and, as a result, are critical to human endeavors.

Each year our country's coastal resources contribute nearly $100 billion to the national economy. Fisheries, tourism, and recreation are just several of the industries that are absolutely dependent upon healthy, functioning coastal areas. Fish and wildlife resources and associated habitats serve as a beacon for ecosystem health. Healthy habitats, untouched spaces, and enduring populations of fish, birds, and other wildlife add to the value of inland and coastal resources.

Unfortunately, our coastal resources are under an increasing amount of stress from development, loss of wetlands, nutrient over-enrichment, pollutants, and blockages of fish migration, to name just a few. As coastal and shoreline areas fall under increasing pressure, cumulative impacts mount and our natural resources become diminished.

The Partners and Coastal Programs are voluntary habitat conservation programs based on the premise that fish and wildlife conservation is a responsibility shared by citizens and local State and Federal governments. Region 5's approach is to engage willing private landowners and other partners through non-regulatory incentives that conserve and protect valuable fish and wildlife habitat.

Working collaboratively with partners, we target actions on a landscape approach by implementing our activities under the framework of Strategic Habitat Conservation. Using this framework, we improve our abilities to define desired biological outcomes and identify the consequences of site-scale actions on landscape scale functions.

Through Strategic Habitat Conservation, we work in collaboration with others to:

- inventory and assess the status of habitats and their living resources;
- identify and assess threats to these habitats and living resources;
- develop regional or watershed-wide partnership strategies to protect, restore, and enhance habitats and living resources;
- coordinate and facilitate the implementation of these strategies; and
- promote public awareness of the value of important habitats and living resources, the threats they face, and the opportunities available for the public to become involved in finding solutions.

GOAL ONE: CONSERVING HABITAT

The overarching goals of the Partners and Coastal Programs are to develop partnerships, within and external to the Service, to restore and protect priority habitats for the benefit of Service trust resources: (1) Migratory birds; (2) national wildlife refuges; (3) threatened and endangered species; and (4) diadromous and interjurisdictional fisheries. Tools used for this purpose include the establishment of habitat-based partnerships, community education, biological technical assistance, and financial assistance. The Partners and Coastal Programs in Region 5 currently consists of 13 established programs in the Service's Ecological Services, National Wildlife Refuge System (NWRS), and Fisheries Offices.

The Northeast, Region 5, consists of 13 states – all of which have coastlines or riverine areas linked to major estuaries. The Region hosts both densely populated urban and rural agricultural areas. Partnership challenges derive from the fact that terrestrial and aquatic ecosystems overlap state boundaries. The urbanization, which characterizes New York Harbor, Long Island Sound, and the ports of Baltimore, Norfolk, Philadelphia, and Boston, is in direct contrast to the rural nature of West Virginia, upper-state New York, western Pennsylvania, and northern Maine. The demographics of Region 5 pose challenges in terms of coastal population density, fragmented landscapes, high land and labor costs, and chemically contaminated aquatic and terrestrial habitats.

Conversely, Region 5 offers numerous and varied opportunities for conservation and restoration based on the conservationist ethic of the Region, the number of states where partnership opportunities exist, and which have appropriated funding for conservation and restoration, the extent and diversity of land trusts and other non-governmental organizations, and the number of federally institutionalized partnership restoration programs characterized by the International Gulf of Maine Program (GOMP), the National Chesapeake Bay Program, and 12 National Estuary Programs ranging from the Maryland Coastal Bays to the Casco Bay Program in Maine.

Focal Area Identification

The identification of focal areas for both programs in the 13 states serves as the primary vehicle for conserving habitat. Focal areas have been identified during the past year using the diversity and significance of Service trust resources as the screening instrument in collaboration with our varied partners and stakeholders.

Approach to Focal Areas Identification

Information on Priority Service Trust Resources from all Service programs within Region 5 was sent to all Partners and Coastal Programs during fiscal year (FY) 2006. Information was described and discussed by a cross-program team developed by the Assistant Regional Director, Ecological Services, during April 2006. Program representatives from the Division of Federal Aid, Migratory Birds, Endangered Species, Fisheries, NWRS, and the NWRS Cartography Division met on a monthly basis to describe ongoing efforts related to focal activities.

During the latter part of 2006, the priorities listed below were sent to each of the Partners and Coastal Program offices to assist in their determination of focal areas. In preparation of identifying focal areas, the Region involved our partners and stakeholders in our strategic planning process. The initial meeting was held in Hadley, Massachusetts, in 2004. After that initial strategic planning meeting, Regional field office staff held smaller meetings and, in many instances, met with partners and stakeholders on a one-on-one basis to discuss collaborative opportunities to our strategic step-down plan. In addition, all field offices representing the 13 states in the Region 5 met with their State agency counterparts assisting them with their State Wildlife Action Plans. The Region 5 step-down plan incorporates many of the priorities of the State Wildlife Action Plans directly focusing on activities which benefit Federal Trust species. Using this information, each Partners and Coastal Program office developed their focal areas for presentation at a workshop held in the Regional Office from February 6 to 8, 2007.

Regional Species Priorities

(a) Endangered Species

Species on the Brink of Extinction

Tan riffleshill
Jesup's milk-vetch
Chittenango ovate amber snail
Puritan tiger beetle

Brink of Extinction Watchlist

Virginia fringed mountain snail
Appalachian monkeyface pearlymussel

Species for Near-Term Down/Delisting

Delmarva fox squirrel
Small whorled pogonia
Furbish's lousewort
Virginia spiraea
Western Virginia northern flying squirrel
Northeastern bulrush

Down/Delisting Watchlist

Red-bellied cooter
Virginia roundleaf birch
Lee County Cave isopod

Other species of concern

American chaffseed
Chittenango ovate amber snail
Dwarf wedge mussel
Atlantic salmon
Flat-spired three-toothed land snail
James River spinymussel
Lee County Cave isopod
Virginia big-eared bat
Peters Mountain mallow
Piping plover
Northern redbelly cooter
Puritan tiger beetle Bog turtle

Roanoke logperch
Roseate tern
Sandplain gerardia
Small whorled pogonia
Virginia fringed mountain snail

(b) Migratory Birds

The Migratory Bird Program of the Service has initiated the Focal Species Strategy, to better measure success of its bird conservation priorities and mandates as part of their Strategic Plan 2004-2014 "A Blueprint for the Future of Migratory Birds." The Partners and Coastal Programs in Region 5 are implementing the Focal Species Strategy to target management tasks necessary to change the population status of selected migratory bird species in the Northeast. Focal species selection was based on assessments of population trends, small population sizes or ranges, threats to habitats, and considerations such as likelihood of conservation success. Campaigns for development and implementation of species action plans for a subset of these focal species were initiated in 2005, and more will be undertaken in future years to progressively address all focal species.

(c) Fisheries Species of Conservation Concern

Alewife
American eel
American shad
Atlantic salmon
Atlantic sturgeon
Blackside dace
Blueback herring
Duskytail darter
Lake sturgeon
Lake trout
Maryland darter
Roanoke logperch
Shortnose sturgeon
Slender chub
Spotted chub
Striped bass
Walleye
White bass
Yellowfin madtom
Hickory shad
Brook trout

Appalachian monkeyface
Birdwing perlymussel
Clubshell
Cracking pearlymussel
Cumberland bean
Cumberland combshell
Cumberland monkeyface
Dromedary pearlymussel
Dwarf wedgemussel
Fanshell
Fine-rayed pigtoe
Fluted kidneyshell
Green blossom
Pearlymussel
James spinymussel
Little-winged pearlymussel
Northern riffleshell
Orangefoot pimpleback
Oyster mussel
Pink mucket
Purple bean
Rayed bean
Pink pink
Rough pigtoe
Rough rabbits foot
Sheepnose
Shiny pigtoe
Slabside pearlymussel
Spectaclecase
Tan riffleshell

(d**)** National Wildlife Refuges (NWR)

The goal of the Partners and Coastal Programs is to focus on lands both within and outside of refuge boundaries to benefit refuge resources. Under the NWRS Improvement Act of 1997 (Refuge Improvement Act), all NWRs are required to develop a Comprehensive Conservation Plan (CCP) that provides a framework for guiding refuge management decisions. The Partners and Coastal Programs staffs provide assistance to NWRs in the development of their CCPs. Our on-the-ground habitat conservation actions in concert with NWR staff are guided by NWR step-

down management plans to target priority actions to benefit NWR resources.

(e) State Wildlife Actions Plans

State Wildlife Action Plans are a proactive approach to strategic habitat conservation and species preservation by encouraging state-based entities to protect habitat and species. The heart of the wildlife action plan is the identification of steps that are needed to recover and conserve imperiled wildlife by protecting their habitat and addressing other pressing conservation issues. Many prior conservation planning efforts have conducted assessments—identifying critical conservation needs or describing pressing challenges—but they have stopped there. The wildlife action plans take the process one step farther and actually identifies the actions that need to be taken to address those problems and keep wildlife healthy. By combining the best scientific information available with extensive public participation, states developed effective action plans that will work for wildlife and for people. The Partners and Coastal Programs in Region 5 are continuing their work in collaboration with our state partners to identify and target on-the-ground actions for Federal Trust species.

(f) External Factors and Habitat Conservation Targets

In Region 5, the level of on-the-ground accomplishment targets and meeting those targets on an annual basis is subject to many factors outside the control of the Service and that of its partners. Agency and organization budget levels control accomplishment outputs through actual funds for projects and staff delivery but so do those elements such as weather. Weather conditions can have a delaying effect on many of our on-the-ground implementation activities. Additional items such as permit delays, contractor negotiations, and legal issue resolution are a reality. In Region5, as in other areas of the country, our habitat conservation projects are increasingly complex, taking several years from the concept to the completion stage.

In the coastal habitats of Region 5, the subject of sealevel rise (due to global climate change) presents a major threat to coastal areas as documented in recent numerous international reports. Major changes are likely to occur with respect to flooding coastal areas, and inundation of areas where land subsidence due to groundwater withdrawals has been an on-going source of erosion. The magnitude of these impacts is being reviewed, in addition to the timeframes and potential impacts, as we determine, in concert with our partners, where land protection and restoration activities should be prioritized.

Northeastern Landscape

Region 5 is a diverse landscape comprised of about 26 million acres of farmlands, 78 million acres of forestlands, and 7 million acres of wetlands and deep-water habitats. Developed land throughout the Northeast currently consists of more than 16 million acres. Nearly 22 percent (61.5 million) of the U.S. population resides on approximately 6 percent of the nation's land base. The following are descriptions of those habitats and an overview of the threats to this region, including where we have and intend to continue to focus our Partners for Fish and Wildlife and Coastal Programs efforts, are below.

Stressed Habitats

Less than 1 percent of the region's old-growth forests remain, 99 percent of the grasslands have been lost, and a large percentage of pre-colonial wetlands are gone in the Northeast. The number of farms in the Northeast has declined by more than 68 percent since 1950, and the total acreage of farmland has declined by more than 79 percent. Pasture acreage has declined by more than 70 percent since the 1950s. Most remaining pastures are now dominated by cool-season grasses, which are grazed intensively. Grassland bird populations have declined more than any other group of bird species in the past 30 years. Although agriculture practices create and maintain valuable grasslands, recent intensification of these practices has had negative impacts on their quality and availability. Small diversified farming, which provided a range of suitable habitat types, has given way to larger, more intensively managed farms as a result of improved agricultural techniques. Advances in equipment, fertilizers and extensive use of potent pesticides and herbicides have resulted in greater management of hay fields (early and frequent cutting which disrupts nesting activity), conversion of hay fields to row crops or legumes, and intensive grazing. In addition, certain habitats, such as wetlands and coastal ecosystems, are further stressed by invasive plant and animal species. One of the most dramatic examples of habitat loss in the Northeast is the elimination of riparian habitats. Riparian buffers have been reduced by 50 percent Regionally, although most significantly along portions of the Atlantic seaboard. The loss is so great that the Chesapeake Bay Commission has set a goal of establishing 2,010 miles of riparian buffers by 2010. About 14 percent of wetlands in the Chesapeake Bay watershed were eliminated between 1980 and 1989, and the loss continues.

Impacts

The impacts of agricultural and forestry practices, combined with escalating urban sprawl, have dramatically altered wildlife habitats and, subsequently, wildlife diversity and abundance in the Northeast. Species requiring large blocks of scrub and early successional forests, and those species requiring open, secure, grassland habitats have experienced the most significant population declines in the past several decades. Many species that depend on mature, forested habitat or those species that are habitat generalists have thrived or have maintained their population levels.

State Wildlife Action Plans from northeastern states have identified:

- 54 species of grassland-dependent vertebrates as Species of Greatest Conservation Need due to 99 percent of the grasslands in the Northeast being lost, the grasshopper sparrow, and eastern meadowlark have declined by 80 percent;
- 36 Species of Greatest Conservation Need that require viable wetland habitats;
- 52 Species of Greatest Conservation Need that are only found in riparian habitats;
- 58 species that require young forest or shrubland habitats;
- 10 of the 58 young forest-and-shrubland-habitat-dependent Species of Greatest Conservation Need are state listed as endangered in one or more states, 4 are state listed as threatened, and 17 are listed in one or more states as species of special concern.

Within the 58young-forest and shrubland habitat-dependent species, 37 birds, 14 mammals and7 reptiles were identified; and

- 121 species that are dependent on forestland. State Wildlife Action Plans, especially from states in southern sections of the Northeast, frequently cited the importance of large blocks of unfragmented forest.

Impacts on Economy and Recreation

During the past decade, land has become more valuable for housing and commercial development. Development is reducing the patch size of non-industrial forest lands, limiting opportunities for commercial management of forest habitats and curtailing use by species requiring large blocks of forestland. Large tracts of industrial forestland in northern New England and New York are changing ownership, and second-home development is encroaching on habitat values in some areas.

Regional Program Goals in Cooperation with our varied partners under the 2007 Farm Bill

There is a need and a drive in Region 5 to protect important habitats identified through State Wildlife Action Plans from conversion to developed lands through fee-simple acquisition, conservation easements, or purchase of development rights. The 2002 report, by the Wildlife Management Institute, *How Much is Enough?*, established a goal of protecting 1 million acres of farmland and 600,000 acres of forestland from development. The cumulative total of acres protected in Region 5 from development from Farm Bill programs is slightly more than 900,000 acres. Therefore, protection of additional farmland and forest acreage still is needed. Many state Wildlife Action Plans already have or will have prioritized land protection goals to establish a land conservation initiative that focuses on certain counties and priority habitats.

Our Partners for Fish and Wildlife Program and Coastal Program will continue to work with our varied partners to address the needs identified in the Wildlife Management Institutes *Regional Wildlife Habitat Needs Assessment for the 2007 Farm Bill*, as follows:

Grassland Species

Population Goals

- Maintain suitable habitat distributed across the landscape to support viable metapopulation structure for grassland birds identified in various management plans.
- Continue efforts to develop grassland management protocol to maintain and enhance nesting habitat for grassland-nesting species.

Habitat Needs

- 2.4 million acres of grasslands are needed in the Northeast to support the suite of grassland species identified in the Partners in Flight Physiographic Assessments and are frequently identified in Wildlife Action Plans as Species of Greatest Conservation Need.

Wetland Species

Population Goal

- Stabilize or increase declining wetland-dependent species.

Habitat Needs

- Double the number of acres of wetlands enhanced and restored in the region to 15,000 acres per year.
- Protect, restore and enhance existing functional wetlands.

    1. The U.S. Fish and Wildlife Service estimated 9 million acres of wetlands were present in 1990, including 4 million acres of forested wetlands and 1.5 million acres of shrub-scrub wetlands.

    2. The goal of the Atlantic Coast Joint Venture is to protect 945,000 acres of wetlands and to restore or enhance 210,000 acres of wetlands. This goal transcends the Northeast region but represents the magnitude of wetland management and enhancement needs.

Aquatic and Riparian Species

Population Goals

- Restore native species and maintain declining populations of aquatic and riparian dependent species.

Habitat Needs

- Protect existing riparian areas within the region.
- Establish 15,000 acres of new riparian buffers per year.
- Establish 2,000 acres of new grassed waterways per year.
- Establish 15,000 acres of new planted filter strips per year.
- Protect 500,000 feet of stream banks per year.
- Implement best management practices on farms along stream corridors state-wide to protect water quality, reduce excessive soil erosion, protect habitat and improve nutrient management.
- Work with landowners to increase the percentage of streams state-wide that have vegetated buffers of more than 50 feet.

Forest Species

Population Goal

- Stabilize or increase declining populations of early successional and old-growth forest species.

Habitat Needs

- The draft Ruffed Grouse Conservation Plan calls for an increase of 587,000 acres of

young forest and shrubland, to return ruffed grouse populations to 1980 levels in the Northeast.

- The draft American Woodcock Conservation Plan calls for an increase of 9 million acres of young forest, shrubland and nonstocked habitats, to return woodcock populations to the 1970 levels.
- 17 million acres of mature coniferous, deciduous or mixed forestlands are needed to fulfill the requirements of the suite of forest-dependent species identified as priority species in the Physiographic Assessments and frequently identified in Wildlife Action Plans as Species of Greatest Conservation Need.
- State Wildlife Action Plans prioritize conservation actions intended for both early and late successional Species of Greatest Conservation Need and will be used to focus our programs efforts to address the habitat needs for Federal Trust species.

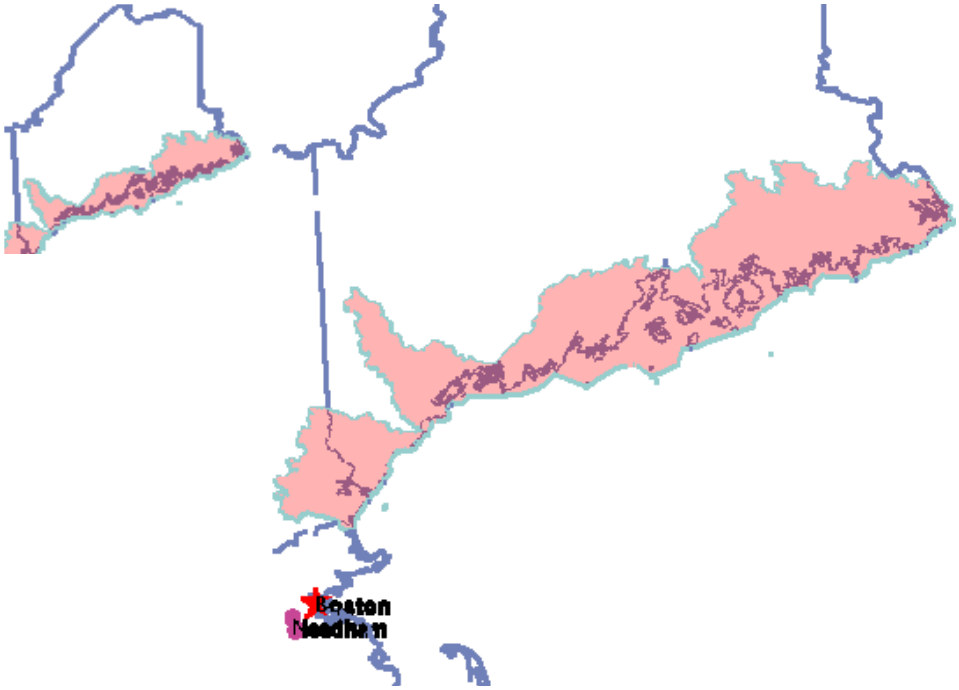
Partners for Fish and Wildlife and Coastal Program Focus Areas

I. Gulf of Maine Coastal Focus Area

This Focus Area encompasses the following Focal Units identified in HabITS:

- Maine Coastal Nesting Islands Focal Unit
- Maine Coastal Wetlands/Rivers/Forests Focal Unit
- York County Shrublands Focal Unit

Maine Coastal Nesting Islands Focal Unit



Description

Rocky islands along the entire coast of Maine provide important habitat for a unique assemblage of nesting seabirds and endangered bald eagles. Seabirds such as Atlantic puffins, razorbill auks, Leach's storm petrels, eider ducks and black guillemots among others use Maine coastal islands for nesting. Coastal Maine is the major nesting habitat for these species in the United States. Gulf of Maine Coastal Program Biologists share data on nesting seabird, wading bird, bald eagle and waterfowl populations on these islands with Refuge, state and non-government organization biologists annually to determine locations of important island colonies. There are 4,617 islands along the Maine Coast. From this total, 616 have historical or nesting populations of these birds. Of these 616 islands, 377 were determined to be nationally significant based on criteria developed in collaboration with several agencies and organizations. Of these 377 islands, 151 are lacking permanent protection. Coastal nesting island habitats are threatened by development of homes, boat houses, docks which may compromise habitat values and their use as well as uses from recreational activities such as camping, picnicing, and berry picking cause disturbance to nesting seabirds resulting in decreases in production of birds. Nesting habitats for native seabirds are also threatened by high predator populations that compete with native seabirds for nesting and prey on seabird eggs and young. Coastal Program seabird restoration and protection projects focus on these 151 islands for protection and on the refuge and state protected islands for restoration, working with partnerships with many organizations and agencies. The Gulf of Maine Seabird Working Group is a collaborative of Federal and State agencies and non-government organizations within the Gulf of Maine that is a major partner in seabird restoration efforts, and the coastal Land Trusts in Maine, including numerous local Land Trusts and

statewide Land Trusts such as Maine Coast Heritage Trust, are important partners in coastal island protection efforts. In addition, the Maine Coastal Islands National Wildlife Refuge and Maine Department of Inland Fisheries and Wildlife are major partners in conservation efforts on Maine coastal nesting islands. Partners will work together in collaboration to leverage expertise and funding to protect and restore coastal nesting islands in Maine.

Strategic efforts will be directed to:

- protection of important trust species habitats in conjunction with the public sector and non-governmental organizations through fee and easement acquisition by leveraging Service funding;

- restoration activities focused on fish passage/barrier removal, restoration of coastal wetland hydrology and restoration of seabird nesting islands, with special emphasis on protection of the 151 islands lacking permanent protection in collaboration with the Gulf of Maine Seabird Working Group, the Maine Coastal Islands NWR and the Maine Department of Inland Fisheries and Wildlife; and

- controlling the spread of invasives on the islands of Androscoggin Lake (home to several rare plans), in particular, Japanese barberry, Japanese knotweed, and purple loosestrife.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Maine Coastal Nesting Islands Focal Unit are based on the needs identified by the conservation plans referenced in the specific focal areas that make up this larger focal area. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 2006 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	100 acres
Uplands Protected	100 acres
Riparian Streams Shorelines Improved	11 miles
Riparian Streams Shorelines Protected	5 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species

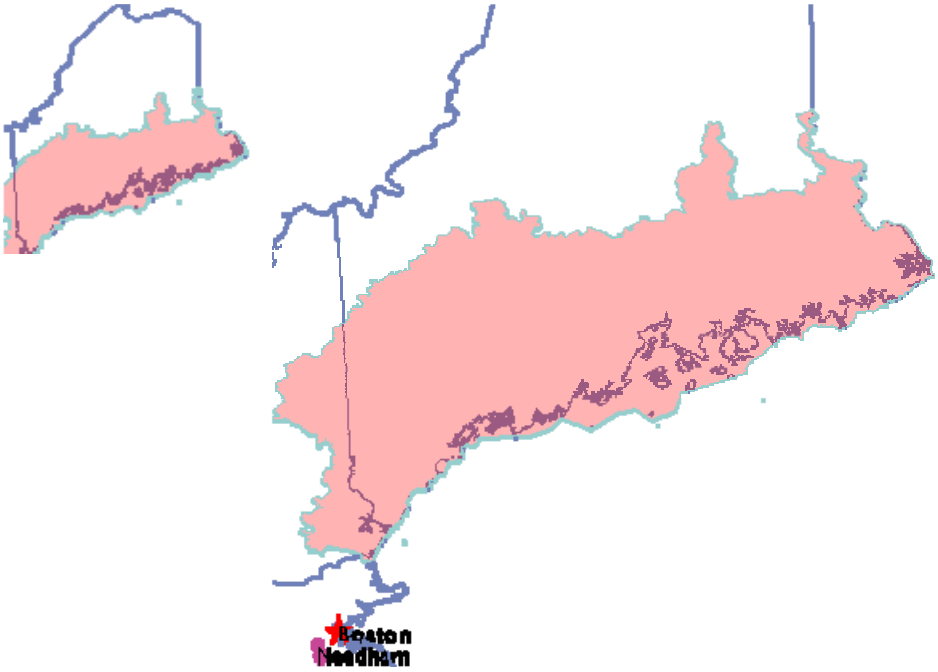
American peregrine falcon
Bald eagle
Roseate tern
Common tern

Unlisted Species

Razorbill
Great Blue Heron
Leach's Storm-Petrel
Common Eider
Arctic Tern
American eel
Common Loon
Common Eider
American Black Duck
Great Blue Heron
Leach's Storm Petrel
Short-eared Owl
American Bittern
Red-shouldered Hawk
Green-backed Heron
White-rumped Sandpiper
Pectoral Sandpiper
Least Sandpiper

Semipalmated Sandpiper
Great Egret
Belted Kingfisher
Semipalmated Plover
Northern Harrier
Marsh Wren
Sedge Wren
Northern Flicker
Olive-sided Flycatcher
Palm Warbler
Common Merganser
Black-crowned Night Heron
Osprey
Black-bellied Plover
Pied-billed Grebe
Virginia Rail
Bank Swallow
American Woodcock
Tree Swallow
Solitary Sandpiper
Eastern Kingbird
Warbling Vireo
White-throated Sparrow
Red Knot
White-rumped Sandpiper
American Golden Plover
Black-bellied Plover
Buff-breasted Sandpiper
Upland Sandpiper
Black Tern
Barn Swallow
Cliff Swallow
Savannah Sparrow
Alder Flycatcher
Rusty Blackbird
Common Snipe
Barn Swallow
Least Bittern
Saltmarsh Sharptailed sparrow
Long-billed Dowitcher
Hooded Merganser
Swamp Sparrow
Song Sparrow
Louisiana Waterthursh
Tri-colored Heron
American Kestrel
Eastern Wood Peweee
Black-throated Blue Warbler
Blackburnian Warbler
Willow Flycatcher
Black-throated Green Warbler
Bobolink
Pileated Woodpecker
Praire Warbler
Hermit Thrush
Purple Finch
Northern Goshawk
Red Crossbill
White-winged Crossbill
Great Crested Flycatcher
Rose-breasted Grosbeak
Black-backed Woodpecker
Scarlet Tanager
Golden-crowned Kinglet
American Redstart
White-winged Crossbill

Coastal Maine Wetlands, Rivers and Forest Focal Unit



Description

The Coastal Maine Wetlands, Rivers and Forest Focal Unit includes a variety of interconnected habitats that support trust resources of the Service, including federally listed threatened and endangered species, migratory birds, and diadromous(searun) fish. Coastal Maine is identified in International, Federal, State and regional plans as important for these Federal trust resources and there is great potential to protect productive habitats and restore and enhance impacted habitats to increase populations of trust resources.

Estuaries, where fresh river water and salty ocean water meet, provide productive nurseries for diadromous fish, and important feeding grounds for breeding and migrating seabirds, waterfowl, shorebirds, and waterbirds. Coastal wetlands, such as salt marshes, sand beaches, mud flats and rocky shores abound in the estuaries and marine habitats of Maine. Salt marshes provide food and cover for searun fish as well as breeding and migratory habitat for birds. Mudflats abound with animal life. Concentrations of worms, clams, other mollusks, and crustaceans survive in this habitat providing a bounty of food for fish, wildlife and people. Sand beaches provide habitat for two rare species of birds--piping plovers and least terns--and a diversity of migrating shorebirds. Intertidal and nearshore subtidal habitats support marine algae, which provide habitat for a variety of organisms including scallops, flounder, urchins, lobster and migratory waterbirds. Coastal program biologists work with partners in other agencies and non-government organizations and with landowners to implement conservation projects in the York River Estuary, areas of the Rachel Carson NWR in York County, Scarborough Marsh, Casco Bay (part of National Estuary Program), Lower Kennebec/Merrymeeting Bay, Sheepscot/Damariscotta Estuary, Medomak/ Muscongus Bay, Penobscot Bay/Mt. Desert Island,

Pleasant Bay, and Cobscook Bay.

Healthy rivers provide migratory routes and spawning and rearing habitats for searun fish, including Atlantic salmon, river herring, shad, alewife, eel, striped bass, and other diadromous species. Coastal program biologists focus on the rivers in coastal Maine where salmon have been listed as an endangered species including the Sheepscot, Ducktrap, Narraguagas, Pleasant, Machias, Dennys, and a few other rivers. The Atlantic salmon recovery plan and other fishery management plans identify that the restoration of diadromous fish in coastal Maine rivers is an important component for salmon recovery and for the recovery of fisheries in the Gulf of Maine. Additional rivers (and tributaries) where active fish passage/barrier removal projects will be implemented focusing on diadromous species include Somes, Pemaquid, Kennebec, Sasticook, Penobscot, St Croix, Cobbossee, Spurwink, Alewife Brook, and others.

Unfragmented, intact forested lands in the coastal region of Maine provide wildlife rich habitat for bald eagles and raptors, breeding neotropical migrants, and support vital native wildlife communities. Large blocks of forest in the watersheds of Maine include areas such as the Saco River, Penobscot, Machias, and St Croix.

Habitat loss, fragmentation and degradation, wetland, river and associated upland loss, over harvesting, oil spills, pollution, and other cumulative effects of development threaten the integrity of the Maine Coastal focus area. Lands in this focus area are mostly privately owned (90+ percent privately owned). There is one National Park (Acadia), three NWRs (Rachel Carson, Moosehorn and Maine Coastal Islands), and many State parks and wildlife management areas. Land use is varied in the focus area. Southern Maine to mid-coast areas are mostly suburban with some agriculture and forestry intermixed especially in the more inland areas. Further east, land use patterns are more rural though second home development is increasing at a rapid pace. Agriculture and forestry is a more common land use in the eastern portion of the coastal focus area.

The Gulf of Maine Coastal Program works with numerous partner agencies and non-government organizations and landowners throughout the focus area to protect and restore important habitats for trust species. Strong partnerships have been developed with State agencies and non-government conservation organizations to share information and expertise and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and often, access to Service funds from a variety of grant sources including Coastal Program funds, North American Wetland Conservation Grants, Coastal Wetland Grants, National Fish and Wildlife Grants, fish passage program funds, and endangered species grants. Maine has a tradition of locally based conservation organizations such as Land trusts and Watershed Associations who share common interests in conservation. Partnerships are expected to grow within the near term.

Working collaboratively with numerous agencies and non-government organizations, important habitats for trust resources are protected through fee and easement acquisition by State and Federal agencies and non-government organizations (Land Trusts) through partnership efforts and leveraging funds. Similarly, working through collaborations with other agencies and organizations, restoration projects focusing on fish passage/barrier removal, restoration of coastal

wetland hydrology, and restoration of seabird nesting islands will be implemented by sharing expertise and leveraging funds.

Challenges to restoration opportunities relate to conflicting policies within the State on native fish and wildlife restoration versus introduced species, limited funds for planning restoration projects, and conflicting values amongst landowners where restoration projects often involve multiple landowners. Challenges to habitat protection include willingness of landowners, availability of funds, negative attitudes towards government land ownership, and concern over lessening the property taxes collected by a municipality from conservation lands versus developed land.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Coastal Maine Wetlands, Rivers, and Forest Focal Unit are based on the needs identified by the conservation plans referenced in the specific focal areas that make up this larger focal area. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 2006 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	750 acres
Wetlands Protected	5000 acres
Uplands Improved	100 acres
Uplands Protected	5000 acres
Riparian Streams Shorelines Improved	17 miles
Riparian Streams Shorelines Protected	20 miles
Fish Passage Structures	10 structures

Target Species Benefited

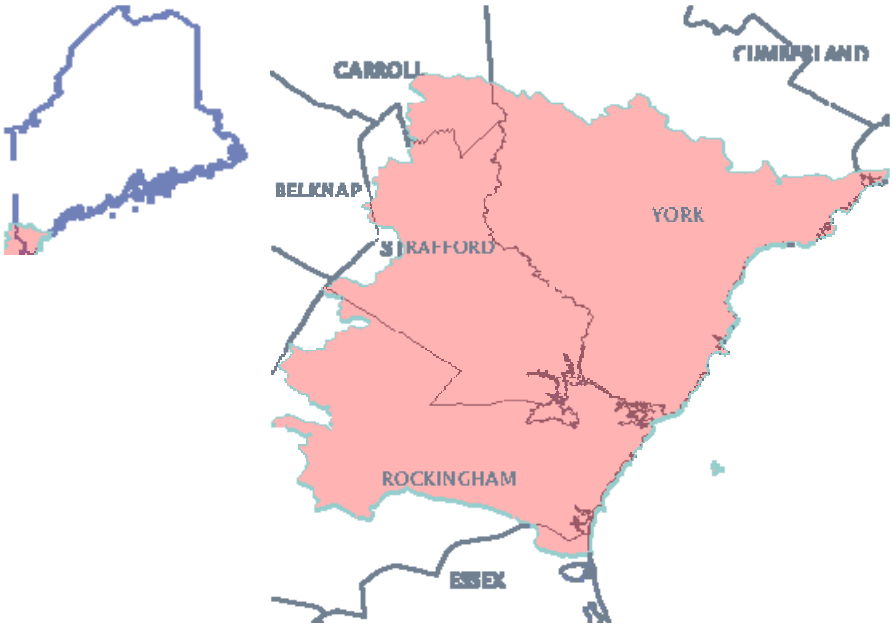
Listed Species Benefited

American eel
Piping Plover
Bald eagle
Roseate tern
Common tern
Atlantic salmon

Unlisted Species Benefited

Wood Duck
Bigeye herring
American shad
American Black Duck
Great Blue Heron
Common Loon
Sea lamprey

York County Shrublands Focal Unit



Description

The York County shrublands provide habitat for New England Cottontail (NEC), a high priority federal candidate species. The rabbit was state listed as endangered in 2007. Presently, NEC populations are exclusively restricted to shrublands in York County. The species occupied range has shrunk from 9,400 square miles to 618 square miles. An estimated 300 rabbits live in the shrublands of York County. Two-thirds of the shrubland patches occupied by rabbits are 6 acres in size, and many are not connected with other NEC occupied shrubland. The Partners for Fish and Wildlife Program will work cooperatively with the Maine Department of Inland Fisheries and Wildlife, Rachel Carson NWR, and many non-government organizations and private landowners to restore an estimated 100 acres of NEC habitat within the York County Shrubland focus area by 2011. This goal is consistent with Maine's NEC Population Objective #1, which

strives to create a minimum of 18 core populations in shrubland habitat patches of 25 acres or greater. Restoring shrubland habitat for NEC will also benefit many high priority Service migratory birds, including American woodcock, blue-winged warbler, chestnut-sided warbler, prairie warbler, and Eastern towhee.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the York County Shrublands Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	100 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

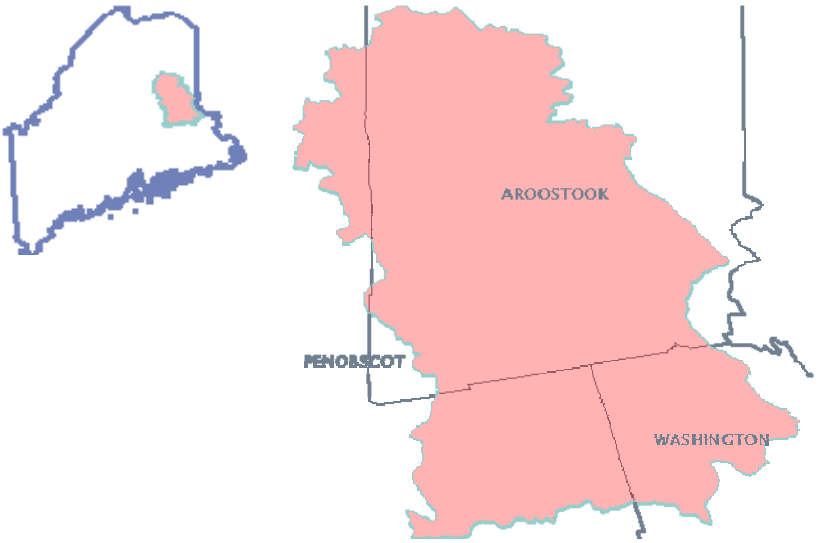
Target Species Benefited

Unlisted Species Benefited

New England cottontail
Eastern Towhee
Chestnut-sided Warbler
Blue-winged Warbler

American Woodcock
Bobolink
Gray Catbird
Prairie Warble
Upland Sandpiper
Eastern Meadowlark

II. Inland Maine Focus Area (Crystal Bog)



Description

Designated as a National Natural Landmark in 1973 by the National Park Service, the 4,076 acre TNC owned Crystal Bog is recognized as one of the "largest, finest unspoiled northern sphagnum-heath bogs in the entire United States exclusive of Alaska." The focus area is a 75-acre portion of Crystal Bog degraded by invasive non-native Phragmites. Initiating a Phragmites control program will greatly benefit Eastern Prairie Fringed Orchids, a federally listed threatened species. The plant is listed as endangered by the State of Maine. Crystal Bog is also home to yellow palm warblers and yellow-bellied flycatchers. The forested edges of the bog supports Canada lynx, nesting Canada warblers, black-throated blue warblers and olive-sided flycatchers.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Inland Maine Focus Area are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	75 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

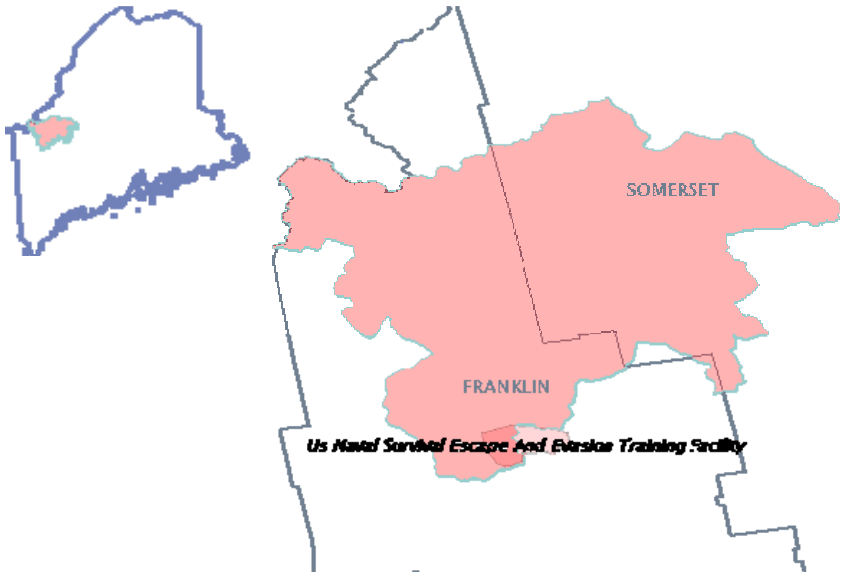
Listed Species Benefited

Eastern prairie fringed orchid

Unlisted Species Benefied

Northern Harrier
Sedge Wren
Olive-sided Flycatcher
Palm Warbler
Rusty Blackbird
Cliff Swallow
American Bittern
Red-shouldered Hawk
Green-backed Heron

III. Western Maine Native American Focus Area



Description

The focus area is approximately 150 acres in size and falls within 175,000 acres of Native American Tribal lands in the unorganized western Maine towns of Alder Stream, Lowelltown, Holeb, Prentiss, Hammond, and Alder Brook. Much of the region is dominated by boreal forest interspersed with lakes, ponds, beaver flowages, streams, mountains, and bogs. The wetland focus area supports breeding populations olive-sided flycatcher, osprey, American woodcock, rusty blackbird, and many other high priority federal trust species. Region 5's Native American Policy and Implementation Plan will guide the Partner's efforts to provide wildlife assistance to Passamaquoddy and Penobscot Indian Tribal biologists. Both Native American Tribes are interested in restoring/enhancing approximately 150 acres of degraded wetlands for black ducks and other high priority migratory birds.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Inland Maine Focus Area are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	150 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

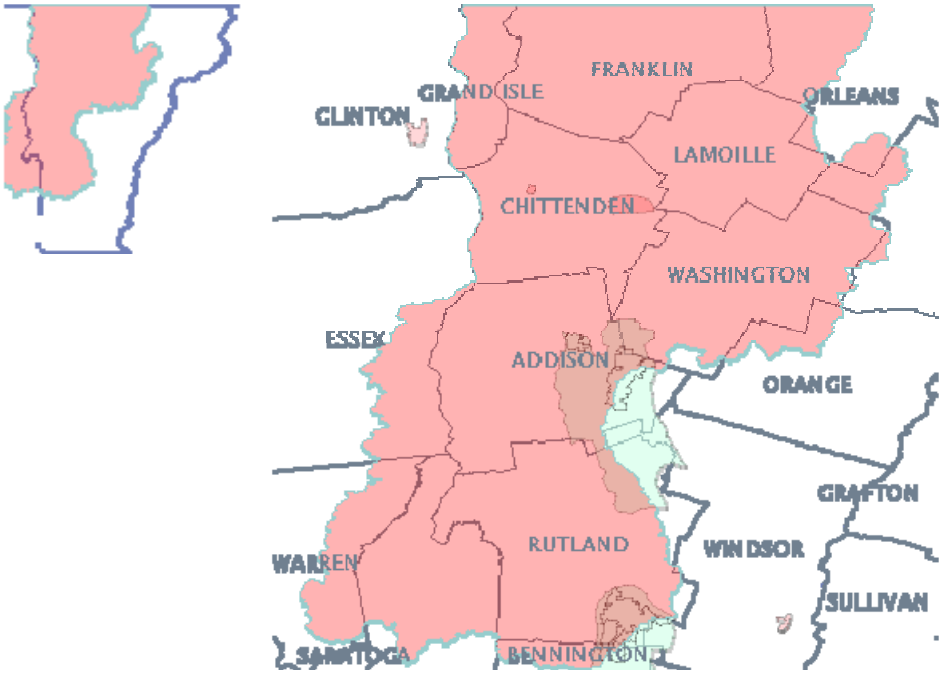
Target Species Benefited

Unlisted Species Benefied

Northern Goshawk
Wood Duck
American Black Duck
Great Blue Heron
American Bittern
Red-shouldered Hawk
Green-backed Heron
Pine Siskin
Veery
Swainson's Thrush
Belted Kingfisher
Northern Harrier
Marsh Wren
Olive-sided Flycatcher
Eastern Wood-Pewee
Black-throated Blue Warbler
Alder Flycatcher
Rusty Blackbird
Common Snipe
Cliff Swallow
Hooded Merganser
Red Crossbill
Swamp Sparrow
Lincoln's Sparrow
Black-and-white Warbler
Mourning Warbler

Osprey
Gray Jay
Black-backed Woodpecker
Ruby-crowned Kinglet
Bank Swallow
American Woodcock
American Redstart
Red-breasted Nuthatch
Chipping Sparrow
Tree Swallow
Winter Wren
Eastern Kingbird
Philadelphia Vireo
Blue-headed Vireo
White-throated Sparrow

IV. Lake Champlain Valley Focus Area



Description

The Vermont Champlain Valley geographic focus area consists of extensive wetland and diverse aquatic resources. The Missisquoi NWR and other conserved lands provide a strong foundation for the improvement trust resource habitats. Historic landscape alteration coupled with an extremely high number of private landowners provides great potential to benefit these resources.

Ecosystem Description
The Vermont Champlain Valley geographic focus area encompasses the Missisquoi Watershed, the Lamoille Watershed, the Winooski Watershed, the Otter Creek Watershed, and a portion of the Lake George Watershed. The landscape of the Champlain Valley focus area is extremely diverse. Historically the landscape supported a variety of natural communities including riparian floodplain forests, clayplain forests, emergent and scrub/shrub wetlands. Over the past 300 years, many, if not all of the Lake Champlain Valley historic natural communities types have changed in function and structure.

The Lake Champlain Basin Program estimates 35 percent of the valley's historic wetland have been lost or converted to other land uses. Only remnant tracts of mature floodplain forest remain. The Vermont Department of Environmental Conservation estimates over 70 percent of the valley's streams and rivers have been altered by dredging, straightening, channelization, and the construction of dams. The major factors that have changed the historic landscape of the Champlain Valley and continue to stress the natural landscape and associated species today include agricultural and forestry production, commercial, industrial, and residential development, and supporting transportation and utility infrastructure.

Land Use and Ownership

The majority of the Vermont Champlain Valley geographic focus area is in private landownership. Land use is dominated by urban development and agriculture production. Agricultural operations range in size from large scale dairies (1200 animals) to small horse operations and organic vegetable farms. The northwestern and southwestern portions of the valley have the highest population growth rates and development growth rates in the State of Vermont.

The Vermont Champlain Valley focus area can be broken down into two smaller target areas based on habitat types and associated trust species needs. The Lower Valley target area focuses on riparian and wetland habitats associated with the lower portion of the Champlain Valley and it extends from the northern portions of the Great Chazy/Saranac and Missisquoi Watershed to the southern portions of the Otter Creek Watershed. The Winooski/Lake George target area focuses on aquatic and riparian habitats in the Winooski Watershed and the New York portion of the Lake George Watershed.

Targeted Species and Habitats - Lower Valley Riparian/Wetland Target Area

The landscape of the Lower Valley focus unit has very gentle topography and rich soils. Historically this area was dominated by a wide variety of forested and emergent wetlands. The majority of these wetlands are associated with the glacial influence of Lake Champlain and the riparian floodplains of rivers and streams. Specific wetland habitat types include open water/riverine wetlands, emergent marsh, scrub/shrub wetlands, and forested wetlands (swamps and riparian communities). Some of the Federal trust species which depend on these wetland habitats include the American black duck, wood duck, common goldeneye, American woodcock, northern harrier, pied-billed grebe, American bittern, black tern, Virginia rail, black-crowned night heron, cerulean warbler, Canada warbler, willow flycatcher, American eel, lake sturgeon, landlock Atlantic salmon, and Indiana bat.

Challenges - Lower Valley Riparian/Wetland Target Area

Threats to the natural communities and habitats within the Lower Valley focus unit have been and continue to be primarily and uses and urban development pressure.

Partnership Opportunities - Lower Valley Riparian/Wetland Target Area

Below is a list of plans and action strategies developed to restore, conserve, and protect the valuable wetland and riparian habitat resources of the Lower Valley target area.

Missisquoi NWR - Draft Comprehensive Conservation Plan
Vermont Fish and Wildlife Department - Wildlife Action Plan
Lake Champlain Basin Program - Opportunities For Action Document
Lower Great Lakes/St. Lawrence Plain Bird Conservation Region Draft Plan (BCR 13)
Partners in Flight - St. Lawrence Plain - Bird Conservation Plan
Vermont Agency of Natural Resources - Clean and Clear Action Plan
Indiana Bat Recovery Plan

Targeted Species and Habitats - Winooski/Lake George Aquatic Target Area
The Winooski/Lake George target area encompasses some of the most diverse aquatic resources in the Lake Champlain Watershed. The water resources of this target area unit have been altered by the construction of dams, transportation infrastructure, floodplain encroachment, and the loss of riparian habitat for last 3 centuries. The disturbance, fragmentation, and alteration of in-stream aquatic habitat and riparian habitat negatively impacted numerous aquatic and riparian species. Federal trust species which depend on in-stream habitat and riparian habitats associated with the Winooski/ Lake George target area include American eel, lake sturgeon, landlock Atlantic salmon, American black duck, wood duck, and American woodcock. There are also several at-risk-species fish species including eastern channel darter, eastern sand darter, stonecat, and several at-risk native mussel species including eastern pearlshell, pocketbook, fluted-shell, creek heelsplitter, pink heelsplitter, fragile papershell, black sandshell, giant floater, and cylindrical papershell.

Challenges - Winooski/Lake George Aquatic Target Area
Winooski River Watershed has the largest human population of any of the Lake Champlain sub-basins, and the Lake George watershed has one of the fastest growing human populations of any of the Lake Champlain sub-basins. The impacts and alterations associated with population growth and development will continue to affect the in-stream aquatic habitat and the riparian habitat within the Winooski/Lake George target area for years to come.

Partnership Opportunities- Winooski/Lake George Aquatic Target Area
Below is a list of plans and action strategies developed to restore, conserve, and protect the valuable in-stream and riparian resources of the Winooski/Lake George target area:

Vermont Fish and Wildlife Department - Wildlife Action Plan
Vermont Fish and Wildlife Department - Draft Native Mussel Recovery Plan
U.S. Fish and Wildlife Service - National Fish Passage Program and Nation Fish Habitat Action Plan
Lake Champlain Basin Program - Opportunities For Action Document
Lower Great Lakes/St. Lawrence Plain Bird Conservation Region Draft Plan (BCR 13)
Atlantic Northern forest Bird Conservation Region Plan (BCR 14)
Partners in Flight - St. Lawrence Plain - Bird Conservation Plan
Vermont Agency of Natural Resources - Clean and Clear Action Plan

Restoration Strategies
Habitat improvement priorities for the Champlain Valley geographic focus area include: 1) riparian habitat restoration through the establishment of native vegetation and livestock exclusion; 2) wetland habitat restoration though hydrologic restoration and establishment of native vegetation; and 3) in-stream aquatic habitat improvement through barrier removal and restoration of geomorphic processes.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lake Champlain Valley Focus Area are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	425 acres
Wetlands Protected	0 acres
Uplands Improved	175 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	51 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Target Species Benefited

Listed Species Benefited

Indiana Bat

Unlisted Species Benefited

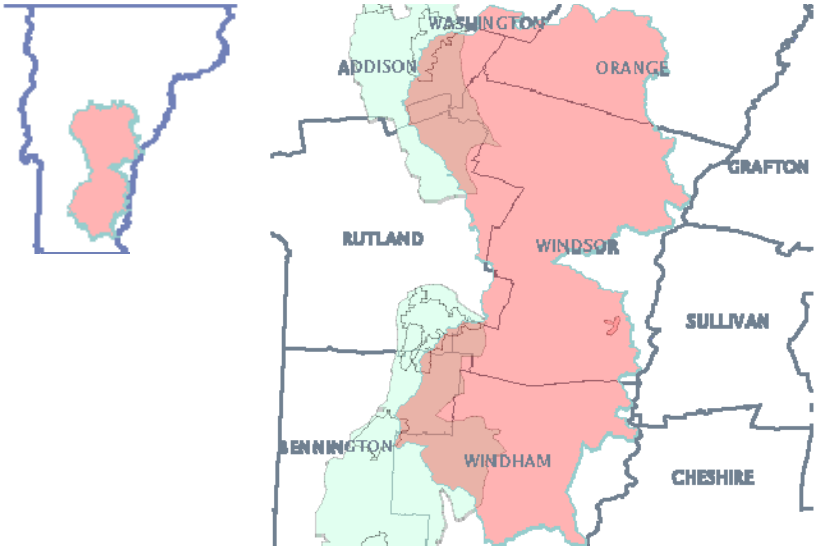
American Woodcock	Lake sturgeon
Wood Duck	Atlantic salmon
American Black Duck	Eastern pearlshell
Common Goldeneye	Pocketbook
Black-crowned Night-Heron	Fluted-shell
American Bittern	Charr
Cerulean Warbler	Eastern pearlshell
Canada Warbler	Fluted-shell
Willow Flycatcher	Pocketbook

V. Connecticut River System Focus Area (Vermont, Massachusetts, and Connecticut)

This Focus Area encompasses the following focal units identified in HabITS:

- Connecticut Valley Rivers and Streams Focal Unit
- Deerfield River/Middle Connecticut River Focal Unit
- Lower Connecticut River/Tidal Mainstem Focal Unit

Connecticut Valley Rivers and Streams Focal Unit



Description

Ecosystem Description
The Lower Connecticut Valley (VT) focus area encompasses the White River Watershed, the Black/Ottauquechee Watershed, and the West River Watershed. Historically the landscape of the Lower Connecticut Valley (VT) focus area featured extensive sugar maple and silver maple riparian natural communities and miles of stream channel without barriers. Today, the landscape of the focus area is a combination of forest, agricultural fields, farms and rural towns. The main stem of the White River is one of the last free-flowing rivers in the State of Vermont and is the longest undammed tributary to the Connecticut River. Both the Black/Ottauquechee and the West River Watersheds support the federally listed dwarf wedge mussel. This connectivity and diversity of aquatic and riparian resources make the Lower Connecticut Valley (VT) focus area ecologically very important.

Targeted Species and Habitats
Federal trust species which depend on in-stream and riparian habitats of the Lower Connecticut Valley (VT) focus area include dwarf wedge mussel, Atlantic salmon, American eel, chestnut-sided warbler, olive-sided flycatcher, and American woodcock. There are also several at-risk native mussel species including eastern pearlshell, pocketbook, brook floater, and alewife floater. Projects which would benefit the above suite of species would also benefit the eastern brook trout, a species of importance identified by the National Fish Habitat Action Plan and the Eastern Brook Trout Joint Venture.

According to the Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River, the Lower Connecticut Valley (VT) focus area contains the top two, and three of the top five watersheds for Atlantic salmon rearing habitat potential. The White and West River Watersheds are designated as Special Focus Areas of the Conte National Fish and Wildlife Refuge, and the

White River Watershed was named a National Showcase Watershed by the Environmental Protection Agency.

Land Use and Ownership
The Lower Connecticut Valley (VT) focus area landscape can be defined as a working landscape. Land use is dominated by forestry and agriculture production. Agricultural operations range in size from large scale dairies (1000 animals) to small organic vegetable farms. Active forestry production is common throughout the headwater sections of the focus area. The majority of the landscape is in private ownership, with ownership ranging in size from a quarter acre to several thousand acres.

Challenges
Though the main stem of the White River provides adequate connectivity, a majority of the riparian corridors in the Lower Connecticut Valley (VT) focus area have been negatively impacted by development, transportation systems, agriculture, and past forest management. Transportation infrastructure has fragmented many stream reaches in the sub-watersheds and is the major source sediment. At the turn of the century, the landscape of this focus area was only 20 percent forested, leaving lasting impacts. Large-scale gravel mining was common until 1986. River morphologists have concluded that many of the tributaries are still experiencing instability due to decades of intensive gravel mining. Sedimentation from eroding banks, elevated water temperatures, and the loss of other riparian functions has reduced aquatic habitat quality and quantity.

Restoration Strategies
Habitat improvement priorities for the Lower Connecticut Valley (VT) focus area include: 1) riparian habitat restoration through the establishment of native vegetation and livestock exclusion; 2) in-stream aquatic habitat improvement through enhancement of aquatic habitat features and restoration of geomorphic processes; and 3) restoration of fish passage through dam removal and barrier removal.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lower Connecticut Valley Rivers and Stream Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	150 acres
Wetlands Protected	0 acres
Uplands Improved	70 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	42 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	5 structures

Target Species Benefited

Listed Species Benefited

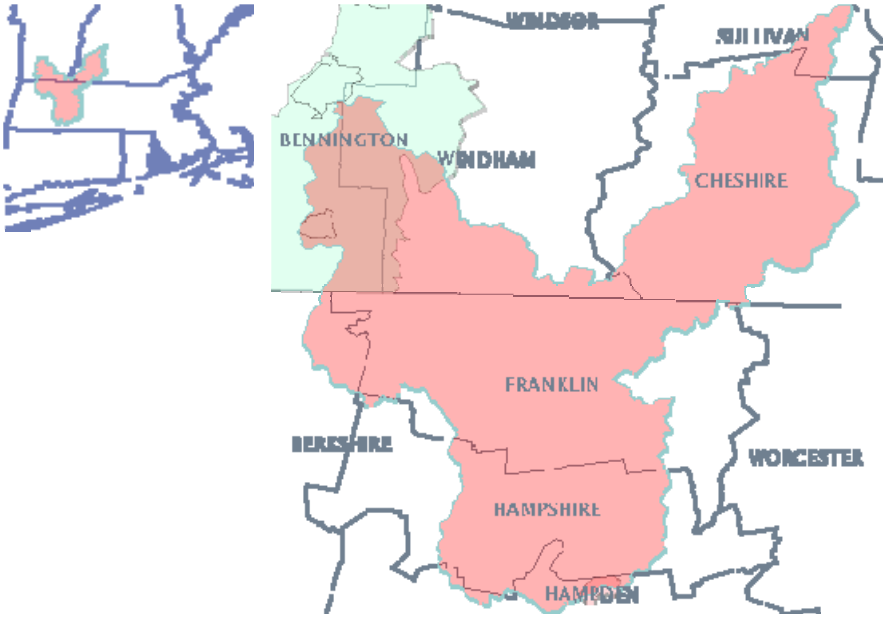
Dwarf wedgemussel

Unlisted Species Benefited

Ppocketbook
Eastern pearlshell
Brook floater
Chestnut-sided Warbler
Olive-sided Flycatcher
Yellow Warbler, Dendroica petechia
Common Merganser

Atlantic salmon
Charr
Pocketbook
Eastern pearlshell
Alewife floater
American eel
Alewife floater

Deerfield River/Middle Connecticut River Focal Unit



Description

Lower Connecticut

The northern portion of the Lower Connecticut River watershed contains rivers and streams that support (or historically supported) populations of the federally endangered dwarf wedgemussel (DWM). A recent survey verified DWM in Stony Brook, the Podunk River and the lower Farmington River, Connecticut. That report also noted severe habitat degradation in the Stony Brook and Podunk drainages that likely limits the abundance and long-term sustainability of these populations. The restoration strategy for these populations involves identifying and protecting the source populations within each drainage and restoring riparian habitat to improve water quality. Partners for Fish and Wildlife staff will work closely with Endangered Species staff and state Natural Heritage staff, along with the Natural Resources Conservation Service, the Farmington River Watershed Association, the North Central Conservation District, and private landowners to identify priority areas for protection and restoration. The majority of the lands abutting the target drainages are privately owned, with a mix of residential, commercial and agricultural use. Within the next 5 years, partners hope to (1) protect headwater habitat and (2) restore 2 miles of instream/riparian habitat. The greatest challenge to restoring DWM habitat likely will be instituting appropriate riparian buffers to reduce in-stream sedimentation. Strategies that will be utilized to achieve habitat restoration include: (1) working together to secure the required funds to complete the tasks; (2) establishing clearly defined objectives; (3) conducting significant outreach/education activities within the identified priority areas; (4) moving forward on those projects with the greatest chance of success; and (5) performing post-project monitoring to ensure project goals were achieved (e.g., mussel surveys that document a biological response or water quality surveys that show improvement in one or more parameters important to DWM). This project, which benefits a trust resource of the Service, furthers the

goals and objectives identified in the following plans: 1) Connecticut Department of Environmental Protection. Connecticut's Comprehensive Wildlife Conservation Strategy. October 2005 (http://www.teaming.com/state_pages/connecticut_cwcs.htm); 2) Nedeau, E. 2006. Freshwater Mussel Survey in Nine Connecticut Streams. Prepared for the Connecticut Chapter of the Nature Conservancy by Biodrawversity; and 3) Moser, G.A. Dwarf Wedge Mussel Recovery Plan. 1993.

The northern Lower Connecticut River watershed also contains the 1700 acre floodplain habitat known as Longmeadow Flats, an area supporting imperiled and critically imperiled natural communities. Habitat types include floodplain forest, sandplain grassland, and wetlands. Five hundred acres of the 1,700 acre floodplain have been permanently protected by the landowners: The Allen Bird Club and the Town of Longmeadow. The Allen Bird Club created the Fannie Stebbins Memorial Wildlife Refuge on its property, which has been listed by the National Park Service as a National Natural Landmark because it is one of the best examples of a biotic community it its physiographic province. In addition, the Fannie Stebbins Refuge has been designated an Important Bird Area by the Audubon Society because of its importance to migratory birds as both a nesting and stopover area. Six state listed species of plants, two listed bird species, and one listed dragonfly occur on this site. Habitat quality is suffering due to invasion by a number of exotic plant species. The Fannie Stebbins Refuge has previously worked with the Conte National Fish and Wildlife Refuge to control both water chestnut and purple loosestrife. Moving forward, efforts will focus on controlling other invasives, such as Japanese knotweed and garlic mustard through a combination of mechanical and chemical measures. The biggest challenge to restoring this habitat will be the risk of re-infestation of invasives. Fortunately, both landowners are committed to long-term monitoring and management of these ecologically important areas to minimize this risk. The strategies that will be utilized to meet habitat restoration goals include: 1) working together to secure the required funds to complete the tasks; 2) establish clearly defined objectives; 3) provide detailed records of control activities; 4) conduct short-term monitoring to ensure project goals were achieved and long-term monitoring to assure sustained success; and 5) use restoration activities as an opportunity to educate the public about invasive species. Partners include the Allen Bird Club, the Fannie Stebbins Memorial Wildlife Refuge, and the Longmeadow Conservation Commission. Within the next 5 years, partners hope to restore 9 acres of wetlands and 50 acres of uplands to benefit species of conservation concern. Habitat restoration within Longmeadow Flats, which benefits trust resources of the Service, furthers the goals and objectives identified in the following plans: 1) Massachusetts Department of Fisheries and Wildlife. Massachusetts' Comprehensive Wildlife Conservation Strategy. September 2006. (http://www.mass.gov/dfwele/dfw/habitat/cwcs/cwcs_home.htm); and 2) the Mid-Atlantic New England Maritimes Waterbird Working Group. Waterbird Conservation Plan: 2006-2010. December 2006. (http://www.fws.gov/birds/waterbirds/manem/index.html).

Middle Connecticut

The Middle Connecticut - Deerfield focus area is a critical component of efforts to restore diadromous fish to the Connecticut River watershed. This focus area contains two major tributaries (the Deerfield and Ashuelot Rivers) and a number of smaller tributaries (including the Manhan, Mill and Green Rivers) that historically supported Atlantic salmon, American shad,

blueback herring, and American eel (all of which have been designated as Species of Conservation Concern in New England).

For over 2 decades, an interagency group (the Connecticut River Atlantic Salmon Commission) has worked to restore migratory fish throughout the watershed. Efforts have been focused on providing upstream and downstream passage at mainstem dams, and downstream passage on tributaries stocked with salmon fry. At this point in the restoration program, providing upstream passage at selected tributaries (via dam removal or constructed fishways) to increase access to suitable spawning and rearing habitat is a primary objective. Stakeholder groups comprised of Federal, State, and municipal agencies, as well as non-governmental organizations, businesses and private landowners, have formed on the Green, Manhan, and Ashuelot Rivers to work towards cumulatively restoring 2 miles of riverine habitat and providing access to over 40 miles of spawning and rearing habitat at six existing barriers. Additionally, a comprehensive survey of road culverts and bridges was completed in the Ashuelot watershed in 2006 to assess fish passage at those structures. The survey is expected to lead to efforts to replace impassable culverts to restore diadromous fish passage in the watershed. Removal of impassable dams and culverts in the Ashuelot watershed is also expected to assist in recovery efforts for the federally listed DWM by restoring passage and habitat for the tesselated darter, the intermediate host of the DWM. The two main challenges to achieving the objective of restoring habitat connectivity will be to secure the necessary funding and to gain public acceptance; constructed fishways can be very expensive and public sentiment sometimes works against the removal of dams, which some perceive to be an inherent part of the landscape. These two challenges tend to make this type of habitat restoration a lengthy process, sometimes taking many years to accomplish. Therefore, the strategies that will be utilized to meet habitat restoration goals include: 1) establishing clearly defined objectives; 2) conducting significant outreach/education activities to promote the benefits of restoring habitat connectivity; 3) relying on objective methods such as Alternative Analyses and Feasibility Studies to identify which restoration method is most suitable for a given site; 4) building stakeholder consensus and buy-in on the preferred alternative; 5) working together to secure the required funds to complete the tasks; 6) motivating partners to stay engaged through sometimes lengthy delays in the process; and 7) incorporating sufficient pre- and post-project monitoring in the overall plan to ensure restoration goals are realized (e.g., fisheries surveys documenting presence, distribution, and abundance of target species above a given barrier, or fishway sampling to determine numbers and species of fish utilizing the passage facilities). Restoration of habitat connectivity within selected tributaries of the Connecticut River will benefit diadromous fish species and an endangered species of mussel (trust resources of the Service), and further the goals and objectives identified in the following plans: 1) Massachusetts Department of Fisheries and Wildlife. Massachusetts Comprehensive Wildlife Conservation Strategy. September 2006. (http://www.mass.gov/dfwele/dfw/habitat/cwcs/cwcs_home.htm); 2) Connecticut River Atlantic Salmon Commission. Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River. 1998. (http://www.fws.gov/r5crc/Stuff/stplan.html); 3) Connecticut River Atlantic Salmon Commission. Management Plan for the Restoration of River Herring in the Connecticut River Basin. Amended October 5, 2004. (http://www.fws.gov/r5crc/herring_management_plan.pdf); 4) Atlantic States Marine Fisheries Commission. Fishery Management Report No. 36. Interstate Fishery Management Plan for

American Eel. April 2000. (http://www.asmfc.org/speciesDocuments/eel/fmps/eelFMP.pdf); 5) New Hampshire Fish and Game Department. Plan for the Restoration of Migratory Fishes to the Ashuelot River Basin, New Hampshire. 1998; and 6) Moser, G.A. Dwarf Wedge Mussel Recovery Plan. 1993.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Middle Connecticut Deerfield Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Target Species Benefited

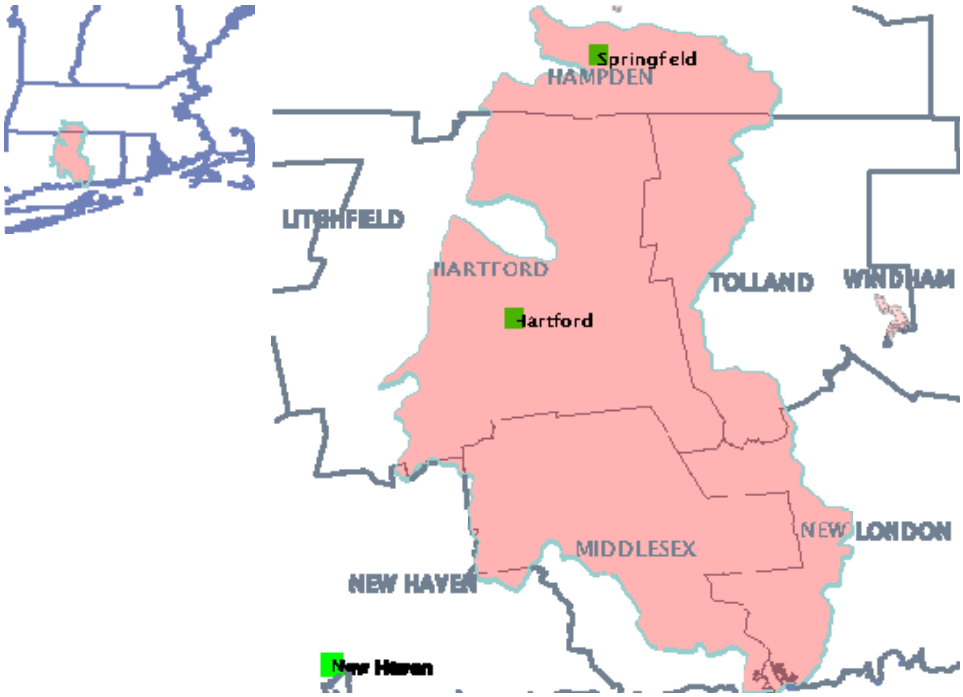
Listed Species Benefited

Dwarf wedgemussel

Unlisted Species Benefited

Blueback shad
American shad
American eel
Tessellated darter
Sea lamprey
Atlantic salmon
Blueback shad

Lower Connecticut River/Tidal Mainstem Focal Unit



Description

The Southern New England/New York Bight Coastal Program (SNEP) works with numerous partner agencies, non-government organizations, and private landowners throughout the Connecticut River Tidal Mainstem focus area to protect and restore important habitats for trust species. SNEP and the Connecticut Department of Environmental Protection produced a habitat assessment identifying important ecological resources throughout the tidal Connecticut River region, which led to the area being designated as a Ramsar Wetland of International Importance. Strong partnerships have been developed with State of Connecticut environmental agencies and non-government conservation organizations to share information and expertise, and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help

access Service funds from a variety of grant sources. Funding sources and associated partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. There is strong interest in habitat restoration and conservation in this area including fish passage, saltmarsh restoration, and invasive species control, and protection of tidal freshwater marsh systems.

This focus area includes the tidal portion of the Connecticut River buffered with an area of approximately 10 miles of connected tributaries and contiguous upland. While the area is within the watershed of Long Island Sound, it is a focus because of the special character of its wetland diversity, coastal barriers, tidal rivers, and floodplain forests. There are no areas in the Northeast that support such extensive or high quality fresh and brackish tidal wetland systems. The corridor is a significant resource for inter-jurisdictional fish populations and for migratory birds during the spring. The complex of Lower Connecticut Estuary and Tidal Wetlands was designated as a Ramsar site, wetland of international importance in 1994.

The linear and interconnected riparian and riverine system of the Connecticut River is important as a migratory corridor for diadromous fish including American shad, river herrings, Atlantic salmon, shortnose and Atlantic sturgeon, white perch, American eel, and sea lamprey. Although striped bass do not currently spawn in the river, there is a very large run of the fish ascending the river for foraging on fishes such as river herring.

The lower Connecticut River supports large communities of wintering waterfowl including black duck, mallard, blue-winged and green-winged teal. The wetlands have been identified as regionally important black duck habitat under the North American Waterfowl Management Plan. The intertidal mudflats and shores associated with marshes around the mouth are especially attractive to migratory shorebirds, and up top 30 species can be observed there.

Neotropical migratory landbirds use the habitats associated with and bordering the river with a recorded presence of 142 species in the lower river alone. The habitats provide important nesting habitat for approximately 20 species of seriously declining Neotropical migrants. Recent studies confirm that the River corridor is important to the movement of these migrants into the interior of the watershed and into the tributary watersheds. The relatively unfragmented character of the corridor makes it valuable to forest interior breeding birds.

The area supports several species protected or recently protected under the Endangered Species Act including piping plover, bald eagle, puritan tiger beetle, Atlantic salmon, and shortnose and Atlantic sturgeon.

Threats to trust species include fish passage barriers in tributaries, non-point source pollution, habitat fragmentation, invasive species, and encroachment on wetlands.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lower Connecticut River/Tidal Mainstem Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	390 acres
Wetlands Protected	0 acres
Uplands Improved	220 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	50 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	1 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	1 structures

Target Species Benefited

Listed Species Benefited

Dwarf wedgemussel
Shortnose sturgeon
Puritan tiger beetle
Bald eagle
New England cottontail rabbit
Piping Plover

Unlisted Species Benefited

Gray's sedge
Spring beauty
Common Moorhen
Manyfruit primrose willow
Sharpwing monkeyflower
Swamp dock

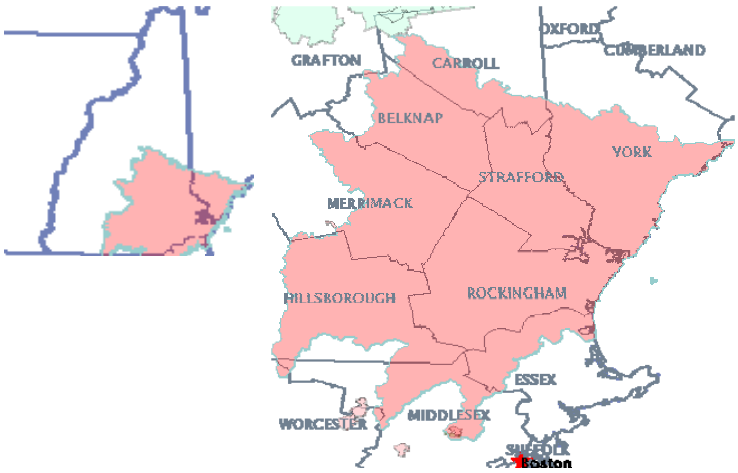
Green dragon
Gray's sedge
Tessellated darter
Green dragon
Blue-winged Teal
Mallard
American Black Duck
Bay anchovy
American Bittern
Semipalmated Sandpiper
Semipalmated Plover
Sedge Wren
American gizzard shad
Little Blue Heron
Nnorthern pike
Mummichog
Least Bittern
Northern river otter
Diamondback Terrapin
Osprey, Pandion haliaetus
Black-bellied Plover
Pied-billed Grebe
King Rail
Shad herring
American shad
Inshore sand lance
Green-winged Teal
Virginia Rail
Clapper Rail
Least Tern
Lesser Yellowlegs
Greater Yellowlegs
Grasshopper Sparrow
Upland Sandpiper
Sedge Wren
Timber Rattlesnake
Prairie Warbler
Bobolink
Horned Lark
Yellow-breasted Chat
Bobcat
Vesper Sparrow
Eastern Meadowlark
Common Barnb Owl
Golden-winged Warbler

VI. Southern Gulf of Maine/Nantucket Sound Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- Lower Merrimack-Great Bay Focal Unit
- Cape Cod//Buzzards Bay/Cape Islands Estuary Focal Unit

Lower Merrimack/Great Bay Focal Unit



Description

The Gulf of Maine coastal plain of New Hampshire and northern Massachusetts, including the lower Merrimack River watershed, the "Great Marsh" coastal wetland complex of New Hampshire and Massachusetts, and the Great Bay Estuary of New Hampshire, is composed of a variety of important trust resource habitats that were formed as part of a complex glacial history (glacial drift and outwash plains). The Focus Area includes a mix of tidal wetlands (Great Bay Estuary in New Hampshire and the "Great Marsh" tidal wetlands from southern New Hampshire to Gloucester, Massachusetts), freshwater wetlands, two major river systems (Merrimack and Piscataqua), smaller coastal rivers and streams, and a variety of terrestrial habitats. Several of these habitats are important to Federal and State listed species, or to species that have been defined as declining or at-risk by Federal and/or State wildlife agencies. Historic impacts to some of these habitats include tidal wetland filling and restrictions to tidal flow, construction of barriers to the passage of diadromous fish, introduction of non-native invasive plants, and the agricultural clearing of the original oak-pine forest with subsequent farm abandonment and a reversion to a second-growth forest. These impacts, when combined with the current rapid pace of residential development, have led to fragmentation of terrestrial and aquatic habitats and degradation of water quality. Private ownership of relatively small tracts of land and the value of those lands from development pressure pose the most significant challenges for the restoration partners in the focus area.

The Service and its conservation partners (local municipalities, private landowners, New Hampshire Coastal Program, New Hampshire Fish and Game Department, Massachusetts Wetlands Restoration Program, NOAA Restoration Center) have developed restoration priorities that include:

1. Coastal Wetlands with a focus on salt marsh restoration through removal of tidal restrictions and wetland fill, and the control of invasive plant species after hydrological restoration (emphasis on Phragmites). These restoration actions would benefit target species such as the piping plover (federally listed), American black duck, American bittern, seaside and saltmarsh sharp-tailed sparrows, and northern harrier (also see Atlantic Coast Joint Venture Plan (Great Bay Waterfowl Focus Area - http://www.acjv.org/wip/acjv_wip_northeast.pdf), Partners In Flight-Physiographic Area 9 Plan (Southern New England) (http://www.blm.gov/wildlife/pl_09sum.htm), North American Bird Conservation Initiative Plan (Bird Conservation Region 30 - (http://www.acjv.org/bcr30_draft.htm), and New Hampshire State Wildlife Action Plan (http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm));

2. Coastal Rivers and Streams with a focus on restoration of diadromous fish passage through dam removal or installation of fish passage structures to benefit target species such as the Atlantic salmon, alewife, blueback herring, rainbow smelt, American shad, American eel (see New Hampshire Wildlife Action Plan (http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm), and the Strategic Plan for the Restoration of Anadromous Fish to the Merrimack River (http://www.fws.gov/r5cneafp/merplan.pdf)). Anticipated outcomes not listed in the Cumulative 5 year targets include, restoring access of diadromous fish to 20 miles of river channel habitat for spawning/rearing habitat

3. Forest Management with a focus on the restoration of early successional upland habitats. Restoration actions, developed in partnership with private landowners, will include timber harvest, land clearing, invasive species control, and the planting of native flora. These collaborative efforts will restore critical habitat for the New England Cottontail (Federal Candidate species) as well as New Hampshire species of conservation concern including the American woodcock, eastern meadowlark, prairie warbler, chestnut-sided warbler, eastern towhee, and grasshopper sparrow.

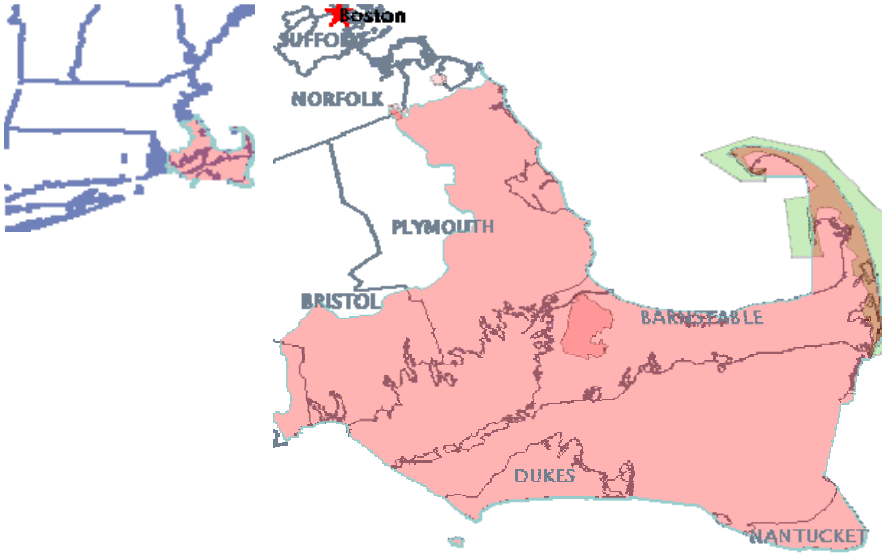
Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lower Merrimack/Great Bay Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	100 acres
Wetlands Protected	0 acres
Uplands Improved	50 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	6 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	5 structures

Cape Cod/Buzzards Bay/Cape Islands Estuary Focal Unit



Description

Cape Cod is composed of a matrix of important trust resource habitats that were formed as part of a complex glacial history (glacial drift and outwash plains) from the last ice age and includes a mix of tidal wetlands, freshwater wetlands, coastal rivers and streams, scrub oak communities, and dune and sandplain habitats. Several of these habitats are important to Federal and State-listed species or species that have been defined as declining or at-risk by Federal and/or State wildlife agencies. Historic impacts to some of these habitats include tidal wetland filling and restrictions to tidal flow, construction of barriers to the passage of diadromous fish, conversion of freshwater wetlands (e.g., rare Atlantic White Cedar Swamps) to commercial cranberry bogs, suppression of natural wildfire, and the introduction of non-native invasive plants. These impacts when combined with the pressures of increasing residential development, associated impacts of terrestrial and aquatic habitat fragmentation, and potential degradation of water quality have brought the Service and many of its conservation partners, e.g., Cape Cod municipalities, Massachusetts Wetlands Restoration Program, NOAA Restoration Center, Massachusetts Division of Marine Fisheries, and Massachusetts Riverways Program, together to develop habitat restoration priorities. Education of local stakeholders, including municipal officials and adjacent landowners, about the impacts of the habitat degradation is a significant challenge for the restoration partnership, e.g., many of the tidal restrictions have been in place over 100 years and the environmental consequences of the restriction are difficult for the public to perceive. The lengthy assessment of restoration project sites, relatively small tracts of private land ownership (increased number of landowner contacts), and the high cost of property also pose challenges to habitat restoration practitioners on Cape Cod.

Cape Cod (Barnstable County) and Plymouth County restoration priorities include:

1. Coastal Wetlands with a focus on salt marsh restoration through removal of tidal restrictions and wetland fill to benefit target species such as the federally listed piping plover, American black duck, seaside and saltmarsh sharp-tailed sparrows, northern harrier, diamondback terrapin (also see Atlantic Coast Joint Venture Plan (6 waterfowl focus areas - http://www.acjv.org/wip/acjv_wip_northeast.pdf), Partners In Flight (Southern New England) Plan (http://www.blm.gov/wildlife/pl_09sum.htm), North American Bird Conservation Initiative (Bird Conservation Region 30 Plan (http://www.acjv.org/bcr30_draft.htm), and Massachusetts State Wildlife Action Plan (http://www.mass.gov/dfwele/dfw/cwcs/dfw_cwcs.htm);

2. Coastal Streams with a focus on restoration of diadromous fish passage through dam removal, or installation of fish passage structures to benefit target species such as alewife, blueback herring, rainbow smelt, American shad, American eel (see Massachusetts Department of Marine Fisheries, Tech. Report 16, http://www.mass.gov/dfwele/dmf/publications/technical.htm). Anticipated outcomes not described in the Cumulative five year targets above, include restoring diadromous fish passage to 10 miles of river channel and 50 acres of coastal pond habitat for access to spawning/rearing habitat;

3. Freshwater Wetlands with a focus on a) coastal plain ponds (target species - federally listed Plymouth Redbelly Turtle) and b) abandoned commercial cranberry bogs to restore forested and shrub-scrub wetlands (target - Atlantic White Cedar Swamps defined as S2 by the Massachusetts Natural Heritage and Endangered Species Program (MANHESP)) (see also http://www.mass.gov/dfwele/dfw/nhesp/nhclass.htm); and

4. Restoration and management of rare Massachusetts sandplain grassland (S1), sandplain heathland (S1), and maritime dune (S2) communities (MANHESP) and management of early successional upland habitats to benefit focal species such as sandplain gerardia (federally listed) New England Cottontail (Federal Candidate Sp.), New England Blazing Star, Prairie Warbler, Eastern Towhee, and American Woodcock using techniques such as vegetative clearing, mechanical disturbance, invasive plant control, native species plantings, and prescribed fire.

The coastal zone of Buzzards Bay is characterized by a variety of important habitats including salt marshes, tidal streams, eelgrass beds, tidal flats, barrier beaches, rocky shores, and a number of subtidal habitats. The northwestern shore on the mainland is composed of pronounced bays and peninsulas formed by the retreating glaciers and allowing habitats to form protected from some of the direct ocean wave energy. The southeastern shore that forms the coast of Cape Cod and the chain of Elizabeth Islands, is a more even deposition of sand and gravel that have formed barrier spits in many places. The western coastline of this area, which transcends into the State of Rhode Island, includes several coastal salt ponds that support several important habitats communities of plants and animals.

The Buzzards Bay area supports herons, egrets including the globally declining Snowy Egret, terns including the federally endangered Roseate Tern and state listed Least Tern, gull nesting and feeding, nesting by the federally threatened Piping Plover, and use areas by other shorebirds for nesting and migration. Over a dozen species of waterfowl are found including high priority scooter sea ducks, and the highest priority Black Duck. Important eelgrass areas abound in this unity, serving as a nursery area for many fish species including foraging species for larger prey. The shallow waters of this unit are habitat for several migrating inter-jurisdictional fish including summer flounder and bluefish. There are numerous coastal rivers and streams that provide habitat to migratory alewives. Threats in this focus area stem primarily from human activity resulting in physical encroachment/competition/fragmentation/destruction from construction and recreation, non-point pollution, and commercial shipping.

SNEP works with numerous partner agencies, non-government organizations, and landowners throughout the Buzzards Bay/Cape Islands Estuary focus area to protect and restore important habitats for trust species. SNEP produced the Northeast Coastal Areas Study that identifies important resource areas throughout the south facing shorelines of Connecticut, Massachusetts and the Cape Islands. Strong partnerships have been developed with the Buzzards Bay National Estuary Program, state environmental agencies, and non-government conservation organizations to share information and expertise and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help access Service funds from a variety of grant sources. Funding sources and associated partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. Strong interest exists in habitat restoration and conservation in this area including fish passage, saltmarsh restoration, invasive species control, and protection of natural coastline features from oil spills.

This focus area includes the waters, islands, shoreline, coastal ponds, and adjacent upland areas on the south side of Cape Cod and the southeastern Massachusetts mainland continuing westward to Rhode Island. This includes Monomoy Island (with Service NWR property), Nantucket, Martha's Vineyard, the Elizabeth Islands, No Mans Island (with Service NWR property), and Buzzards Bay proper.

The coastal zone of Buzzards Bay is characterized by a variety of important habitats including salt marshes, tidal streams, eelgrass beds, tidal flats, barrier beaches, rocky shores, and a number of subtidal habitats. The northwestern shore on the mainland is composed of pronounced bays and peninsulas formed by the retreating glaciers and allowing habitats to form protected from some of the direct ocean wave energy. The southeastern shore that forms the coast of Cape Cod and the chain of Elizabeth Islands, is a more even deposition of sands and gravels that have formed barrier spits in many places.

The western coastline of this focus area, near and into Rhode Island, includes several coastal salt ponds that support several important habitats communities of plants and animals.

The Bay itself is an estuary, mixing salt and fresh water providing a variety of valuable estuarine habitats for fish, shellfish, birds and mammals, mostly typical of the mid-Atlantic coastal region from Cape Cod to the Chesapeake Bay. Some cold water species, typical of the coastal zone north of the Cape, are also supported in Buzzards Bay waters.

The south shore of Cape Cod and the off shore islands composed of similar habitats. The shallow waters and shoals of Muskeget Channel and the areas surrounding the islands are highly productive for marine fish, shellfish, and eelgrass, providing rich feeding grounds for bird in summer and winter. Large portions of the coastal habitats, islands, and open water in this focus are identified priority bird nesting and feeding areas, migration habitats, and wintering grounds.

Priority land bird species in the coastal zone habitats found in the Buzzards Bay focus area include Seaside and Sharptailed Sparrows in the Maritime Marshlands, Wood Thrush in the mid-successional deciduous forests, American Woodcock, Prairie Warblers, and Blue-winged Warblers in the pine/oak and scrub oak barrens.

The near coastal and estuarine waters of this focus area contain significant beds of eelgrass, a priority habitat type identified by most coastal states and National Estuary Program plans. The eelgrass is a nursery area for many fish species including the smaller bait fish upon which the terns and herons feed. The shallow waters of this focus area are habitat for several migrating inter-jurisdictional fish including summer flounder and bluefish. There are numerous coastal rivers and streams that provide habitat to migratory alewives.

Many priority habitats for conservation that are listed by the Massachusetts state wildlife conservation plan and the regional step-down documents from the national bird plans, are found in this Buzzards Bay and Islands focus area including maritime marshes, early successional shrub and pine barrens and mid-successional deciduous forests, beaches and dunes, and coastal plain ponds.

Twenty four state listed rare species of plants or animals are found in the coastal zone and adjacent waters of this focus area.

Threats in this focus area to the health and conservation of fish, wildlife and related habitats, largely are issues from people; physical encroachment/competition/fragmentation/destruction from construction and recreation, non-point pollution, commercial shipping such as fuel barge traffic that has the added threat of pollutant spills. Problems with non-native invasive species also exist.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lower Connecticut River/Tidal Mainstem Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	150 acres
Wetlands Protected	0 acres
Uplands Improved	50 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	7 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	5 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	50 acres
Wetlands Protected	50 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	2 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species Benefited

Plymouth Red-Bellied Turtle
Piping Plover
Sandplain gerardia
New England cottontail rabbit

Unlisted Species Benefited

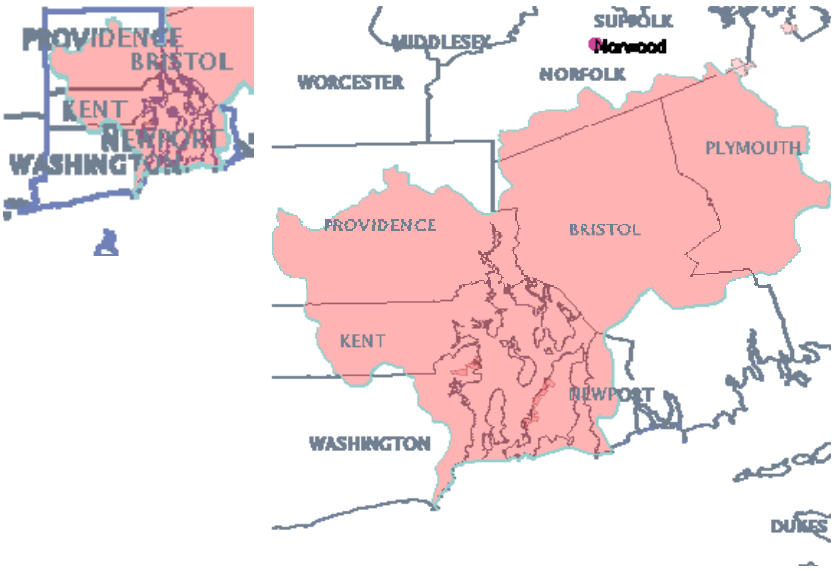
Blueback shad
Bigeye herring
Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
American Black Duck
American eel
Short-eared Owl
Northern Harrier
Diamondback Terrapin
Rainbow smelt
Sea lamprey
Short-eared Owl
Northern Harrier
New England blazing star
American Woodcock
Spotted Turtle
Rainbow smelt
Sea lamprey
American shad

VII. Long Island/Narragansett Bay Focus Area

This Focus Area encompasses the following Focal Units identified in HabITS:

- Narragansett Bay Focal Unit
- Pawcatuck Wood Focal Unit
- Rhode Island Sound and Coastal Salt Ponds Focal Unit
- Western Long Island Sound/ Central Connecticut Shore Focal Unit
- Long Island South Shore Estury Reserve/Peconic Estuary Focal Unit

Narragansett Bay Focal Unit



Description

The Narragansett Bay watershed is primarily in Massachusetts and drains six major river systems: Blackstone, Pawtuxet, Taunton, Woonasquatucket, Hunt, and Moshassuck Rivers, and provides 90 percent of the fresh water flow. This system bay has 256 miles of shoreline including islands, and is 25 miles long and 10 miles wide. Nearly 2 million people live in the watershed, and the upper bay is urbanized around the Port of Providence.

Southern New England Estuary Program (SNEP) works with numerous partner agencies and non-government organizations and landowners throughout the Narragansett Bay focus area to protect and restore important habitats for trust species. SNEP produced the Northeast Coastal Areas Study that identifies important area resource, as well as worked closely with the Narragansett Bay National Estuary Program to produce a Rhode Island Coastal Atlas. Strong partnerships have been developed with the Narragansett Bay National Estuary Program, state environmental agencies, and non-government conservation organizations to share information

and expertise and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help access Service funds from a variety of grant sources. Funding sources and associated partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. Strong interest exists in habitat restoration in this area including fish passage, eelgrass restoration, saltmarsh restoration, and invasive species control. SNEP biologists are a voting member of the Rhode Island Habitat Restoration Trust Fund which allocates $200 to $500K per year for habitat restoration projects.

The Narragansett Bay focus area encompasses the watershed area from the Bay mouth generally thought of as an east west line from Sakonnet Point to Point Judith Point to the most northerly point in the watershed. The drainage basin is some 4,790 km2 (1,849 sq. miles) of land, most of which is in Massachusetts. The watershed drainage basin actually contains six major river systems: Blackstone, Pawtuxet, Taunton, Woonasquatucket, Hunt, and Moshassuck Rivers, and provides 90%of the fresh water flow. The top third of the Bay (Providence River) is highly stratified (unmixed) while the lower two-thirds are well mixed (vertically homogeneous).

Narragansett Bay has 256 miles (412 kilometers) of shoreline including islands, and is 25 miles (40 kilometers) long and 10 miles (16 kilometers) wide, with a 147 square mile surface area, having a average depth of 26 feet (7.8 meters), and an average salinity of 29 to 31 parts per thousand. The average bay temperature is 32°F in the winter, 69°F in the summer, with a tidal range of 3 to 4 feet every 12 hours, and an average flushing time of 26 days. Prevailing winds are from the southwest in summer and from the northwest in winter.

The Bay is characterized by a number of coastal habitats, including salt marshes, beaches, rocky shores, rocky headlands, tidal and inter-tidal sand and mudflats, fringing salt marshes, shrub wetlands, eelgrass beds, dunes, and riverine migratory corridors. Salt marshes of importance to fish propagation and water fowl have formed along the Sakonnet River, on sections of the Conanicut and Prudence shores, and up the tributaries. Forested land covers about 60 percent of Rhode Island with red oak and red maple making up the dominant species.

Within the Bay are three large islands: Aquidneck, the largest; Conanicut Island, which separates the West and East Passages; and Prudence, in the approximate center of the bay and much of which is a National Estuarine Research Reserve. There are more than a dozen smaller islands, and many rocky outcroppings. Shoreline topography is varied, in some regions sloping rather steeply to the water's edge but over relatively short distances, and in others lifting gradually only 15 or 20 feet above the high tide line. Rocky headlands and boulder-covered shores are found along the lower Bay near the entrances, while sand and gravel bluffs are more common inland. Most of the bedrock shoreline consists of conglomerate sandstone and black shales deposited over 280 million years ago.

Narragansett Bay is a highly productive estuary supporting diverse fish and wildlife resources. The salt marshes and tidal flats serve as nursery, feeding, and juvenile habitat for the many fish

species that are found here, especially interjurisdictional commercially and recreationally important species such as bluefish (Pomatomus saltatrix), winter flounder (Pleuronectes americanus), summer flounder (Paralichthys dentatus), scup (Stenotomus chrysops), and weakfish (Cynoscion regalis). The principal anadromous fishes including alewife (Alosa pseudoharengus), blueback herring (Alosa aestivalis), American shad (Alosa sapidissima), American eel (Anguilla rostrata), and striped bass (Morone saxatilis) are common, especially in many of the rivers entering the bay proper. From October to April, the bay islands and rocky outcrop areas become a regionally important winter haulout for harbor seal (Phoca vitulina), gray seal (Halichoerus grypus), and other Arctic seals that feed on the rich fishery resources of the bay and nearshore waters.

The extensive fringing salt marshes and smaller islands in the Bay support significant nesting colonies of terns, gulls, and wading birds. Colonies of common terns (Sterna hirundo), herring gull (Larus argentatus), and great black-backed gull (Larus marinus) also occur on these islands, as well as a variety of waders, in black-crowned night-heron (Nycticorax nycticorax), great egret (Casmerodius albus), snowy egret (Egretta thula), and glossy ibis (Plegadis falcinellus). The salt marshes, especially in the Pettasquamscut River, support nesting by mallard, Canada Goose, clapper rail (Rallus longirostris), sharp-tailed sparrow (Ammodramus caudacutus), and possibly seaside sparrow (Ammodramus maritimus). The marshes, flats, and shallows in this tidal wetland complex and the mouths of the major rivers provide extensive feeding areas for the birds nesting here, as well as those migrating through, particularly shorebirds.

Threats in this focus area to the health and conservation of fish, wildlife and related habitats, largely are issues from people and the push to live on or near the coast. Habitat destruction through physical encroachment, competition, fragmentation, and or destruction from construction and recreation, and non-point source pollution. Problems with non-native invasive species, aquatic and terrestrial alike also exist.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Narragansett Bay Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Coastal Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Target Species Benefited

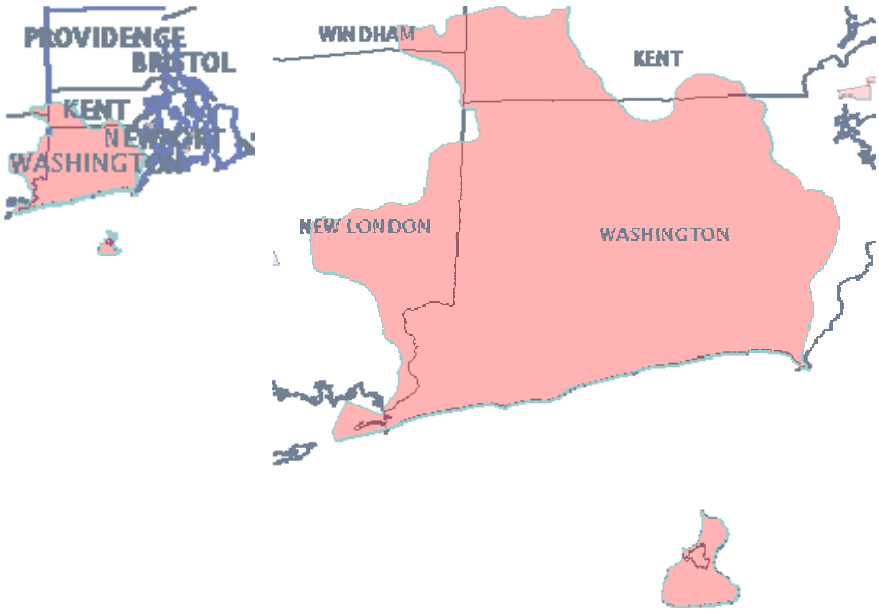
Listed Species Benefited

Piping Plover

Unlisted Species Benefited

Blueback shad
Bigeye herring
American eel
Rainbow smelt
Sea lamprey
Rainbow smelt
Sea lamprey
American shad
American Black Duck

Pawcatuck-Wood/Rhode Island Sound/Coastal Salt Ponds Focal Unit



Description

This focus area contains significant habitat critical to the long-term viability of both resident cold water and diadromous fish populations in Rhode Island. The headwaters of the watershed are primarily rural, with many acres already in protected status. The middle portion of the watershed is rural/urban with primarily residential and limited commercial/industrial development, and the lower watershed is urban with a mixed use of residential/commercial/industrial development. The overall goal is to restore instream connectivity to allow target fish species unrestricted access to suitable habitat for purposes such as spawning, rearing, feeding, dispersing, and other life history needs. Existing fishways at the two lowermost dams on the mainstem have facilitated restoration of anadromous species such as Atlantic salmon, American shad, blueback herring and alewife to the lower portion of the watershed. Now efforts will focus on (1) restoring access to suitable spawning and rearing habitat in the upper Pawcatuck River to benefit diadromous fish species by removing dams or constructing fishways at barriers to migration, and (2) restoring stream connectivity at road crossings throughout the watershed by replacing culverts to benefit native eastern brook trout. To achieve this goal, a stakeholder group comprised of Federal, State, and municipal agencies, as well as non-governmental organizations and private landowners, has formed to work toward cumulatively restoring access to 7 miles of riverine habitat and nearly 1300 acres of spawning and rearing habitat at four existing barriers. Additionally, a comprehensive survey of road culverts and bridges was completed recently in the Wood River portion of the watershed to assess fish passage at those structures. The Queens River, a tributary on the upper Pawcatuck River, is scheduled to be surveyed next. Results of these surveys will lead to identification and prioritization of culverts that should be replaced to restore habitat connectivity and passage for both diadromous and resident fish such as the eastern brook trout. The two main challenges to achieving the objective of restoring habitat connectivity will be to secure the necessary funding and to gain public acceptance; constructed fishways can

be very expensive and public sentiment sometimes works against the removal of dams, which some perceive to be an inherent part of the landscape. These two challenges tend to make this type of habitat restoration a lengthy process, sometimes taking many years to accomplish. Therefore, the strategies that will be utilized to meet habitat restoration goals include: 1) establishing clearly defined objectives; 2) conducting significant outreach/education activities to promote the benefits of restoring habitat connectivity; 3) relying on objective methods such as Alternative Analyses and Feasibility Studies to identify which restoration method is most suitable for a given site; 4) building stakeholder consensus and buy-in on the preferred alternative; 5) working together to secure the required funds to complete the tasks; 6) motivating partners to stay engaged through sometimes lengthy delays in the process; and 7) incorporating sufficient pre- and post-project monitoring in the overall plan to ensure restoration goals are realized (e.g., fisheries surveys documenting presence, distribution, and abundance of target species above a given barrier, or fishway sampling to determine numbers and species of fish utilizing the passage facilities). Restoration of habitat connectivity within the upper Pawcatuck River and cold water tributaries will benefit diadromous fish species and brook trout (trust resources of the Fish and Wildlife Service) and further the goals and objectives identified in the following plans: 1) Fishery Management Report No. 36 of the Atlantic States Marine Fisheries Commission. Interstate Fishery Management Plan for American Eel. April 2000 (http://www.asmfc.org/speciesDocuments/eel/fmps/eelFMP.pdf); 2) Amendment 1 to the Interstate Fishery Management Plan for Shad & River Herring. April 1999; 3) Erkan, Dennis E. Strategic Plan for the Restoration of Anadromous Fishes to Rhode Island Coastal Streams. Rhode Island Department of Environmental Management/ Division of Fish and Wildlife. December 2002 (http://www.dem.ri.gov/programs/bnatres/fishwild/pdf/riap2002.pdf); 4) Wood-Pawcatuck Watershed Association. Wood-Pawcatuck River Action Plan. July 2003 (http://www.wpwa.org/Action%20Plan/ActionPlan.htm); and 5) Eastern Brook Trout Joint Venture. Conserving the Eastern Brook Trout: Strategies for Action, Working Draft #3. September 25, 2006 (http://www.easternbrooktrout.org/docs/EBTJV_Conservation_Strategy_Working_Draft.pdf).

SNEP works with numerous partner agencies, non-government organizations, and landowners throughout Rhode Island Sound and Coastal Salt Ponds focus area to protect and restore important habitats for trust species. SNEP produced a Natural Resource Areas Study identifying ecologically important resource areas in the southern New England coastal zone and in conjunction with the Rhode Island NWR Complex, SNEP partnered in production of the Rhode Island Refuge Comprehensive Conservation Management Plan that identifies priority trust resources and conservation activities. Along with a strong relationship with the Rhode Island Refuge Complex, partnerships have been developed with state environmental agencies and non-government conservation organizations to share information and expertise, and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help access Service funds from a variety of grant sources. Funding sources and associated partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. Strong interest for habitat restoration exists in this area including issues of fish passage, eelgrass restoration, saltmarsh restoration, invasive

species control, and for shorebird and waterbird habitat protection.

This focus area includes the waters, shoreline, and adjacent upland areas on the south or ocean side of Rhode Island including the nine coastal ponds, and Block Island but excluding Narragansett Bay, and the eastern shore areas of Aquidneck Island (Newport, etc.), Sachuest Point, and Sakonnet River.

The south coastal zone of Rhode Island is characterized by a variety of important habitats including salt ponds (lagoons), salt marshes, coastal streams, tidal flats, barrier beaches and dunes, sand shores, and a number of subtidal habitats. These shallow-water-related habitats support several guilds of bird such as waterbirds, including herons, egrets, rails, state threatened Least Terns, and the federally endangered Piping Plover. The pond waters support eelgrass and other habitats important as nursery areas for migratory and interjurisdictional fishes, including passage of herring into the coastal streams. Waterfowl extensively use the salt ponds, the adjacent mud flats, and the near shore shallow waters for migration and wintering grounds. The draft plan for Bird Conservation Region 30 identifies all these coastal ponds and the entire near-shore strip of water as a waterfowl focus area. Similarly, this Rhode Island coastal zone is also identified as a priority shorebird focus area.

The adjacent uplands include a mix of deciduous and coniferous forests of medium age including some pitch pine/scrub oak forest, often with a shrub under story. This near coastal upland also has a collection of coastal plain and kettle ponds that contain unique wetland habitats to the region. Along with extensive patches of Rhododendron and mountain laurel, and other forest under story scrub/scrub habitat, this upland forest zone provides a collection of priority habitats for breeding, migrating and wintering land birds. Some of the specific birds of concern listed for this priority habitat by the Partners in Flight plan are Wood Thrush, Baltimore Oriole, American Woodcock, warblers and Sharp-shinned Hawks.

Also in this focus area is Block Island which is about 9 miles off the mainland coast. This island is a portion of the terminal glacial moraine as is the south fork of Long Island, and Nantucket Island in Massachusetts. Although significantly modified by human activities, the island has retained some of its unique natural features. Its shrubland serves as important autumn resting and feeding sites for migratory land birds, has moraine grassland habitat active with the federally endangered American Burying Beetle, and the island supports nesting waterbird colonies and nesting Piping Plover.

In the near-coastal and open sound waters of this focus area, several migrating inter-jurisdictional fish are common to these waters, including summer flounder and bluefish, and dradromous fish such as alewife and American eel, which use the area to access their breeding or maturation areas in the nearby coastal streams.

Many of the habitats listed as priorities for conservation by the Rhode Island State wildlife conservation plan and the regional step-down documents from the national bird plans, are found in this coastal focus area including pitch pine/scrub oak forests, early successional and coastal scrub/forest, sand and cobble areas and mud flats and special palustrine freshwater wetlands as

found around the kettle ponds and vernal ponds in this focus area.

Threats to the health and conservation of fish, wildlife and related habitats in this focus area are largely issues originating with people; physical encroachment, and competition, fragmentation, or destruction from construction, recreation, and non-point pollution. Non-native invasive species are increasingly reducing the wildlife value of habitat surviving encroachment from human use.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Pawcatuck-Wood/Rhode Island Sound/Coastal Salt Ponds Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	50 acres
Wetlands Protected	0 acres
Uplands Improved	50 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	50 acres
Wetlands Protected	50 acres
Uplands Improved	5 acres
Uplands Protected	25 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	2 structures

Target Species Benefited

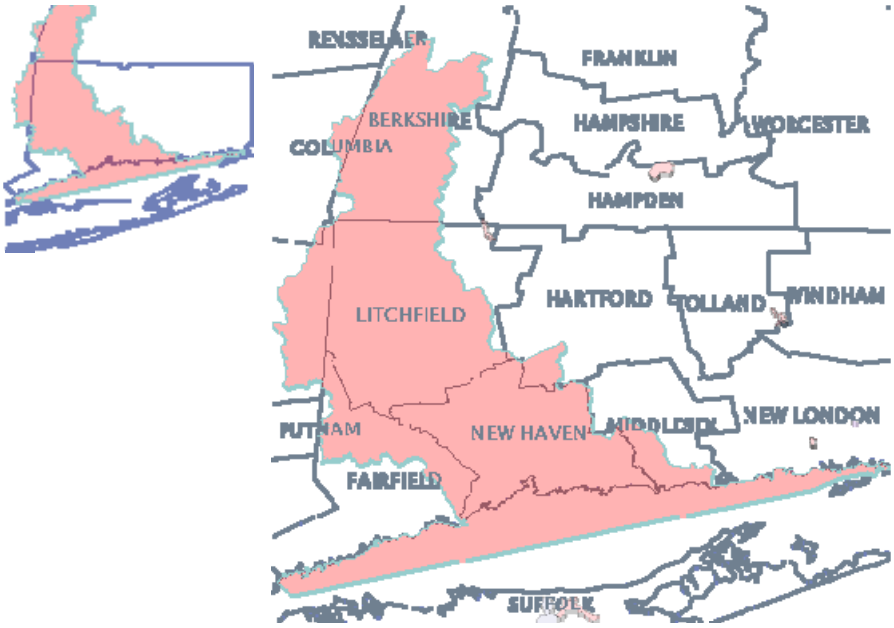
Listed Species Benefited

American burying beetle

Unlisted Species Benefited

Saltmarsh Sharp
Seaside Sparrow
American Black Duck
Diamondback Terrapin
Short-eared Owl
Northern Harrier
Bobolink
New England blazing star
American Woodcock
Blueback shad
Bigeye herring
American shad
American eel
Rainbow smelt
Atlantic salmon

Western Long Island Sound/Central Connecticut Shore Focal Unit



Description

The Central Connecticut Coast encompasses a great diversity of habitats including upland oak forests, scrub oak woodlands, coastal shrublands, heaths, and dunes, warm season grasslands, offshore islands, tidal wetlands, cobble and sand beaches, and estuaries. This is also an area of intense population density – based on the Connecticut and New York populations, an estimated 10 million people reside within 50 miles of this federally designated Estuary of National Significance. This unit includes the Stewart B. McKinney NWR, approximately 1,000 acres of land along the Connecticut coast (8 islands and 3 mainland units).

The central portion of the state is important as a focal unit due to its important wildlife resources such as the piping plover, currently owned Refuge lands and adjacent habitats, and due to the large areas of undeveloped lands suitable for wildlife. Approximately 30 percent of Connecticut's tidal wetlands have been destroyed to date due to anthropogenic influences. Ditches were created in most Connecticut salt marshes at the turn of the century for salt hay farming and to reduce mosquito abundance. Other impacts to salt marshes have been caused by mill pond creation, the development of roads, and filling of wetlands for urban development. An average of 34 pairs of the federally threatened piping plover breeds along Connecticut beaches. The federally endangered Roseate tern breeds on Falkner Island, a portion of the Stewart B. McKinney Refuge with a large colony of common terns. Common terns, least terns, and American oystercatchers are other common species breeding in Connecticut. On the southern side of the Sound, the rocky offshore islands along the shoreline of Bronx and Westchester counties contain regionally significant concentrations of wintering and migrating waterfowl such as greater scaup, American widgeon and American black duck.

SNEP works with numerous partner agencies, non-government organizations, and landowners throughout the Long Island Sound and coastal watershed focus area to protect and restore important habitats for trust species. SNEP produced an ecological inventory for this two-state area as a first step in developing a stewardship system. Existing strong partnerships have been enhanced with the EPA-Long Island Sound National Estuary Program, NOAA, state agencies, and non-government conservation organizations to share information and expertise and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help access Service funds from a variety of grant sources. Funding sources and associated partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. Strong funding opportunities exist through the Long Island Sound Futures Fund, managed by the National Fish and Wildlife Foundation, and significant acquisition and restoration funds authorized by the Long Island Sound Stewardship Act are expected to be appropriated by Congress.

This focus area is largely delineated by the watershed boundary in New York, the coastally influenced vegetation in Connecticut, and includes tidal and sub-tidal habitats of the Sound. An estimated 10 million people reside within 50 miles of this Estuary of National Significance. Although dense urban development dominates the western portion, the eastern portion includes substantially less-developed landscape. There are 12 Service-identified, coastal habitat complexes of significance contained within this focus area that provide crucial habitat for trust resources. Eelgrass beds represent an important submerged aquatic vegetation resource in this focus area, serving as a food source for American Brant and providing habitat for shellfish and finfish that contribute to the food web for other trust resources.

The habitats of most interest in this focus area include tidal wetlands, freshwater wetlands, beaches and dunes, coastal grasslands, intertidal flats, cliffs and bluffs, islands, benthic and water column, riverine migratory corridors, rocky intertidal zones, shellfish reefs, submerged aquatic vegetation, and estuarine embayments. The Long Island NWR and Stewart B. McKinney NWR

manage several units within this area.

Shorebirds, wading birds, and wintering and breeding waterfowl species are well represented in this focus area. The rocky offshore islands along the shoreline of Bronx, Westchester, and Fairfield Counties support colonial waterbird colonies of regional significance. Oyster Bay, Northport Bay, Lloyd Harbor, and Cold Spring Harbor contain regionally significant concentrations of wintering and migrating waterfowl such as greater scaup, American widgeon, and American black duck. Shorebirds such as piping plover use barrier beach habitats in selected areas such as Short Beach on the north shore and Pleasure Beach near Stratford, Connecticut. Faulkner Island, Connecticut contains one of the largest nesting colonies of Roseate terns, a species listed as endangered.

This focus area includes important spawning and nursery habitat for inter-jurisdictional fishes. Larger rivers such as the Thames and Housatonic support American shad, river herring, striped bass, American eel, and white perch. The State of Connecticut operates a comprehensive fish passage program that has identified barriers throughout the coastal watershed, assists individual project sponsors, and implements fishway and other solutions. A variety of smaller fish inhabiting marshes and shoals serve as important food sources for nesting and migrating birds.

Species within this focus area that are protected or recently protected by the Endangered Species Act include bald eagle, peregrine falcon, piping plover, roseate tern, Atlantic salmon, shortnose and Atlantic sturgeon, and several sea turtles.

Threats to trust resources include non-point source pollution, industrial contaminants, residential and commercial development, sea level rise, invasive species, and tidal wetland loss.

Conservation targets FY 2007 through FY 2011

Our habitat goals for the Western Long Island Sound/Central Connecticut Shore Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	100 acres
Wetlands Protected	0 acres
Uplands Improved	20 acres
Uplands Protected	10 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	100 acres
Wetlands Protected	50 acres
Uplands Improved	50 acres
Uplands Protected	50 acres
Riparian Streams Shorelines Improved	3 miles
Riparian Streams Shorelines Protected	2 miles
Fish Passage Structures	3 structures

Target Species Benefited

Listed Species Benefited

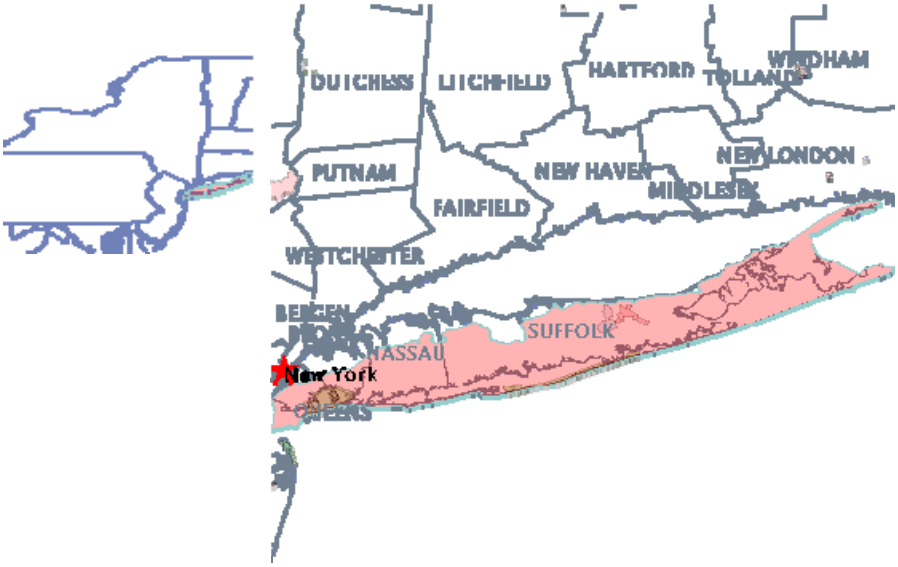
Piping Plover
Roseate tern
New England cottontail rabbit

Unlisted Species Benefited

Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
Grasshopper Sparrow
Green-winged Teal
Blue-winged Teal
Mallard
American Black Duck
American Bittern
Semipalmated Sandpiper
Great Egret
Semipalmated Plover
Northern Harrier
Sedge Wren
Little Blue Heron
Snowy Egret
Tricolored Heron
Mummichog
Least Bittern
Diamondback Terrapin
Black-crowned Night-Heron
Osprey
Glossy Ibis

Black-bellied Plover	Common Tern
Pied-billed Grebe	Lesser Yellowlegs
King Rail	Greater Yellowlegs
Virginia Rail	Canada Goose
Clapper Rail	Bobolink
Least Tern	Black Skimmer

Long Island South Shore Estuary Reserve/Peconic Estuary Focal Unit



Description

The South Shore Estuary Reserve of Long Island consists of a barrier beach/backbarrier lagoon system extending in an east-west direction for 90 miles along the south shore of the island, from Coney Island in New York City east to Southampton at the eastern end of Shinnecock Bay. The bay complex occurs in the Coastal Plain physiographic province, also referred to as the Coastal Lowlands ecological zone. The bay and barrier beach sediments are composed predominantly of sand and gravel derived from glacial outwash and marine sources.

SNEP works with numerous partner agencies and non-government organizations and landowners throughout South Shore Estuary (SSER) of Long Island focus area to protect and restore important habitats for trust species. SNEP, in conjunction with New York State Department of State (NYS DOS), produced a Natural Resource Areas Study identifying ecologically important resource areas. Strong partnerships have been developed with NYS DOS, state environmental agencies, and non-government conservation organizations to share information and expertise and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help access Service funds from a variety of grant sources. Funding sources and associated

partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. Strong interest exists with our partners in the restoration of habitat in this area including fish passage, eelgrass restoration, saltmarsh restoration, and invasive species control.

The South Shore Estuary Reserve (SSER) of Long Island consists of a barrier beach/backbarrier lagoon system extending in an east-west direction for 145 kilometers (90 miles) along the south shore of the island, from Coney Island in New York City east to Southampton at the eastern end of Shinnecock Bay. The bay complex occurs in the Coastal Plain physiographic province, also referred to as the Coastal Lowlands ecological zone. The bay and barrier beach sediments are composed predominantly of sand and gravel derived from glacial outwash and marine sources.

The SSER complex of Shinnecock Bay, Moriches Bay, and Great South Bay is a highly productive estuary supporting diverse fish and wildlife resources. The salt marshes and tidal flats serve as nursery, feeding, and juvenile habitat for the many fish species that are found here, especially inter-jurisdictional commercially and recreationally important species such as bluefish (Pomatomus saltatrix), winter flounder (Pleuronectes americanus), summer flounder (Paralichthys dentatus), scup (Stenotomus chrysops), weakfish (Cynoscion regalis). Anadromous alewife (Alosa pseudoharengus) and catadromous American eel (Anguilla rostrata) are common, especially in many of the tidal Creek in this complex. The blueback herring (Alosa aestivalis) and Atlantic sturgeon (Acipenser oxyrhynchus) are occasionally found. The largest concentration of spawning habitats for anadromous fish are found in Great South Bay where six groundwater-fed bodies: Orowoc Creek, Champlin Creek, Connetquot River, Swan River, Beaverdam Creek, and Carmans River empty. The bays also contain viable shellfish habitats

From December to early May, the Inlet areas becomes a regionally important haulout for harbor seal (Phoca vitulina), gray seal (Halichoerus grypus), and other Arctic seals that feed on the rich fishery resources of the bay and nearshore waters. Cetaceans including minke whales (Balaenoptera acutorostrata) occur in the nearshore waters throughout the year, while bottlenosed dolphin (Tursiops truncatus) occur inshore during the summer and fall. Winter brings finback whales feeding close to shore along the southern Long Island coast from Shinnecock Bay east to Montauk Point. Northern right whales (Eubalaena glacialis) are occasionally sighted off of the bay complex. Juvenile loggerhead sea turtles regularly use the Bays in the summer and adults and juveniles occur in nearshore waters all along Long Island's south shore. Juvenile green sea turtles feed in the Bays during the summer. Northern diamondback terrapins inhabit the marshes and waters of the bay, going ashore to breed in the dunes and sandy swes of the barrier beach.

The SSER Bays are significant waterfowl wintering areas on Long Island. Between November and March, large concentrations of greater and lesser scaup (Aythya marila and A. affinis), American black duck (Anas rubripes), red-breasted merganser (Mergus serrator), brant (Branta bernicla), common goldeneye (Bucephala clangula) and, to a lesser degree, mallard (Anas platyrhynchos), Canada goose (Branta canadensis), oldsquaw (Clangula hyemalis), canvasback (Aythya valisineria), and bufflehead (Bucephala albeola) use the bay for wintering, except when prohibited by the extent of ice cover. The bay is also used as a migration stopover during the

spring (March to April) and fall (October to November) migrations. Diving ducks are distributed throughout the Bays and Dabbling ducks are concentrated along the back side of the Barrier Beach Complex.

The salt marsh and dredged material islands in the Bays support significant nesting colonies of terns, gulls, and wading birds. Large colonies of common terns (Sterna hirundo), Black skimmer (Rynchops niger), herring gull (Larus argentatus), and great black-backed gull (Larus marinus) also occur on these islands, as well as a variety of waders, including black-crowned night-heron (Nycticorax nycticorax), great egret (Casmerodius albwy egret (Egretta thula), glossy ibis (Plegadis falcinellus), and little blue heron (Egretta caerulea), American oystercatcher (Haematopus palliatus) nest in small numbers at several islands in the bays. The salt marshes behind the barrier beaches support nesting by mallard, Canada Goose, clapper rail (Rallus longirostris), sharp-tailed sparrow (Ammodramus caudacutus), and seaside sparrow (Ammodramus maritimus). The marshes, flats, and shallows in this tidal wetland complex are used extensively for feeding by the birds nesting here, as well as those migrating through, particularly shorebirds.

The entire length of the barrier beaches supports or has supported significant nesting for least tern and piping plover; numerous colonies are spread out over this stretch. American oystercatcher also nests at several beach sites. The undeveloped beach, dunes, and marshes on the barrier islands, provide critical foraging and resting areas for thousands of migrating raptors each year. The most numerous species seen are sharp-shinned hawk (Accipiter striatus), American kestrel (Falco sparverius), merlin (Falco columbarius), northern harrier, osprey, Cooper's hawk, and peregrine falcon. These barrier beaches also contain rare plant species, including the federally listed threatened seabeach amaranth and the globally rare seabeach knotweed (Polygonum glaucum).

The primary threats to these habitats include human disturbance of sensative areas, development, shoreline configuration and stablization projects, invasive species and non-point source pollution.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Long Island South Shore Estuary Reserve/Peconic Estuary Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Coastal Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	20 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Target Species Benefited

Listed Species Benefited

Piping Plover
Northern harrier
Seabeach amaranth

Unlisted Species Benefited

Sharp-shinned Hawk
Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
Canada Goose
Canvasback
American Black Duck
Common Goldeneye
Lesser Scaup
Greater Scaup
Great Egret
Northern Harrier
Oldsquaw
Seaside knotweed
Mallard
Snowy Egret
American Peregrine Falcon
American Kestrel
American Oystercatcher
Diamondback Terrapin
Black-crowned Night-Heron
Osprey
Glossy Ibis

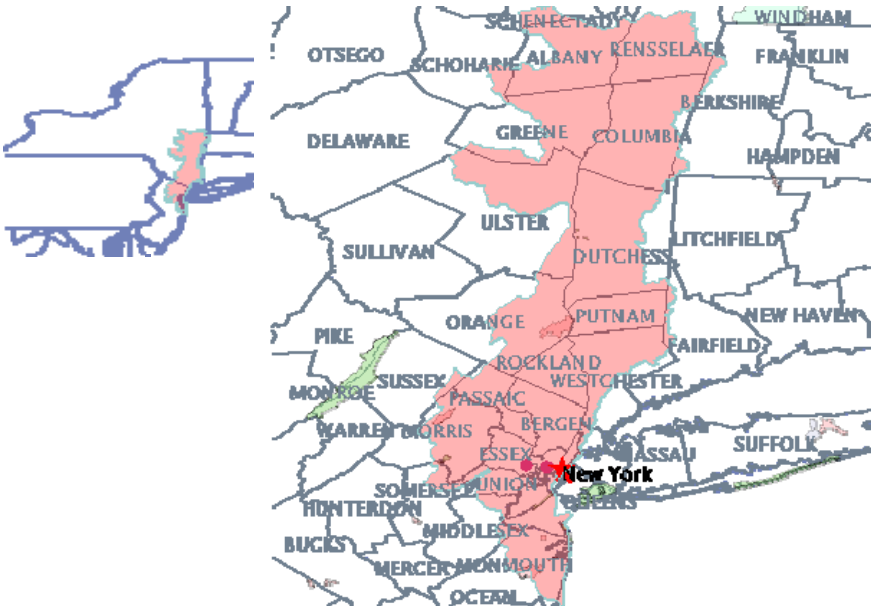
Clapper Rail
Least Tern
Common Tern
Black Skimmer
Herring Gull
Little Blue Heron
Red-breasted Merganser
Merlin
Scup
Bluefish
Summer flounder
Weakfish
Bigeye herring
American eel
Blueback shad
Atlantic sturgeon
Harbor seal
Diamondback Terrapin
Baltic gray seal
Northern minke whale
Bottlenosed dolphin

VIII. New York/New Jersey Harbor Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- New York/New Jersey Harbor/Tidal Hudson River Focal Unit
- Passaic/Hackensack Rivers Focal Unit

New York/New Jersey Harbor/Tidal Hudson River Focal Unit



Description

SNEP works with numerous partner agencies and non-government organizations and landowners throughout the New York-New Jersey Harbor/Tidal Hudson focus area to protect and restore important habitats for trust species. SNEP produced the Significant Habitats and Habitat Complexes of the New York Bight Watershed Study identifying ecologically important resource

areas throughout this region to complement the Comprehensive Conservation Management Plan produced by the New York/New Jersey Harbor Estuary Program. Strong partnerships have been developed with the EPA National Estuary Program, state environmental agencies, and non-government conservation organizations to share information and expertise and leverage funds for conservation projects. Coastal Program biologists provide technical expertise and develop or lead coordinated restoration, conservation, or enhancement projects, and often help access Service funds from a variety of grant sources. Funding sources and associated partners tapped for this work include Service Coastal Program funds, grants under the North American Wetland Conservation Act, state coastal wetland grants, National Fish and Wildlife grants, and Service fish passage program and endangered species funds. Strong interest exists in habitat restoration with partners in this area including issues of fish passage, saltmarsh restoration, and invasive species control.

The New York-New Jersey Harbor/Tidal Hudson River, by virtue of both its geographic position and its enormous human influence upon the regional landscape and biota, is a critical juncture for many of the Services' Trust Resource, especially migratory species. Several regionally significant habitats and habitat complexes have been identified within this area and Jamaica Bay and Breezy Point, Raritan Bay-Sandy Hook Bay, Hackensack Meadowlands, Lower Hudson River, and the Tidal Hudson River. The immediate watershed consists of that land area associated with and including all rivers and waterways draining directly into the Harbor proper. Dominating the hydrology of this system is the 515-kilometer (320-mile) Hudson River. Other major rivers include the Hackensack River, the Passaic River, the Raritan River, and the Shrewsbury/Navesink; collectively, they account for about 13 percent of the flow into the Harbor.

Both upland and aquatic habitats have been drastically altered since pre-colonial times. Approximately 121,410 hectares (300,000 acres) of tidal wetlands and underwater lands have been filled and only about 20 percent (6,270 hectares [15,500 acres]) of the once existing tidal wetlands remain. Of the estimated 90,653 hectares (224,000 acres) of freshwater wetlands that existed in New York City prior to the American Revolution, only small areas remain. At the same time, a large percentage of the upland area has become urban developed land. Census data from 1990 indicate an average density in the metropolitan area of 5,915 people per square mile.

There are 395 species of special emphasis known to occur within the urban core area. The wide range of aquatic and bottom (benthic) habitats in the Harbor support a correspondingly high diversity of fish species, including a large number of anadromous and marine migrants, and numerous planktonic and benthic fauna. The estuary serves as an important migration corridor for many anadromous fish both as they proceed toward prime spawning areas in the main stem of the Hudson or in one of the numerous tributaries and as they migrate downstream and seaward to the ocean as part of their adult life cycle.

A total of 101 fish species were reported in the data sets used; marine species were the most abundant (70 percent) in the entire system, and the greatest diversity occurred in the waters of highest salinities. Migratory fishes make up about 10 percent; this area is primarily an adult migration corridor to the Hudson and other tributaries and as juvenile nursery and overwinter habit. The principal anadromous fishes included alewife (Alosa pseudoharengus), blueback

herring (Alosa aestivalis), American shad (Alosa sapidissima), American eel (Anguilla rostrata), striped bass (Morone saxatilis), tomcod (Microgadus tomcod), rainbow smelt (Osmerus mordax), Atlantic sturgeon (Acipenser oxyrhynchus), hickory shad (Alosa mediocris), and shortnose sturgeon (Acipenser brevirostrum). The shortnose sturgeon is a federally listed endangered species, and the tomcod is on the New Jersey state threatened species list. Freshwater species made up 10 percent of the total species present

Several species of waterfowl breed in the New York Harbor area, most notably mallard (Anas platyrhynchos), American black duck (Anas rubripes), Canada goose (Branta canadensis), and gadwall (Anas strepera). The primary use of the Harbor by waterfowl is during fall migration (peaking in November) and as wintering areas. Approximately 25 percent of the Atlantic Flyway population of greater scaup winters in New York Harbor, especially in Raritan Bay/Sandy Hook Bay and western Long Island Sound

Although only a relatively few species of shorebirds, such as spotted sandpiper (Actitus macularia), willet (Catoptrophorus semipalmatus), killdeer (Charadrius vociferus), piping plover (Charadrius melodus), and American oystercatcher (Haematopus palliatus), breed in or near the Harbor, nearly 30 species of shorebirds regularly use and migrate through the Harbor and on the rich food resources of the marshes, flats, and shallow water areas to replenish their reserves before continuing on their migration. The two sand spits, Sandy Hook and Breezy Point, that extend into the entrance of the Harbor support some of the largest nesting populations of piping plover, least tern (Sterna antillarum), common tern (Sterna hirundo), and black skimmer (Rhynchops niger) in the region. Other terns that nest in small numbers in or near the Harbor include Forster's tern (Sterna forsteri), gull-billed tern (Sterna nilotica), and the federally listed endangered roseate tern (Sterna dougallii).

Regionally significant colonies of herons, egrets, and ibises occur in the Arthur Kill and Kill van Kull known as the Harbor Herons Complex. The long-legged wading birds of these heronries, feed throughout the shallow waters and marshes of the New York-New Jersey Harbor, especially in the Arthur Kill marshes and tributaries, the Hackensack Meadowlands, Jamaica Bay, and the shallow waters, bays, and marshes of the Narrows

The small mammal and songbird populations of the urban core provide a rich food resource for resident and migratory raptor populations. Breeding raptors include northern harrier (Circus cyaneus), osprey (Pandion haliaetus), common barn owl (Tyto alba), and peregrine falcon (Falco peregrinus). Overwintering raptors include northern harrier, rough-legged hawk (Buteo lagopus), American kestrel (Falco sparverius), common barn owl, short-eared owl (Asio flammeus), long-eared owl (Asio otus), and peregrine falcon.

Both short and long distance migrant songbirds migrate through the urban core, and small numbers of many species nest and/or winter in the urban core area. Breeding Bird Atlas data from New York and preliminary Atlas data from New Jersey indicate that 172 species of birds are probable or confirmed breeders in the Harbor core.

Four species of marine turtles regularly occur in the New York Bight, including the Harbor. The northern diamondback terrapin (Malaclemyst terrapin) is found feeding and nesting in salt

marshes and adjacent uplands throughout the Harbor all the way up to Piermont Marsh.

The unique geography and variety of habitat types in the metropolitan region, including coastal plain, upland forest, open field, river valley, and successional habitat, makes this area especially attractive to butterflies. About 100 species of butterflies, including several rare species, regularly occur in and around New York City. The rich diversity of butefly species is indicative of the diversity of other less documented migratory insect populations such as dragonflies and darners.

Marine mammals extensively use the nearby waters of the New York Bight and occasionally come into New York Harbor. The most commonly observed marine mammal is the harbor seal (Phoca vitulina), which winters in the Harbor and hauls out onto islands in Jamaica Bay, Sandy Hook, Staten Island. Terrestrial mammals in the urban core are limited by the amount of available habitat. The most abundant small mammals are those that have adapted to human habitation.

There are several rare natural communities in the urban core, including the coastal dune woodlands and maritime forest found on Sandy Hook (Raritan Bay-Sandy Hook Bay complex), the traprock glade communities found on the Watchung Ridges (Preakness Mountain), the brackish tidal marsh complex at Piermont Marsh (Lower Hudson River), the Hempstead Plains grassland found on Long Island (Long Island Grasslands), the marine rocky intertidal habitats found in the Westchester County shoreline of Long Island Sound (the Narrows), and the swamp forests, oak hybrid forests, and serpentine barrens found on Staten Island. The northern part of Staten Island is underlain by serpentine rock or serpentinite, the only occurrence of this bedrock type in the watershed and the region. The chemical properties of serpentine soils and the xeric (dry) conditions found here limit vegetation, resulting in a distinctive barrens community that is considered globally rare. These remnant serpentine barrens and the surrounding open space should be preserved and managed to maintain, enhance, and restore these rare communities and plants.

The primary threats to area habitats include development, infrastructure upgrades, non-point source pollution, invasive species and environmental contaminants.

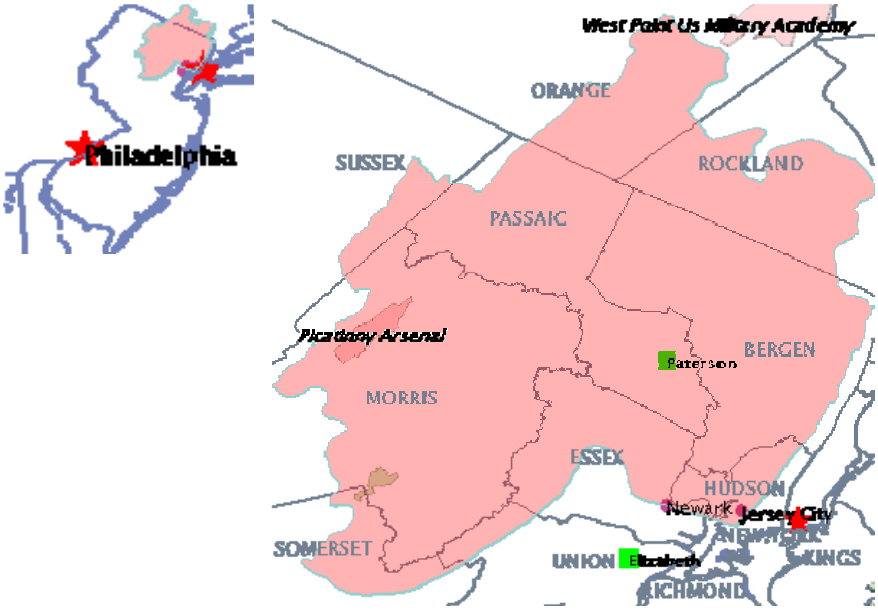
Conservation Targets FY 2007 through FY 2011

Our habitat goals for the New York/New Jersey Harbor/Tidal Hudson River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Coastal Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	***Target Acreage FY 2007-2011***
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Passaic/Hackensack Rivers Focal Area/Unit



Description

The Passaic/Hackensack Rivers Focus Area includes large patches of estuarine and riparian habitat surrounded by dense residential, commercial, and industrial development. Habitat in the Focus Area varies from estuarine emergent wetlands and subtidal shallows to riparian forested corridors, palustrine forested wetlands, and upland blocks of forest and scrub-shrub habitat. Many large tracts of freshwater marsh occur in the focus areas as remnants of Glacial Lake Passaic. These include the one NWR (Great Swamp), as well as Black Meadows, Troy Meadows, Hatfield Swamp, Lee Meadows, Little Piece Meadows, Great Piece Meadows, and Bog and Vly Meadows. Many of the isolated freshwater wetlands in the western portion of this focus area harbor the federally threatened bog turtle (Clemmys muhlenbergii), as well as many atate listed amphibians. The focus area supports one federally threatened, one federally endangered, 13 state endangered, 12 state threatened, and 70 species of special concern or regional priority species. Numerous state parks and several Wildlife Management Areas occur in the area.

Upland and wetland forests at the western extent of the focus area support area-sensitive forest species including barred owl (Strix varia) and red-shouldered hawk (Buteo lineatus), state threatened and state endangered, respectively, and forest-nesting songbirds. The eastern extent of the focus area supports estuarine and freshwater tidal wetlands that support extensive breeding and foraging habitat for waterfowl, wading birds, raptors, and some passerines. The state endangered peregrine falcon (Falco peregrinus) breeds in the focus area mainly on bridge structures. Kearny Marsh, within the focus area, recently supported several significant waterbird breeding populations of species with elevated conservation status in the state, including the largest breeding population of pied-billed grebe (Podilymbus podiceps) in New Jersey, the largest American coot (Fulica americana) breeding site in the state, and a large breeding

population of least bittern (Ixobrychus exilis).

The Passaic/Hackensack Rivers Focus Area supports 34 species of fish and provides important nursery habitat for both anadromous and marine species. The Hackensack is a polluted tidal river with high sediment concentrations of contaminants and low levels of dissolved oxygen in the summer and thus the dominant fish are the resident estuarine fish tolerant of fluctuations in salinity and water quality. Impaired water quality in the Passaic and Hackensack Rivers is partly due to denuded riparian corridors and degraded wetlands throughout their watersheds. This focus area continues to be threatened by extensive development, invasive species, and lingering contaminant problems.

Restoration and enhancement activities in this focus area target freshwater wetlands, riparian corridors, and mature deciduous forest to benefit migratory birds and federally listed species. Most projects occur in the southern or western portions of the focus area (e.g., Morris County).

Bog turtle projects

New Jersey's bog turtle (Clemmys muhlenbergii) habitat lies mostly in the northwest of the state, including the western portion of the Passaic/Hackensack Rivers Focus Area, and has been degraded by aggressive exotic invasive vegetation, such as multiflora rose (Rosa mulitflora) and common reed (Phragmites australis), as well as aggressive native species such as red maple (Acer sacrum), that reduce basking, nesting, foraging, and hibernating opportunities. Removal of this invasive vegetation through chemical and physical means (e.g., tree girdling, grazing) restores bog turtle habitat and assists in this species recovery. Restoration in bog turtle habitat must follow the Service's March 10, 2006, Appendable Biological Opinion on Bog Turtle Habitat Restoration Practices.

The greatest challenge for working in bog turtle habitat is the lengthy permitting process with the state's Land Use Regulation Program that can often take over a year. However, the state's Endangered and Nongame Species Program is a proponent of these projects and can assist with developing restoration plans. Other restoration programs, such as the state's Landowner Incentive Program and the Natural Resources Conservation Service's Wildlife Habitat Incentives Program, as well as other partners, such as the New Jersey Audubon Society, help find and direct projects to partners as well as help with implementation. Endangered Species staff at the New Jersey Field Office also assist with these projects by providing technical advice, funds, and assistance with implementation. Bog turtle projects are generally time/labor intensive because most work must be done by hand. Volunteer opportunities are limited because staff must be trained for using herbicides and performing other kinds of work in bog turtle habitat.

Indiana bat projects

Much of the known summer habitat of the federally endangered Indiana bat (Myotis sodalis) in New Jersey occurs in the Passaic/Hackensack Rivers Focus Area. The New Jersey Partners Program reforests riparian and upland areas that may be used as future foraging or roosting habitat by this species. Endangered Species staff at the New Jersey Field Office assist with these

projects by providing technical advice, funds, and assistance with implementation. Restoration measures that benefit Indiana bats are easily integrated into projects designed to benefit other species.

Riparian projects

The Passaic/Hackensack Rivers Focus Area includes numerous small streams that present high-quality opportunities to help federal trust species by reforestation. Many riparian corridors have denuded banks and buffers that provide little habitat, are vulnerable to erosion, and exhibit degraded water quality. Furthermore, many of these riparian areas are invaded by invasive species, particularly Japanese knotweed (Polygonum cuspidatum). Removing invasive species by chemical and physical means, if needed, and then riparian reforestation with select plant species, such as pin oak (Quercus palustris) and silky dogwood (Cornus amomum), dramatically improves habitat values. Migratory birds that benefit from riparian reforestation include those that nest along streams in northern New Jersey, particularly the Louisiana waterthrush (Seiurus motacilla) and wood duck (Aix sponsa), and the numerous species that would feed on the flowers, fruits, and mast of the planted shrubs and trees. Reforestation projects are well suited to the Partners Program because they are cost effective, they provide the opportunity to engage volunteer groups, and landowners are often most interested in this kind of project because they have little out-of-pocket expense but the projects quickly result in visible changes. These projects are facilitated by the ongoing priority for the Partners Program to work with the New Jersey Department of Corrections to cost effectively grow nursery stock of native tree and shrub species for out-planting to restoration projects.

Riparian projects that involve invasive plant control must be targeted to areas where there are limited upstream populations of the invasive plants that would re-colonize a managed area.

Wetland projects

Many of the wetlands in the Passaic/Hackensack Rivers Focus Area are invaded by invasive species, particularly common reed (Phragmites australis), and have denuded buffer areas that provide little habitat value and result in sedimentation and wetland loss. Managing invasive plants in these wetlands through hydrological modification and/or herbicide use and planting native vegetation along their borders results in immediate and long-term improvements for wildlife. This focus area also has many areas where the natural hydrology has been altered by drain tiles, ditches, and sedimentation. Returning natural hydrology to these areas sometimes coupled with excavation effectively restores wetlands lost from previous land uses. Several migratory bird species benefit from wetland restoration projects in this focus area, but most specifically nesting and foraging habitat is provided to swamp sparrow (Melospiza georgiana), spotted sandpiper (Actitis macularia), common moorhen (Gallinula chloropus), sora (Porzana carolina), green heron (Butorides virescens), wood duck (Aix sponsa) and Virginia rail (Rallus limicola), all species with questionable population health in New Jersey. Wood duck (Aix sponsa), designated a regional priority species by the state, also benefits from these projects and further benefits from installation of wood duck boxes produced by the Service in coordination with the New Jersey Department of Corrections. Wetland creation projects are challenged by

landowner concern over lost land value and potential regulatory burdens. However, working with municipal and conservation oriented landowners or education efforts overcomes this problem. Restoring wetland hydrology is sometimes complicated by permitting issues and high costs if excavation is involved. Involving other programs, such as the Wetlands Reserve Program, can help defer costs as can numerous funding sources such as National Wetlands Conservation Act grants. Controlling invasive plants is challenging due to the labor intensive management techniques often required; however, interaction with the New Jersey Pesticide Control Program is providing integrated pest management techniques that are much less labor intensive while being more sustainable.

Conservation Targets FY 2007 through FY 2011

Habitat goals for the New York/New Jersey Harbor Focus Area are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	200 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	5 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	1 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	2 miles
Fish Passage Structures	1 structures

Target Species Benefited

Listed Species benefited

Bog Turtle	Indiana bat

Unlisted Species Benefited

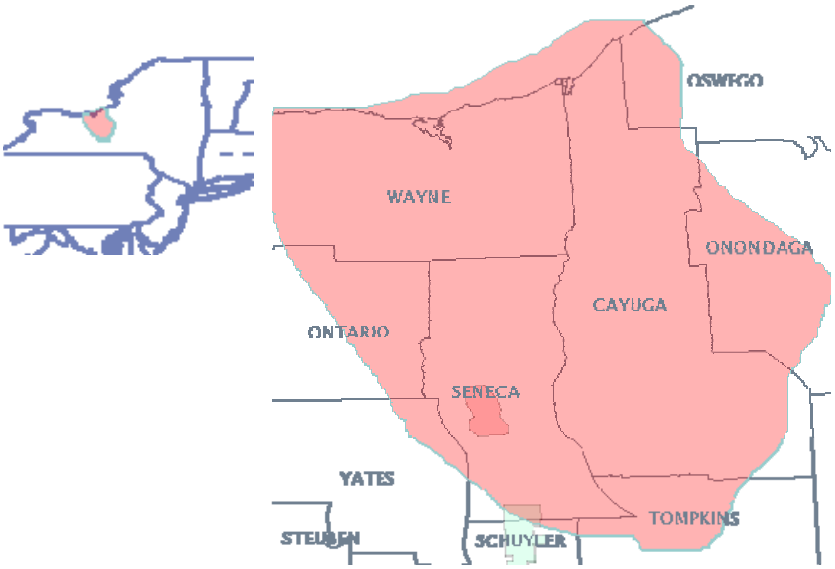
Wood Duck	Sedge Wren
Saltmarsh Sharp-tailed Sparrow	Black Rail
American Black Duck	Northern Diamondback Terrapin
Short-eared Owl	Yellow-crowned Night-Heron
Brant	Osprey, Pandion haliaetus
Great Egret	American Woodcock
Snow Goose	Bigeye herring
Northern Harrier	American eel

IX. Central New York State Focus Area

This Focus Area encompasses the following Focal Units identified in HabITS:

- Finger Lakes Focal Unit
- Oneida Lake Region Focal Unit

Finger Lakes Focal Unit



Description

The Finger Lakes Focus Area contains many unique geological features formed from glacial action, such as gorges, lakes and drumlins (an elongated whale-shaped hill). The Finger Lakes has extensive grasslands with a mix of Federal, State and private ownership; about 80 percent of

the region is privately owned. Most of the land use is agricultural with wetlands and woodlands. There is considerable development pressure surrounding all of the lakes. The Finger Lakes Focus Area includes the Montezuma Wetlands Complex (MWC), one of 11 conservation targets in New York identified by The Nature Conservancy as an irreplaceable unique natural community type and selected to preserve the biodiversity of the Great Lakes ecosystem. The site supports globally rare species and habitat types. The MWC encompasses approximately 36,000 acres (14569 hectares) in Seneca, Cayuga and Wayne counties and includes the federal Montezuma NWR, the state Northern Montezuma Wildlife Management Area, and lands owned by conservation groups, farmers, and other private landowners. Public lands and some private land are managed to provide habitat for wildlife and recreation and education for people.

The MWC area once contained over 40,000 acres (16185 hectares) of contiguous wetland. Most of these wetlands have been altered, decreasing the amount of habitat that can be used by migratory birds and resident wildlife. Waterlevel management conducted for navigation when the Erie Canal was built in the early 1800's primarily contributed to the loss of wetlands. The Partners Program can increase the acres of wetlands in this area to provide more habitat for migrating waterfowl and grassland bird species in this important migration corridor and breeding area. It is one of the largest staging areas for waterfowl migration in the Northeast and is home to endangered, threatened, and special concern species. Major flights of songbirds gather here seasonally, and neotropical migrants such as warblers and thrushes nest here each year.

The Service has an established partnership in this focus area to conduct scientific research to evaluate on-the-ground actions and apply adaptive management when needed. Our partners include the Montezuma Wetlands Research Institute, a partnership among Federal and State agencies, conservation organizations, and academic institutions. The Institute promotes research designed to understand natural systems, to evaluate public use and environmental education strategies, and to support land management decisions in an applied research setting. For example, the Institute has conducted extensive research on biological control of invasive wetland plant and animal species, such as purple loosestrife and carp to assess and develop control strategies.

The Partners Program will continue to support wetland restoration and grassland management on private lands around the Montezuma NWR, in support of the refuge mission and the goals set forth in the BCR-13 Shorebird Focus Area of the North American Waterfowl Management Plan and the Service's transition strategy for the bald eagle. In 1976, a program designed to reestablish nesting bald eagles in New York was undertaken at the Montezuma NWR by the New York State Department of Environmental Conservation in cooperation with the Service. The program was the first of it's kind on the North American continent. Bald eagles have roosted at the refuge ever since and juvenile bald eagles are routinely observed from the Visitor Center.

Partners in the Focus Area:

Montezuma NWR
The Nature Conservancy
Finger Lakes Land Trust
Owasco Flats Nature Center
New York Department of Environmental Conservation
Cornell University
Natural Resources Conservation Service
Montezuma Wetlands Research Institute
U.S. Geological Services

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Finger Lakes Focus Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Coastal Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	50 acres
Wetlands Protected	0 acres
Uplands Improved	75 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

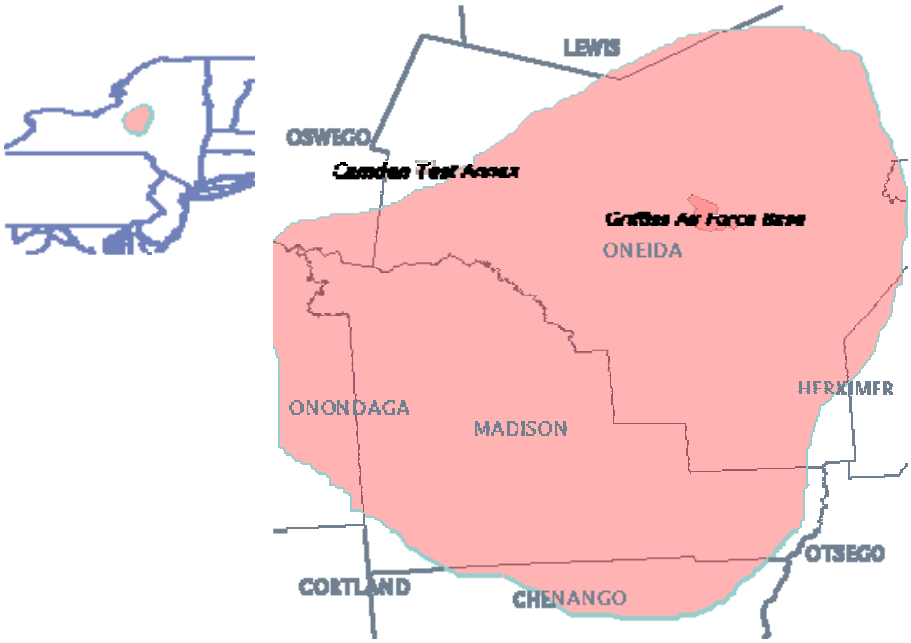
Listed Species Benefited

Blanding's turtle	Bog turtle
Black tern	Indiana bat

Unlisted Species Benefited

Wood Duck	Bobolink
Blue-winged Teal	American Woodcock
American Black Duck	Eastern Meadowlark
Bald Eagle	American Woodcock
Hart's tonguefern	Eastern Meadowlark
Bobolink	

Oneida Lake Plain Focal Unit



Description

The Oneida focus area includes the Oneida Lake Plain and parts of the headwaters of the Mohawk River. This area is part of the Lower Great Lakes/St. Lawrence Plain Bird Concentration Region which, in turn, covers the low-lying areas to the south of the Canadian Shield and north of various highland systems in the United States. In the case of the Oneida focus area, we focused on important lakeshore habitats and associated wetlands. Once, this region was comprised of vast wetland systems, remnants of glacial Lake Iroquois' southern shoreline, and included mixtures of oak-hickory, northern hardwood, and mixed-coniferous forests. Very little of the forests and unaltered wetlands remain today due primarily to

agricultural conversion of forested habitat to crops, or the draining of once-forested wetlands. The area is currently a mosaic of farmland, forest, wetlands, lakes, and streams. There are few large urban areas except for Utica, so as a result, a significant number of private landowners own 100 or more acres of abandoned farmland that they are interested in restoring for wildlife use, about 75 percent of the area is in private ownership. This area includes a concentration of prior-converted wetlands with drainage systems that are no longer effective; restoration of such areas is fairly straightforward.

This focus area is part of BCR 13 and the Bird Conservation Plan for the Lower Great Lakes/St. Lawrence, focusing restoration activities on waterfowl such as wood duck, mallard, and black duck. Early successional habitat for woodcock is also a target in this part of BCR 13. The Mohawk River, a tributary to the Hudson, has also been a focus for restoring anadromous fish, such as blueback herring.

The highest priority bird in remnant forests is the Cerulean Warbler. Because of agriculture, BCR 13 is now the largest and most important area of grassland in the Northeast, providing habitat for such species as Henslow's sparrow and bobolink. Agricultural abandonment may temporarily favor shrub-nesting species, such as Golden-winged warbler and American woodcock, but increasingly, agricultural land is being lost to urbanization. This physiographic area also is extremely important to stopover migrants, attracting some of the largest concentrations of migrant passerines, hawks, shorebirds, and waterbirds in eastern North America. Much of this concentration occurs along lakeshore habitats threatened by water pollution and habitat fragmentation associated with development of vacation homes.

Description of specific habitat within the geographic focus area that would be targeted:

The opportunities are for waterfowl, migratory fish (blueback herring), and grassland nesting migratory birds.

This area has a high project workload with Natural Resources Conservation Service projects, such as the Wetlands Reserve Program (WRP) and Wildlife Habitat Incentives Program (that focuses on grasslands), as well as partners such as the New York State Department of Transportation, Audubon, Ducks Unlimited, Soil and Water Conservation Districts, and private landowners.

Working with the Wetlands Reserve Program (WRP), the State University of New York, College of Environmental Science and Forestry, has two Master of Science students evaluating the concentration of Partners for Fish and Wildlife and WRP projects to determine the number, size, and connectivity of these projects in relation to migratory bird usage. The area had not been studied previously, but the research led to the area being designated an Important Bird Area by Audubon, ad showed that the waterfowl produced here has lower predation rates than most other studies in the country.

Most important challenges to habitat restoration:

The challenges are to put together projects that affect more than one landowner, as some of the lots are long and narrow. They were put that way to allow for drainage, but now in order to re-flood, it is difficult to accomplish on one property without affecting another.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Finger Lakes Focus Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	***Target Acreage FY 2007-2011***
Wetlands Improved	25 acres
Wetlands Protected	0 acres
Uplands Improved	50 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0.5 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species Benefited

Blanding's turtle

Unlisted Species Benefited

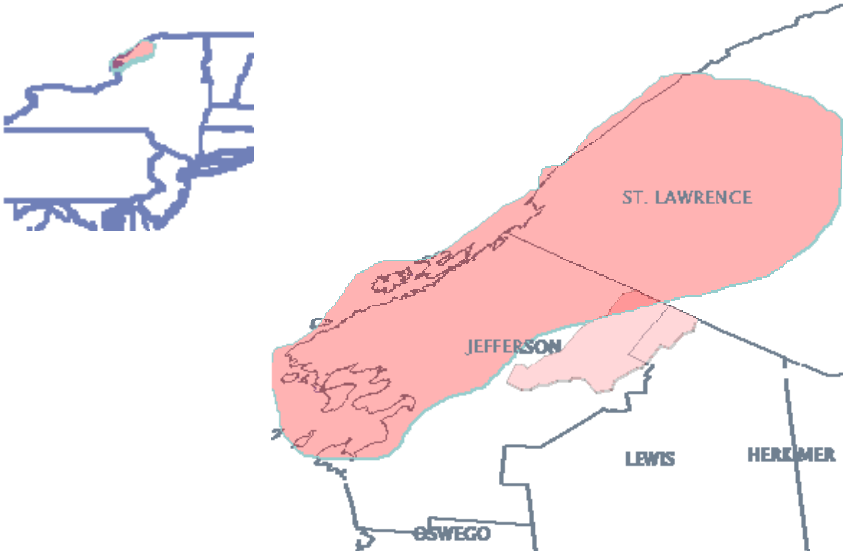
Wood Duck
Blue-winged Teal
Mallard
American Black Duck
Bobolink
American Woodcock
Eastern Meadowlark

X. Great Lakes New York and Pennsylvania Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- St. Lawrence Valley Focal Unit
- Western Lake Ontario Focal Unit
- Lake Erie/Upper Allegheny River Focal Unit

St Lawrence Valley Focal Unit



Description

The St. Lawrence Valley (Valley) is a largely rural, ecologically intact, landscape of 2.0 million acres located in northern New York, adjacent to the St. Lawrence River, at the U.S.-Canada border. The Valley is a mosaic of agricultural grasslands (350,000 acres), freshwater wetlands (150,000 acres), and riverine habitats that support locally, nationally, and internationally significant fish and wildlife resources. The Valley supports the highest waterfowl production in

the northeast, 16 percent of the global population of bobolinks, and contains globally rare habitat types, such as alvars and islands.

The Valley was formed 12,000 years ago as the glaciers receded. The land is primarily flat as a result of the underlying bedrock and the weight of ancient glaciers. The predominately flat to rolling topography and the abundance of poorly drained soils throughout the county create an ideal environment for the establishment of wetland habitat suited for waterfowl and other water birds and wetland-related species of wildlife. The fact that the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) has mapped 143,440 acres of hydric soils, and 123,500 acres with a slope of 3 percent or less as soils with hydric inclusions, underscores the suitability of the area for wetland habitat. These are not the prime agricultural soils of the county, but marginal to poor soils that typically are abandoned or left fallow due to their poor productivity and high resource demand. The combination of a generally flat landscape and dense clay soil creates suitable conditions for sheet water wetlands throughout the county. Warming sunshine and early spring rains create shallow pools in low field depressions. The small, temporary, shallow pools are the first to thaw in early spring. The heavy soils underneath them are slow to absorb water, extending their life. Their presence is critical for the food they supply to waterfowl, shorebirds, and other wildlife. The smallest pools begin to dry as larger pools thaw, meeting the needs of early migrants while providing additional shallow water habitat for additional migrants.

Large polygons of low-lying, hydric soil exist throughout the Valley. Shaped during the last glacial period, these larger wetlands provide nesting and brood-rearing habitat for migratory birds, including waterfowl; however, many have been degraded by agricultural practices and agricultural runoff. The uplands surrounding the low areas have enough difference in elevation to sustain upland vegetation: grasses, shrubs, or woods. Those upland areas are often locations with soils containing hydric inclusions. They are not as wet as the hydric soils but they are wet enough to make intensive agriculture difficult. These lands typically are mowed late in the season, because they are too wet to mow much earlier than mid-to-late July. The grasslands in some cases can be made better habitat for migratory birds, simply by the timing of mowing.

Alvar habitat is located at the Chaumont Barrens and Three Mile Creek Barrens. The mosaic of vegetation in alvar landscapes includes rubbly moss gardens, patches of woods, shrub savannas, and open grasslands. Native wildflowers found in alvar plant communities include prairie smoke (Geum triflorum), blue phlox (Phlox divaricata), bloodroot (Sanguinaria canadensis), balsam ragwort (Senecio pauperculus), and yellow lady's slipper (Cypripedium calceolus), and trees including white cedar (Thuja occidentalis), white spruce (Picea glauca), and white pine (Pinus strobus).

The coastal wetlands along eastern Lake Ontario and the St. Lawrence River can be characterized by four geomorphic types: open embayment, protected embayment, barrier-beach, and drowned river mouth. These critical habitats extend from the lake to the border with Quebec, near St. Regis, New rk. There are 28 areas within the Basin designated as Significant Coastal Fish and Wildlife Habitat (SCFWH) by the Department of State in consultation with the New York State Department of Environmental Conservation (NYSDEC). Species using these

habitats include, waterbirds (e.g., American bittern (Botaurus lentiginosus), least bittern (Ixobrychus exilis) black tern (Chlidonias niger)), waterfowl (e.g., blue-winged teal (Anas discors)), and herpetofauna (e.g., western chorus frog (Pseudacris triseriata).). Many of these marshes have been modified by the controlled water level regime imposed by international treaty, to keep the St. Lawrence waterway open for navigation and the St. Lawrence-FDR hydroelectric facility in operation. The St. Lawrence River area is one of New York's prime wintering locations for bald eagles. Viewing the wintering eagles is a popular activity for residents and visitors to the area. Restoration programs undertaken during the 1970s and 1980s have significantly increased eagle numbers in the St. Lawrence region. The NYSDEC's bald eagle restoration (or hacking) program, conducted between 1976 and 1989, increased the nesting eagle population throughout the region, including northern New York and southern Ontario. As the number of breeding eagles and young increases, so does the number of wintering birds. As lakes and rivers freeze up in the northern United States and Canada, bald eagles that have nested and spent the summer in these areas move south to open water where they can find food, usually fish and waterfowl. The St. Lawrence River has been identified as a bald eagle wintering area since at least 1975, and is currently the second largest known wintering area in New York State. The wintering area, which annually supports an average of 20 to 30 eagles, lies along the upper reaches of the St. Lawrence River between Kingston, Ontario, and Cape Vincent, New York, on the south, to Cornwall, Ontario, and Massena, New York, to the north. The Valley is well recognized for these significant natural resources. Eighteen strategic plans have been developed to address conservation needs (e.g., the Service's Cooperative Conservation Plan for the St. Lawrence Wetland and Grassland Management District, NYSDEC's Comprehensive Wildlife Conservation Strategy for the N.E. Lake Ontario-St. Lawrence River Basin, and the Great Lakes Fishery Commission's Fish Community Objectives for the St. Lawrence River). Established in 1997, the Service's 2 million-acre St. Lawrence Wetland and Grassland Management District encompasses portions of Jefferson, St. Lawrence, and Franklin Counties with over 350,000 acres of grasslands, including agricultural lands. The goal of the district is to maintain and improve the exemplary fish and wildlife resources in the St. Lawrence Valley by working with local communities and private landowners to enhance fish and wildlife populations in an ecologically sound, economically feasible, and socially acceptable way. The Service proposes permanent protection of important wetland and grassland habitats within a portion of Jefferson County, New York, in addition to focused habitat restoration efforts accompanying establishment of easements. These habitats are important for waterfowl and other migratory birds and wildlife. With this proposal, the Service will purchase conservation easements from landowners, with land remaining in private ownership, and also may consider acquisition of small landholdings which will supplement our current efforts at restoring habitats in the St. Lawrence Valley by working cooperatively with farmers and other private landowners.

Describe why it was chosen in terms of expected benefits to Federal trust species:

Because of the historic modifications made to drain wetlands which once were scattered across the area; because of the area's continuing importance for migratory birds, including waterfowl; because of opportunities to partner with the NRCS conservation programs and to connect more people with nature, we have chosen this area, (a global destination for bird watchers due to the concentrations of grassland and wetland birds found there), for its potential to significantly

benefit Federal trust species. In addition, this area is interspersed with historic and degraded grasslands that likewise can be restored in partnership with NRCS and local landowners.

The St. Lawrence River is a global destination for sport fishing; recreational anglers spend over $1.9 billion annually in New York. Opportunities to restore fish passage, and a more natural water level regime to our Northern coastal marshes (Great Lakes and St. Lawrence River) will benefit interjurisdictional fish.

The Service has an opportunity to increase and sustain these bird populations and improve the fishery with increased grassland and wetland restoration in this area and restoration activities in the Valley; such activity would support the strategic growth criteria established for the NWR system by the Service Directorate.

We are well practiced in practicable and effective restoration techniques which have a track record of success in restoring wetlands and grasslands in this area through construction of ditch plugs, low berms, and mowing and seeding grasslands. Historic biological planning among 12 agencies has already produced 18 conservation plans. We have been and continue to seek opportunities in the future to work with our partners to deliver conservation on the ground, and to add to the 5,500 acres of wetlands and grasslands, 300 acres of fish habitat, and 500 acres of restored invasive species habitat that we have accomplished since the Service's Partners for Fish and Wildlife Program was initiated.

The St. Lawrence Valley contains extensive agricultural grasslands interspersed with the abundant freshwater wetlands and tributaries described above, many of which have been degraded, drained, or mowed, and which have limited value for wildlife. When compared with other areas in the northeastern United States, the mix of grasslands (400,000 acres) and wetlands (150,000 acres) found in the St. Lawrence Valley provide critical habitat for species of greatest conservation need, the list of which was recently compiled through the State Wildlife Grant Planning process (2006). Unlike other agricultural regions, climate and poor drainage conditions favor the establishment of freshwater wetlands and promote late season harvesting of grass, which enhances the value of the region to wildlife. For example, the interspersion of agricultural lands, shrublands, and wetlands (forested and marsh) creates habitat conditions that favor, and are of critical importance to, several species of migratory birds that are rare and declining elsewhere in the Northeast.

These species include the American woodcock (Scolopax minor) and the golden-winged warbler (Vermivora chrysoptera). Furthermore, the St. Lawrence Valley is one of the most important areas for waterfowl production in New York State. Waterfowl and other water-dependent species rely on the numerous freshwater wetlands scattered throughout the Valley for resting, feeding, and staging areas during spring and fall migration. The shallow wetlands characteristic of the Valley provide a greater variety of nutrients for feeding and more abundant cover for nesting and hiding than do many of the deep lakes or fast-moving rivers of the region.

Partnership Contributions:

Six international, three state/local and non-government organization partnerships, and one Tribe, are already collaborating in the Valley. International partnerships include: 1) the Fisheries Advisory Committee of the Fish Enhancement, Mitigation, and Research Fund (FEMRF); 2) The Nature Conservancy/Nature Conservancy Canada's Blueprin fr the Great Lakes; 3) the Lower Great Lakes - St. Lawrence Plain Bird Conservation Plan (BCR 13); 4) Canada's Conservation Plan for the American eel; 5) the Great Lakes Fisheries Commission; and 6) the proposed International Great Lakes Islands Refuge.

State/local and non-government organization partnerships and one Tribe include: 1) the St. Lawrence Conservation Coalition; 2) Grassland/Wetland Habitat Mapping and Modeling; and, 3) Grassland Bird Inventories. The Akwasasne Reservation lies partially within the Valley and would promote further partnerships with the St. Regis Mohawk Tribe. These many partners, including the New York Power Authority, Audubon, the St. Regis Mohawk Tribe, the St. Lawrence County Discovery Center, the St. Lawrence County Environmental Management Council, New York Rivers United, New York State Department of Environmental Conservation, the Natural Resources Conservation Service, Ducks Unlimited, the Thousand Island Land Trust, and our Lower Great Lakes Fisheries Resource office can offer their scientific expertise, resource management experience, and match funding opportunities.

Most important challenges to habitat restoration:

Important challenges to habitat restoration exist: timing and adequacy of funding and staffing to complete projects; coordination of all the well-intentioned habitat restoration activities taking place in this geographic area; focusing strategically on what is most important for Federal trust resources; landowner acceptance of Federal agency activity in the Valley; and, obtaining important funding to measure project success and to do outreach and project modification when needed.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Finger Lakes Focus Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	100 acres
Wetlands Protected	0 acres
Uplands Improved	100 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

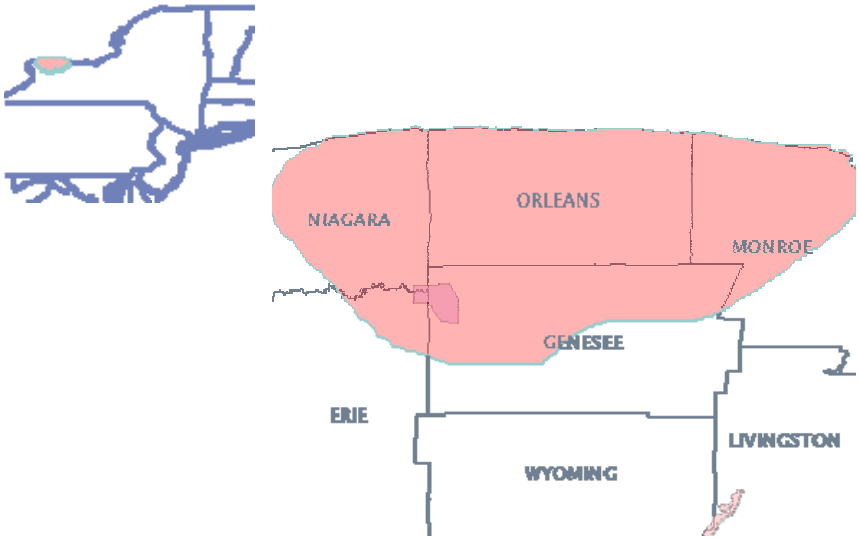
Listed Species Benefited

Blanding's turtle
Indiana bat
Black tern

Unlisted Species Benefited

Wood Duck
Blue-winged Teal
Mallard
American Black Duck
Bobolink
American Woodcock
Eastern Meadowlark

Western Lake Ontario Focal Unit



Description

The Western Lake Ontario Focus Area is within the northern watershed of Lake Ontario between Buffalo and Rochester. This northern portion of the Southwest Lake Ontario Basin lies within the Erie-Ontario Plain subzone of the Great Lakes ecozone. It is primarily an agricultural region with scattered and fragmented forest stands between two major urban centers. A significant land form in this portion of the basin is the Niagara Escarpment which runs through southern and central Ontario, Canada and western New York. The Niagara Escarpment provides unique, rocky, wooded forest habitat within the Lake Onatrio plain in Niagara County. This unique habitat, with its associated vernal pools at the escarpment base, provides important habitat for a variety of flora and fauna, including state listed herpetofauna, such as the Jefferson salamander. Wetland habitats in the basin include wooded swamps, emergent marshes, wet meadows, riparian and linear wetlands, shrub swamps, and open water habitats. The major river in the basin is the Genesee River. The Genesee River is one of the recovery sites for lake sturgeon, state-listed as threatened. Any tributaries that could be enhanced to reduce sediments and provide cleaner water would benefit this effort. There are many ponds and small lakes, including some smaller, western glacial Finger Lakes. The focus area includes 90 miles of Lake Ontario shoreline.

Several Bird conservation areas, 8 state-designated critical environmental areas, and 10 significant coastal fish and wildlife habitat areas are designated in the focus area. The Iroquois NWR is within the focus area, and is flanked by NYSDEC's Oak Orchard WMA to the east and Tonawanda WMA to the west. State owned forest lands are to the south. The Tonawanda Indian Reservation is just south of the Tonawanda WMA and protects many State species of concern. The Nature Conservancy and the Bergen Swamp Preservation Society owns lands in Genesee

County. Some privately owned lands are protected by cooperative agreement with NRCS and PFW. Additional PFW projects adjacent to any of these areas would enhance wildlife populations and provide additional buffers to the management areas.

This focus area sustains important populations of grassland-breeding birds, including 11 species state listed as species of concern and declining, such as upland sandpiper, sedge wren, Henslow's sparrow, and bobolink. In the winter, this area supports large concentrations of northern harriers, rough-legged hawks, short-eared owls, and flocks of horned larks that can number in the hundreds. The Audubon Society is working with NYSDEC and the Service to coordinate projects and identify target areas for future conservation projects. These areas are identified as "grassland wildlife zones." The focus area also has one of only two known New York populations of the Eastern massasauga rattlesnake, a federal candidate species.

The NYSDEC Comprehensive Wildlife Conservation Strategy has identified several goals that the PFW program can help realize, such as, protecting and enhancing riparian buffers, reducing siltation runoff into streams and tributaries, and improving connectivity and habitat function of protected areas in the basin. The PFW can help Iroquois NWR realize its goals to benefit migratory waterfowl, shorebirds, and grassland bird species. The focus area includes a mosaic of active and abandoned farmland with drainage ditches and old fields providing excellent restoration opportunities. The Lake Plain contains clays and was ditched to drain the wetlands for agriculture. The escarpment has native grasses and remnants of oak-savannah.

Partners in the Focus Area:
New York State Department of Environmental Conservation
Natural Resources Conservation Service
Ducks Unlimited
The Nature Conservancy
Iroquois NWR
Audubon Society
Tonawanda Band of the Seneca Nation
Bergen Swamp Preservation Society
City of Rochester City of Buffalo
Army Corps of Engineers, Buffalo District

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Western Lake Ontario Focus Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	25 acres
Wetlands Protected	0 acres
Uplands Improved	25 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	.5 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

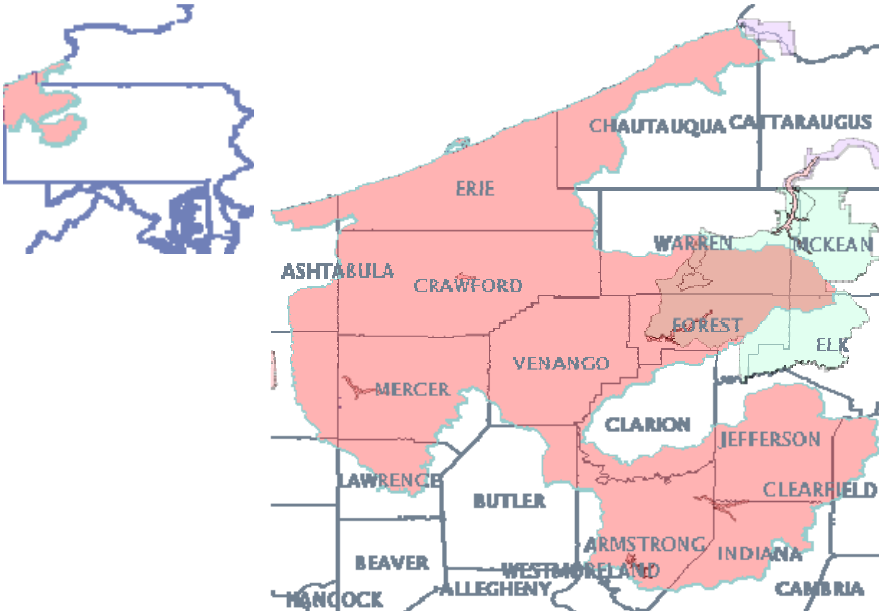
Listed Species Benefited

Blanding's turtle
Black tern
Eastern Massasauga
Bog turtle
Lake sturgeon

Unlisted Species Benefited

Wood Duck
Blue-winged Teal
Mallard
American Black Duck
American Woodcock
Eastern Meadowlark

Lake Erie/Upper Allegheny River Focal Unit



Description

This area includes the only existing sites in Pennsylvania for the eastern massasauga rattlesnake, a federal candidate species, and the federally listed, endangered piping plover. In addition, it includes: 1) French Creek, one of the most biologically diverse streams in the Northeast (27 mussel species, including two listed and one candidate, along with a host of PA-listed threatened and endangered species); 2) Erie NWR; 3) Crawford and Mercer Counties, each having over 30 percent hydric soils; 4) Pymatuning Lake, one of the Pennsylvania Game Commission's (PGC) two premier waterfowl production areas, and the largest lake and State park in PA; and 5) over 80 percent of its streams where eastern brook trout have been extirpated or their populations greatly reduced. In addition, it lies within the Atlantic Coast Joint Venture's Northwest Focus Area, and five sub-focus areas. Individual sub-basins in this area support three to four Species of Conservation Concern, as identified by the Regional Fisheries Resources program. This area supports diverse land uses, types, and ownerships: the Lake Erie shore and Presque Isle State Park to the north, and the extensive agricultural lands of Crawford and Mercer Counties, many with drained or farmed wetlands, to the south. To the east are the forests and coalfields of Jefferson and Forest Counties. The Lake Erie portion of this focus area was included as a critical element in the U.S. Shorebird Conservation Plan, and the area remains a high priority for waterfowl, as evidenced by its inclusion of multiple focus areas in the North American Waterfowl Management Plan. This glaciated portion of Pennsylvania has also been a traditional focus for wetland restoration, due to extensive hydric soils, agriculture, and gentle topography. Our biggest challenge is to continue to work with private landowners to restore agricultural and other land uses to fish and wildlife habitat, and maintain stream buffers to reduce sediments inputs in streams inhabited by federally listed mussels. We have expended considerable effort to restore a substantial number of wetlands, and establish many miles of stream buffers in this focus area, through longstanding partnerships with the PGC, Natural Resources Conservation Service,

Ducks Unlimited, Western Pennsylvania Conservancy, and many local groups. Some of our largest and most successful wetland restoration projects in Pennsylvania have been located in this focus area. These cooperative efforts will continue, and will include native grassland restoration projects within the Muddy and Cussewago Creek watersheds; additional wetland restoration projects within French Creek Watershed to reduce sediment and nutrient loading to this diverse stream; cooperative efforts with the Erie NWR to complete stream stabilization projects on and adjacent to the Refuge; and restoration of wetland and upland habitats within the Pymatuning Lake waterfowl production area. There are also numerous invasives control opportunities in this area, with past projects attacking some of the many stands of Phragmites and purple loosestrife found in its wetlands.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lake Erie/Upper Allegheny River Focus Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	420 acres
Wetlands Protected	0 acres
Uplands Improved	200 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	12 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species Benefited

Eastern Massasauga	Rayed Bean
Clubshell	Sheepnose Mussel
Northern riffleshell	

Unlisted Species Benefited

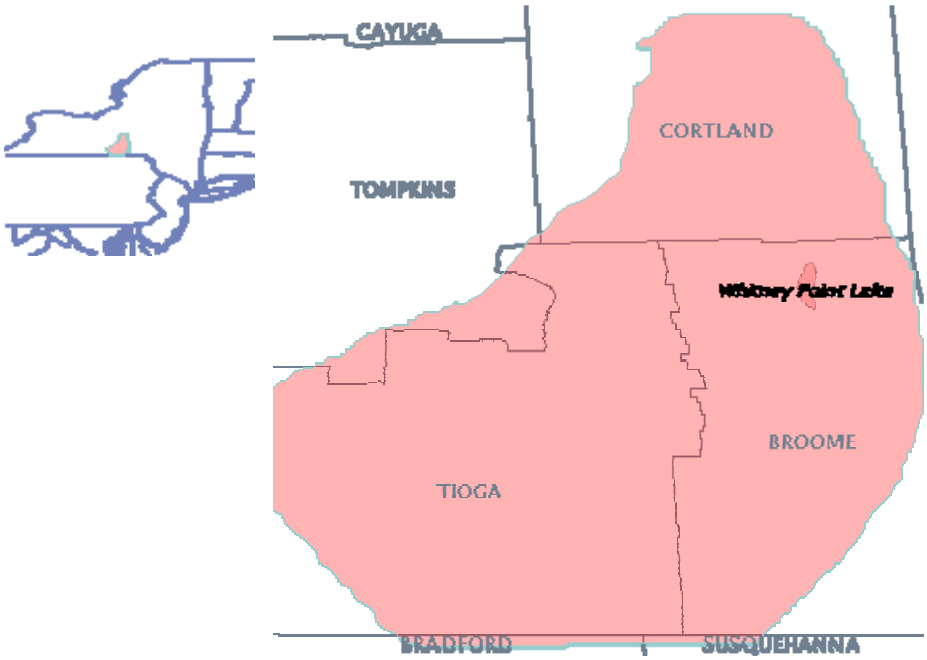
Cerulean Warbler	Upland Sandpiper
Louisiana Waterthrush	American Woodcock
Henslow's Sparrow	

XI. Susquehanna River Focus Area

This Focus Area encompasses the following focal units identified in HabITS

- Susquehanna River Focal Unit
- Middle Susquehanna Focal Unit
- Lower Susquehanna/Potomac River Focal Unit

Susquehanna River/New York Focal Unit



Description

The Susquehanna River in New York State is the headwaters of the Chesapeake Bay. A critical goal of the National Chesapeake Program is to reduce downstream flows of nutrients such as

phosphorus and nitrogen resulting primarily from agricultural non-point source pollution in order to increase water quality downstream to benefit fishery populations–including American Shad–a focus of the Region's fisheries program. Wetland restoration can assist by assimilating nutrients at the source.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Susquehanna River/New York Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	***Target Acreage FY 2007-2011***
Wetlands Improved	50 acres
Wetlands Protected	0 acres
Uplands Improved	50 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	1 mile
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

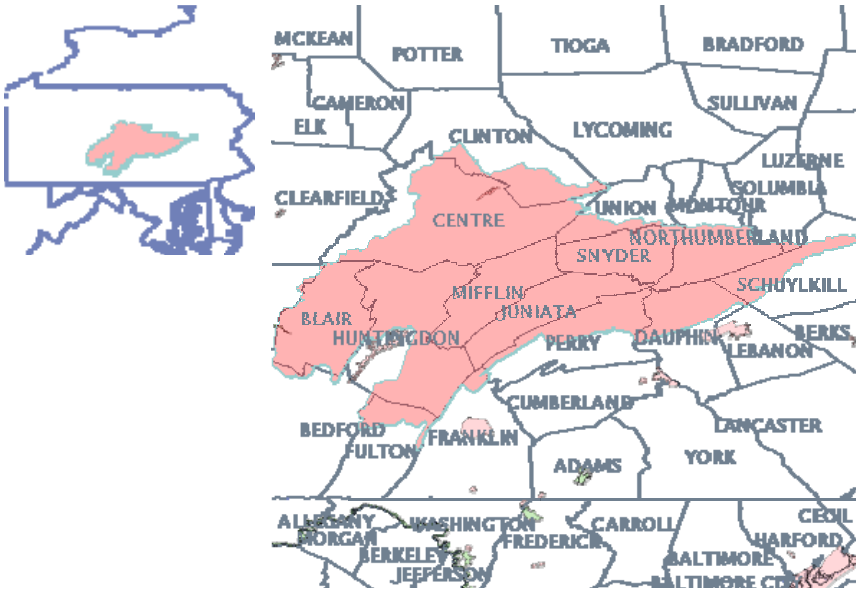
Target Species Benefited

Unlisted Species Benefited

Wood Duck
Blue-winged Teal
Mallard
American Black Duck
Blue-winged Teal

Bobolink
American Woodcock
Eastern Meadowlark
Charr

Middle Susquehanna River Focal Unit



Description

This area includes Pennsylvania's largest known populations of the federally listed, endangered northeastern bulrush and threatened small-whorled pogonia, in addition to a number of hibernacula for the endangered Indiana bat. The area lies within the Atlantic Coast Joint Venture's Lower Susquehanna Focus Area, and one sub-focus area. Over 30 percent of the soils in Huntingdon County are hydric, giving this county a high potential for successful wetland restoration projects. In addition, over 80 percent of the streams in this area have extirpated or declining eastern brook trout populations, and several opportunities for dam removal to facilitate migratory fish passage have been identified.

Land uses in this focus area are largely in agriculture and forest, with rapidly urbanizing areas in Centre County and greater Harrisburg. As a result, the area's streams suffer from higher water withdrawal rates, and the effects of sediment, nutrient, and stormwater runoff.

Wetland restoration and streambank fencing projects in this area provide needed sediment and nutrient reduction to the Chesapeake Bay, and habitat for a variety of migratory birds. Efforts will continue to restore large tracts of native grasslands that benefit grassland-dependent species such as the golden-winged warbler, Henslow's and field sparrows, and bobolink. Invasive plant control opportunities abound in this area, with several past and proposed projects to eradicate multiflora rose, Tartarian honeysuckle, autumn olive, European alder, Japanese barberry, and Japanese knotweed. The biggest challenge is in working with farmers and Penn State University to maintain agricultural land uses employing conservation and restoration of habitat, in an area of ever-increasing land values and disappearing open space. There are also a number of areas where we are managing early successional habitats to benefit both migratory songbirds and American woodcock (e.g., the Bald Eagle Creek valley in Centre County; http://www.dcnr.state.pa.us/news/newsreleases/2007/0307-baldeaglesp.htm).

Well-established partnerships with Pheasants Forever, Ducks Unlimited, the Ruffed Grouse Society, Penn State University, the Natural Resources Conservation Service and a number of state agencies have made this a key area for the Partners for Fish and Wildlife program in Pennsylvania, especially for native grassland and wetland habitat restoration. We will continue to work with these partners to enhance early-successional habitats. Efforts will continue in the Limestone Run watershed, where we have worked to transform a physically and biologically impaired, intensively-farmed limestone stream corridor into a healthy and diverse fishery. In addition, increased stream flows, improved water quality, and removal of barriers are especially important to restoration of American shad in the Susquehanna River and its tributaries. Finally, select wetland and upland habitat restoration projects will also benefit northeastern bulrush and small-whorled pogonia.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Middle Susquehanna River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	280 acres
Wetlands Protected	0 acres
Uplands Improved	280 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	20 miles
Riparian Streams Shorelines Protected	0 miles

Target Species Benefited

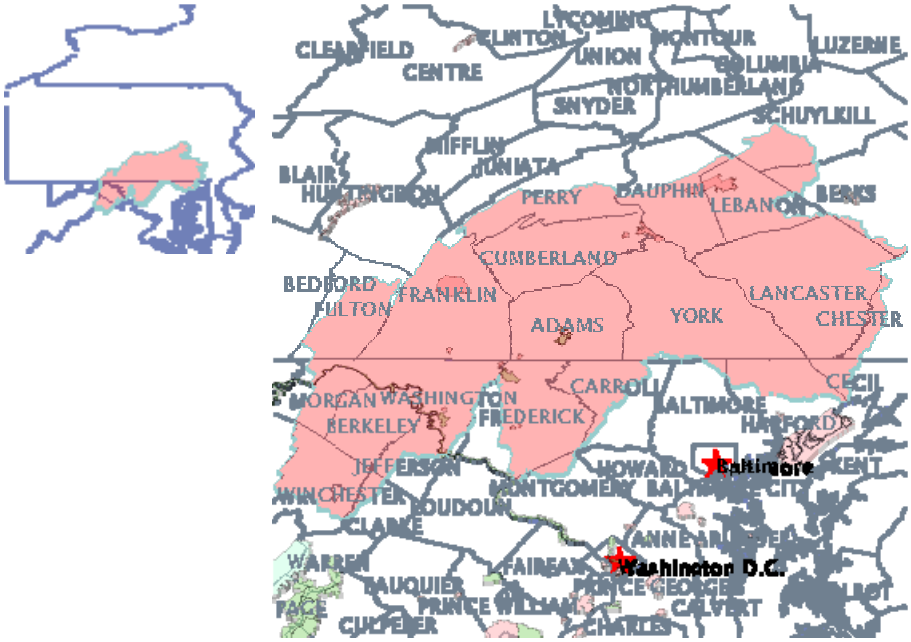
Listed Species Benefited

Northeastern bulrush
Indiana bat

Unlisted Species Benefited

Golden-winged Warbler
Charr
Louisiana Waterthrush

Lower Susquehanna Potomac River Focal Unit



Description

The Lower Susquehanna and Lower Delaware focus areas combined support most of Pennsylvania's known bog turtle sites. The Lower Susquehanna/Potomac River area also lies within the Atlantic Coast Joint Venture's Lower Susquehanna Focus Area and five sub-focus areas. Within this focus area, Adams County has an especially high potential for wetland restoration projects, since its soils are over 30 percent hydric. The area includes the 5,000-acre Middle Creek Wildlife Management Area, one of the Pennsylvania Game Commission's (PGC) premier waterfowl production areas. Over 75 percent of the streams in this focus area formerly supported healthy populations of eastern brook trout, but these have either been extirpated or their populations greatly reduced. In addition, individual sub-basins have from two to eight Species of Conservation Concern, as identified by the Regional Fisheries Resources program, and many opportunities exist for dam removal to allow migratory fish passage.

This focus area includes extensive agricultural lands, from the fruit orchards of Adams County to the intensely-farmed dairies of Lancaster County. These land uses, along with increasing urbanization around the Cities of Lancaster, York and Harrisburg, have increased water demands, increased nutrient and sediment deposition, and stormwater runoff to the area's streams, and ultimately to the Chesapeake Bay.

This area also includes two hydrologic units in the Potomac River watershed. The Potomac watershed has and will continue to be important area for upland and wetland habitat restoration projects benefiting waterfowl and grassland birds, and our stream, riparian and wetland projects will further contribute to efforts to improve the quality of Chesapeake Bay waters and habitats. More importantly, our wetland restoration and streambank fencing projects on the Lower

Susquehanna have the greatest potential for reducing the substantial sediment and nutrient inputs to the Chesapeake Bay that originate on the farmlands of adjacent counties. Ensuring that tributary streams are buffered, livestock are controlled, soil losses reduced, and wetlands are restored and protected through easements are the biggest challenges for restoring habitat in this focus area.

Notable projects include ongoing work with Amish farmers on Mill Creek and Muddy Run in Lancaster County (http://www.nrcs.usda.gov/FEATURE/buffers/penn.html), where the goal is to return these streams to stable and well-buffered cold-water fisheries. Project features include streambank fencing, small dam removal, and construction of in-stream structures to stabilize the channel and enhance fish habitat values. In addition, the new Conewago Creek project will restore twenty acres of wetlands, establish riparian buffers, stabilize streambanks, enhance floodplain plant cover, and employ in-stream natural channel design features. For all of these project areas, increased stream flows, improved water quality, and removal of barriers are especially important to restoration of American shad in the Susquehanna River and its tributaries. Finally, we will continue our efforts on wetland and bog turtle habitat restoration on the PGC's Middle Creek Wildlife Management Area. Our partners in these and other projects in the focus area include the PGC, Ducks Unlimited, Environmental Defense, Chesapeake Bay Foundation, the USDA-Natural Resources Conservation Service, and Elizabethtown College.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Lower Susquehanna Potomac River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	365 acres
Wetlands Protected	0 acres
Uplands Improved	280 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	21 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	2 structures

Target Species Benefited

Listed Species Benefited

Bog turtle

Northeastern bulrush

Unlisted Species Benefited

Henslow's Sparrow

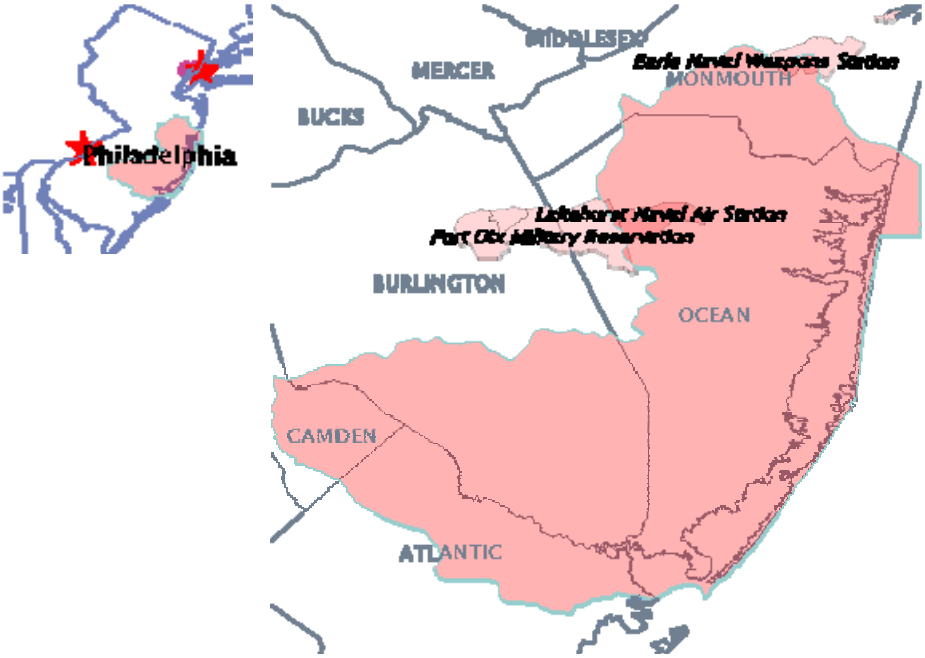
Woodduck

XII. New Jersey Embayments Focus Area

This focus area encompasses the following focal units identified in HabITS

- Mid-Atlantic Coastal Bays Focal Unit
- Great Egg Harbor River/Cape May Focal Unit

Atlantic Coastal Bays/New Jersey Focal Unit



Description

Atlantic Coastal Bays includes a diverse array of wetland habitats from subtidal shallows to estuarine marshes to palustrine forested wetlands. This focus area also includes vegetated dune communities, undeveloped barrier islands, and maritime forests. The largest bay in the focus area is the Barnegat Bay, which has abundant eelgrass beds that support critical migration and wintering areas for American black duck and Atlantic brant in the Atlantic flyway. The Atlantic Coastal Bays support 22 species of waterfowl and Barnegat Bay supports over 50,000 waterfowl during mid-winter surveys.

The Atlantic Coastal Bays supports four federally listed, eight state endangered, five state threatened, and 38 species of special concern or regional priority. Estuarine marshes support critical areas for wading birds, waterfowl, beach nesting birds, and shorebirds. Twenty-five neotropical migrant species rely on the forested and scrub-shrub habitats of the focus area for breeding. An additional 17 neotropical migrant species, of varying habitat affinity, breed in the focus area estuaries.

The Atlantic Coastal Bays marine and freshwater systems support about 107 species that are important commercial and recreational species, including anadromous and catadromous species. Other important fish include bluefish, striped bass, summer flounder, and weakfish. These bays also support important shellfish resources including blue crab, hard clams, and horseshoe crabs.

Primary threats to the Atlantic Coastal Bays focus area continues to be threats from residential and commercial development, stabilization and manipulation of beach and dune habitat (jetties,

groins), and invasive species. Landownership within the focus area is primarily private lands.

There is one NWR within the focus area (Edwin B. Forsythe) and numerous state parks and wildlife management areas throughout the coastal areas.

Restoration and enhancement within the focus area for migratory birds will target salt marsh and adjacent forested wetlands and anadromous fish passage.

The Atlantic Coastal Bays Focus Area presents excellent opportunities for the successful restoration of salt marsh and bordering fields for the benefit of several species of migratory birds. The area is in need of restoration due to the extensive loss of open salt marsh to invasive common reed (Phragmites australis) and the loss of natural open areas along the marsh edge. Common reed management is pursued with a combination of hydrological modifications, herbicide (aerial and ground application), mowing, and burning. Once common reed is removed, native tidal marsh vegetation returns. Upland habitats bordering the salt marsh are restored by maintaining low successional vegetation which may include the establishment of native warm-season grasses.

The sedge wren (Cistothorus platensis), state listed as endangered, is the archetypical species that benefits from salt marsh restoration. Sedge wrens breed along the edge of salt marsh, favor native species such as salt-meadow hay (Spartina patens), spike grass (Distichlis spicata), and marsh elder (Iva frutescens) and they specifically avoid areas dominated by common reed. In addition to sedge wrens, other birds that nest along the salt marsh edge, such as the salt marsh sharp-tailed sparrow (Ammodramus caudacutus), seaside sparrow (Ammodramus maritimus), eastern meadowlark (Sturnella magna), and the Virginia rail (Rallus limicola), or forage in open salt marsh, such as the northern harrier (Circus cyaneus), benefit from salt marsh restoration in this Focus Area. The state identifies the harrier as endangered, the meadowlark a species of special concern, and the sharp-tailed sparrow and the Virginia rail as regional priority species.

Common reed must be managed in large contiguous blocks to use efficient control methods and to prevent rapid re-colonization. Few large, singly owned properties exist in the Focus Area thus requiring multiple contiguous landowners to voluntarily want to pursue restoration. Finding these blocks of interested landowners that share restoration goals and are comfortable with the use of sometimes controversial management tools, such as herbicide and prescribed fire, is challenging. Partnerships through municipalities or local conservation groups (e.g., hunting groups) provide an opportunity to overcome this challenge. Continued partnerships with nonprofit conservation groups, such as Ducks Unlimited and the New Jersey Audubon Society, also help facilitate these projects.

Fish passage projects

The Atlantic Coastal Bays Focus Area has historically supported a large diadromous fish population. However, small dams, culverts, and weirs built over the past 2 centuries restrict the passage of these fish species to upstream spawning habitat in the numerous rivers and streams that enter the Atlantic Coastal Bays. Removing a small dam or installing a fish ladder can

restore fish populations to many miles of historic spawning runs. Species such as alewife (Alosa pseudoharengus), striped bass (Morone saxatilis), American eel (Anguilla rostrata), American shad (Alosa sapidissima), and blueback herring (Alosa aestivalis) benefit. Several challenges to succeeding in this type of project include finding willing landowners, the permitting process with the state, and the potentially large project costs. However, interest in restoring fish passage has become a regional priority for conservation groups making funding for projects more accessible. Additionally, partnerships with other agencies, such as the National Marine Fisheries Service, can facilitate project success.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Mid-Atlantic Coastal Bays Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

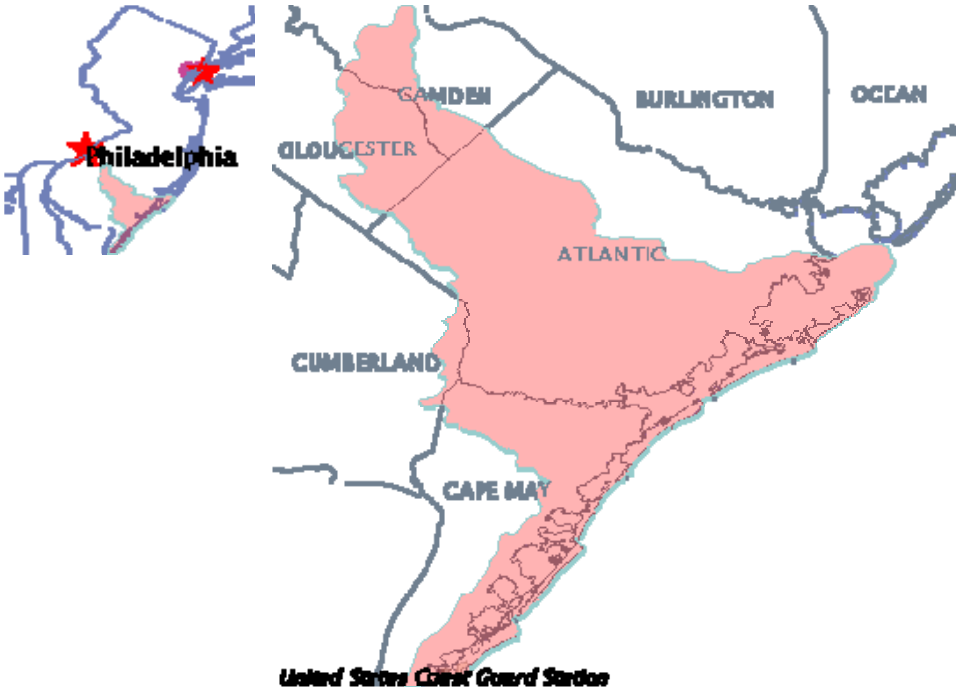
Habitat Type	***Target Acreage FY 2007-2011***
Wetlands Improved	500 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 mile
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	1 structures

Target Species Benefited

Unlisted Species Benefited

Sedge Wren	American Black Duck
Osprey	Blueback shad
Virginia Rail	Bigeye herring
Saltmarsh Sharp-tailed Sparrow	American shad
Henslow's Sparrow	American eel
Northern Harrier	

Great Egg Harbor River/Cape May Focal Unit



Description

The Great Egg Harbor/Cape May Focus Area includes the lower Great Egg Harbor River and the coastal bays extending south to the Cape May peninsula. Parts of Cape May NWR lie within the focus area along with numerous state Wildlife Management Areas. The Great Egg Harbor River is a designated Wild and Scenic River and its watershed includes portions of the Pinelands National Reserve. This focus area includes a productive coastal ecosystem supporting diverse aquatic and terrestrial resources, especially estuarine and anadromous fish populations, nesting and wintering raptors, colonial nesting waterbirds, migrating and wintering waterfowl, and rare brackish and freshwater tidal wetland communities.

The Great Egg Harbor River drains a 338-square mile area in southern New Jersey. The upland vegetation in the watershed is primarily pine-oak and oak-pine forests dominated by pitch pine (Pinus rigida) and oaks (Quercus spp.), with riparian and lowland forests composed of Atlantic

white cedar (Chamaecyparis thyoides) and hardwoods. The Great Egg Harbor River supports a substantial alewife (Alosa pseudoharengus) and striped bass (Morone saxatilis) run as well as lesser numbers of American eel (Anuguilla rostrata), American shad (Alosa sapidissima), and blueback herring (Alosa aestivalis). A complex network of bays extends 32 miles from the river mouth to the tip of the Cape May peninsula.

The Great Egg Harbor River/Cape May Focus Area supports two federally listed, seven state endangered, five state threatened, and 38 species of special concern or regional priority. This focus area's marine and freshwater systems support approximately 67 important commercial and recreational fish species. Great Egg Harbor Bay is an important commercial hard clam fishery, and the western bay is one of the few remaining oyster seed production areas in the state. Significant concentrations of migrating and wintering waterfowl occur in the Great Egg Harbor River estuary, with an average of over 12,000 waterfowl counted on midwinter aerial surveys. The bays and tidal rivers in the focus area support critical migration and wintering areas for species like the American black duck (Anas rubripes) and Atlantic brant (Branta bernicla). The estuarine marshes of the focus area support critical areas for wading birds, beach nesting birds, and shorebirds. The Great Egg Harbor Bay is considered one of the top 20 sites for spring and, especially, fall migration in the eastern United States.

Primary threats to this focus area continue to come from residential and commercial development as well as the spread of invasive species. Excessive nutrient inputs and stormwater runoff degrade the water quality in the upper Great Egg Harbor River and, to a lesser extent, in the estuary. Restoration and enhancement activities in this focus area target salt marsh and pine savannah to benefit migratory birds. Most projects occur in the southern or eastern portions of the focus area.

Colonial wading bird projects

The Great Egg Harbor River/Cape May Focus Area encompasses the majority of nesting colonial wading birds in New Jersey including the snowy egret (Egretta thula), great egret (Ardea alba), little blue heron (Egretta caerulea), tricolored heron (Egretta tricolor), yellow crowned night heron (Nyctanassa violacea), and glossy ibis (Plegadis falcinellus). All these species are recognized by the State of New Jersey as endangered, threatened, or as being a regional priority. A State of New Jersey designation of regional priority means the species is in regional conservation plans such as Partners in Flight Bird Conservation Plans, North American Waterbird Conservation Plans, or United States Shorebird Conservation Plan. Invasive common reed (Phragmites australis) is common in this focus area and degrades foraging habitat for all these species. Common reed control can be pursued with a combination ofrological modifications, herbicide (aerial and ground application), mowing, and burning. Once common reed is removed, native tidal marsh vegetation returns. This focus area also happens to harbor most of the breeding populations of gulls (Larus spp) and terns (Sterna spp.) that occur in the state. All of these species would benefit from removal of common reed and the resulting opened tidal marsh .

Common reed must be managed in large contiguous blocks to use efficient control methods and prevent rapid re-colonization. Few large, singly owned properties exist in the focus area, thus requiring multiple contiguous landowners to voluntarily want to pursue a project. Finding these blocks of landowners that all possess similar interests and goals for their land and that happen to be excepting of controversial management tools, such as herbicide and prescribed fire, can be challenging. Partnerships through municipalities or local conservation groups (e.g., hunting groups) provides an opportunity to overcome this challenge. Continued partnerships with nonprofit conservation groups, such as Ducks Unlimited and the New Jersey Audubon Society, that are also in contact with landowners helps facilitate these projects.

Pine savannah projects

The red-headed woodpecker (Melanerpes erythrocephalus) is a state listed threatened species that can occur in the Great Egg Harbor River/Cape May Focus Area and is the archetypal species for open woodland/pineland savannah habitat. These birds nest in cavities in open mixed woodlands with mature trees. Opening up wooded habitat benefits this species and can reestablish a breeding population in this focus area. Habitat created for the red-headed woodpecker would benefit numerous other species such as the state threatened savannah sparrow (Passerculus sandwichensis) and the summer tanager (Piranga rubra), a regional priority species. Challenges for these kinds of projects include potentially high costs and finding landowners willing to dedicated large acreage to restoration. Restoration measures employed include forest thinning and establishing native warm-season grasses.

Northern bobwhite (Colinus virginianus) would also benefit from these grassland projects. This species is at the northern edge of its range in New Jersey and has suffered declining populations for several decades largely due to loss of breeding habitat. Although not a federal trust bird species, this bird along with other popular game species that use grasslands and edge habitat, such as ring-necked pheasant (Phasianus colchicus) and wild turkey (Meleagris gallopavo), ensures support for grassland restoration projects from a variety of helpful partners such as Pheasants Forever, Quail Unlimited, and the National Turkey Federation.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Great Egg Harbor River/Cape May Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	190 acres
Wetlands Protected	0 acres
Uplands Improved	200 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles

Target Species Benefited

Unlisted Species Benefited

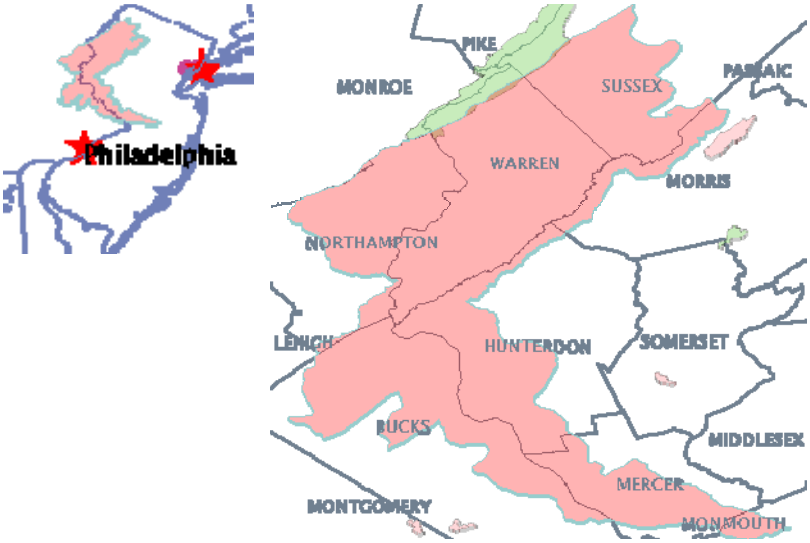
Yellow-crowned Night-Heron
Snowy Egret
Little Blue Heron
Tricolored Heron
Glossy Ibis
American Black Duck
Great Egret
Northern Diamondback Terrapin
Yellow-crowned Night-Heron
Henslow's Sparrow
Grasshopper Sparrow
Bobolink
Eastern Meadowlark
Red-headed Woodpecker
Savannah Sparrow
Summer Tanager
Osprey
Prothonotary Warbler

XIII. Delaware River Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- Highlands/Middle Delaware River Focal Unit
- Delaware River Focal Unit
- Upper Delaware Focal Unit
- Lower Delaware Focal Unit

New Jersey Highlands/ Delaware River Focal Unit



Description

The Highlands/Middle Delaware River Focus Area is characterized by large blocks of contiguous forest, open farmlands, and riparian corridors. The focus area includes two Wild and Scenic Rivers (Musconetcong and Upper Delaware) and numerous state parks, forests, and Wildlife Management Areas and lies adjacent to one NWR (Wallkill River). This focus area includes unique community types such as glacial bogs, hardwood-conifer wetlands, rock outcrops, limestone fens, and chestnut-oak forests while supporting 13 state endangered, 15 state threatened, and 67 species of special concern. Much of New Jersey's summer habitat for the federally endangered Indiana bat (Myotis sodalis) occurs in this focus area as well as the one known hibernacula site. The only viable populations of the federally endangered dwarf wedgemussel (Alasmidonta heterodon) in New Jersey occur in three streams in this focus area. Additionally, this part of the state provides some of the best bog turtle (Clemmys muhlenbergii) habitat.

Restoration and management within the Highlands/Middle Delaware Focus Area are essential to preserve the area's biodiversity to offset habitat loss, alteration, and fragmentation. Habitat loss due to development has increased dramatically in the last 10 years. Partners' restoration and enhancement work in this focus area target mixed woodland and grassland habitats to benefit migratory birds and Indiana bats and target wetlands that provide potentially suitable habitat for bog turtle.

Indiana bat projects

The New Jersey Partners Program reforests riparian and upland areas that may be used as foraging or roosting habitat by Indiana bats in the Highlands/Middle Delaware River Focus Area. Restoration measures that benefit Indiana bats are easily integrated into projects designed to

benefit other species. The Partners Program also pursues restoration projects at the one known hibernacula. Endangered species staff at the New Jersey Field Office assists with these projects by providing technical advice, funds, and assistance with implementation.

Bog turtle projects

New Jersey's bog turtle habitat lies mostly in the northwest of the state, including all of the Highlands/Middle Delaware River Focus Area, and has been degraded by aggressive exotic invasive vegetation species, such as multiflora rose (Rosa mulitflora) and common reed (Phragmites australis), as well as aggressive native species such as red maple (Acer sacrum), that reduce basking, foraging, and hibernating opportunities. Removal of this invasive vegetation through chemical and physical means (e.g., tree girdling, grazing) restores bog turtle habitat and assists in this species recovery. Restoration in bog turtle habitat must follow the Service's March 10, 2006, Appendable Biological Opinion on Bog Turtle Habitat Restoration Practices.

The greatest challenge for working in bog turtle habitat is the lengthy permitting process with the state's Land Use Regulation Program that can often take over a year. However, the state's Endangered and Non-game Species Program is a proponent of these projects and can assist with developing restoration plans. Other restoration programs, such as the state's Landowner Incentive Program and the Natural Resources Conservation Service's Wildlife Habitat Incentives Program, as well as other partners, such as the New Jersey Audubon Society, help find and direct projects to Partners as well as help with implementation. Endangered Species staff at the New Jersey Field Office also assist with these projects by providing technical advice, funds, and assistance with implementation. Bog turtle projects are generally time/labor intensive because most work must be done by hand. Volunteer opportunities are limited because staff must be trained for using herbicides and performing other kinds of work in bog turtle habitat.

Grassland/open space dependent migratory bird projects

The southern portion of the Hghlands/Middle Delaware River Focus Area includes extensive farmland being put into preservation programs. Other restoration programs, such as the state's Landowner Incentive Program and the Natural Resources Conservation Service's Wildlife Habitat Incentives Program, as well as other partners, such as the New Jersey Audubon Society, are aggressively pursuing grassland restoration projects in this area. This interest creates an environment well suited to achieving native warm-season grassland establishment projects with multiple partners. The New Jersey Partners Program is well positioned to be a leading collaborator on these projects due to past experience and equipment inventory.

Grassland dependent birds are declining throughout the region and particularly in New Jersey where development pressures and decreased agricultural have resulted in loss of open early successional habitat. However, restoration projects to restore native grasslands have been successfully implemented for several years in New Jersey by Partners. The vesper sparrow (Pooecetes gramineus), state listed as endangered, is the archetypical migratory bird that nests in these grasslands especially in this focus area. The savannah sparrow (Passerculus sandwichensis), grasshopper sparrow (Ammodramus savannarum), upland sandpiper (Bartramia

longicauda), and bobolink (Dolichonyx oryzivorus), all state listed as threatened or endangered, also nest in these grasslands. The American woodcock (Scolopax minor) nests in wooded habitat near these grasslands. Much of the nesting of this regional priority species is concentrated in New Jersey's Highlands in this focus area.

A challenge for working in this focus area is a lack of trust for government programs coupled with concern that grassland restoration projects take land away from active agriculture and especially from tenant farmers. Engaging landowners at landowner workshops put on in partnership with other restoration programs can reduce confusion and mistrust. Using local farmers to assist with restoration work also helps reduce conflict with the agricultural community.

Mixed woodland nesting migratory bird projects

The Highlands/Middle Delaware River Focus Area contains the state's greatest diversity of nesting passerine birds. For example, numerous warbler species that only breed in northwest New Jersey include the golden-winged warbler (Vermivora chrysoptera), Nashville warbler (Vermivora ruficapilla), chestnut-sided warbler (Dendroica pensylvanica), magnolia warbler (Dendroica magnolia), black throated blue warbler (Dendroica caerulescens), yellow-rumped warbler (Denroica coronata), Blackburnian warbler (Dendroica fusca), and Canada warbler (Wilsonia canadensis). All these species nest in mixed woodlands and shrublands and benefit from reforestation projects.

The New Jersey Partners Program assists landowners with planting large areas with shrubs and trees that are beneficial to migratory birds by providing nesting and foraging opportunities and by decreasing fragmentation. For example, Partners provides dogwood (Cornus spp.), serviceberry (Amelanchier canadensis), elderberry (Sambucus canadensis), sumac (Rhus spp.), black cherry (Prunus serotina), white pine (Pinus strobus), pin oak (Quercus palustris), and viburnum (Viburnum spp.) that provide habitat to a host of bird species nesting, migrating through, and over wintering in New Jersey such as the species listed above as well as the bluebird (Sialia sialis), red-headed woodpecker (Melanerpes erythrocephalus), pileated woodpecker (Dryocopus pileatus), and wood duck (Aix sponsa). Significant value to wildlife, especially migratory birds, can be obtained from shrubs and trees even when planted in relatively small areas including the numerous urban parks and private land holdings in this focus area. Many of the plant species used by Partners have additional values such as erosion control or increasing shade along riparian corridrs and thus indirectly benefit aquatic species such as the dwarf wedgemussel. These projects are facilitated by the ongoing priority for the Partners Program to work with the New Jersey Department of Corrections to cost effectively grow nursery stock of native tree and shrub species for out-planting to restoration projects. Reforestation projects are well suited to the Partners Program because they are cost effective, they provide the opportunity to engage volunteer groups, and landowners are often most interested in this kind of project because they have little out-of-pocket expense but the projects quickly result in visible changes. This focus area, although possessing some excellent opportunities for restoration projects, is the furthest from the New Jersey Field Office making it difficult to consistently be active in the area and engage landowners. Therefore, maintaining

relationships with other organizations engaging landowners regarding conservation issues in the Focus Area is important.

Fish Passage Projects

The Musconetcong River is located in the focus area and was recently designated as a wild and scenic river. This river has numerous small dams and weirs that prevent fish passage of anadromous fish and resident fish including native brook trout. The New Jersey Partners Program will target fish passage within this section of the focus area.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Highlands/Upper and Middle Delaware River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	265 acres
Wetlands Protected	0 acres
Uplands Improved	1450 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	27 miles
Riparian Streams Shorelines Protected	1 miles
Fish Passage Structures	1 structures

Targeted Species Benefited

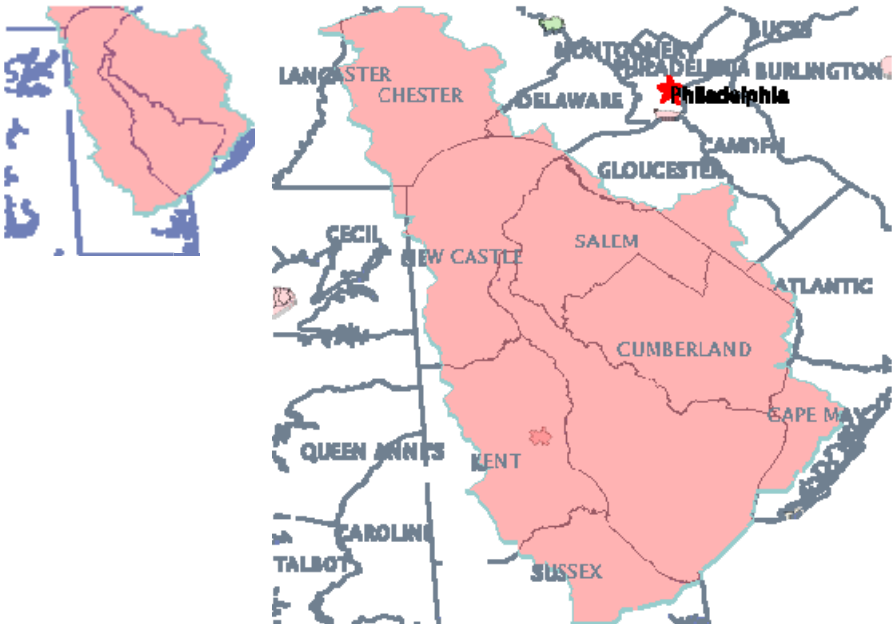
Listed Species Benefited

Indiana bat
Nashville warbler
Wilson's warbler
Bog Turtle

Unlisted Species Benefited

Henslow's Sparrow
Grasshopper Sparrow
Upland Sandpiper
Bobolink
American Woodcock
Golden-winged Warbler
Yellow-rumped Warbler
Chestnut-sided Warbler
Magnolia Warbler
Black-throated Blue Warbler
Blackburnian Warbler
Canada Warbler
Eastern Bluebird
Red-headed Woodpecker
Pileated Woodpecker

Delaware River Focal Unit



Description

The Delaware River, historically, appears to have had the largest spawning population of American shad in the United States. The population was dramatically reduced in the early/mid 1900s due to a variety of factors including: over harvest, pollution, habitat destruction, blockage of rivers from dams, and entrainment/impingement on water-use facilities. With improvements in water quality due to sewage treatment and other factors, the population has been increasing since the 1970s. Shad is one of the most recreationally and economically important fish species in the river basin. Today, approximately 900,000 adult American Shad ascend the Delaware

River each spring. The annual shad festivals held in Lambertville, New Jersey and Easton, Pennsylvania, and the Delaware River Shad Fisherman Tournament, draw large numbers of fishermen and illustrate the successful relationship between tourism and fisheries. In addition to American shad, the Delaware River supports a wide diversity of migratory and resident fish populations that are important commercially, recreationally and ecologically. Examples of other migratory species include striped bass, American eel, and river herring (alewife and blueback herring).

The Delaware is the longest un-dammed river east of the Mississippi, extending 330 miles from the confluence of its East and West branches at Hancock, New York to the mouth of the Delaware Bay where it meets the Atlantic Ocean. But hundreds of dams still block passage along its tributaries; many are low head dams under private ownership and in poor condition. Three reaches of the Delaware have been included in the National Wild and Scenic Rivers System. Bald Eagles use the river's shoreline and islands for winter habitat. Wetlands on the Pocono Plateau have been identified as important for bog turtle recovery. The Delaware Unit of the Bog Turtle Recovery Plan has broad overlap with the Delaware River Watershed.

Despite advances in many locations, obstacles to American shad recovery remain, including the multiple smaller dams that obstruct or impede migrations. Unlike salmon, migrating shad and other species will not jump over obstructions. They can be blocked by a structure as low as one foot in height. Dam removal is one of the most successful methods of providing fish passage. Dam removal not only eliminates barriers, but also allows for the restoration of stream habitat that is important to some non-game species as well.

The Delaware Bay Estuary Program is working with partners including NOAA Restoration Center, several states, the Delaware River Coordinator, and others to identify fish passage projects on tributaries of the Delaware River. These projects often include stream bank and riparian restoration as well as the in-stream restoration work associated with the dam removal.

In addition, we look for opportunities to conserve bog turtle habitat. This can include protecting habitat, invasive species control, restoring hydrology, and removing trees and applying other techniques that maintain succession of plant communities at a desirable stage.

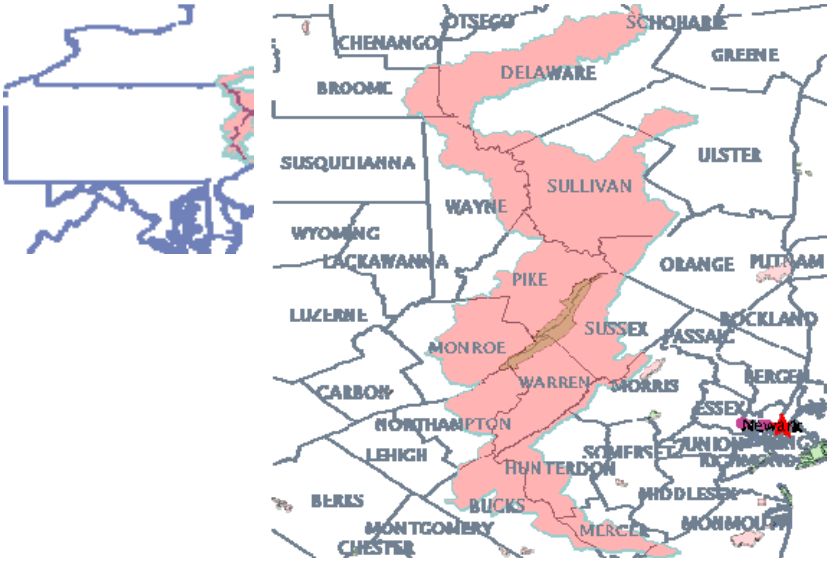
Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Delaware River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	300 acres
Wetlands Protected	0 acres
Uplands Improved	1350 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	10 mile
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	1 structures

Upper Delaware Focal Unit



Desciption

This area is home to the proposed Cherry Valley NWR, supports sizable and healthy populations of the federally listed, threatened bog turtle, and has the largest concentrations of bald eagles in Pennsylvania. Over 85 percent of the streams in this area have extirpated or declining eastern brook trout populations. The area lies within the Atlantic Coast Joint Venture's Delaware River Basin Focus Area, and one sub-focus area. Individual sub-basins support from six to eight Species of Conservation Concern identified by the Service's Fisheries Resources program. This area covers portions of the Pocono Mountains, tributary watersheds in adjacent New York and New Jersey, and the aforementioned Cherry Creek valley (http://www.nature.org/wherewework/northamerica/states/pennsylvania/preserves/art6438.html). Much of this area is forested, but it is also recognized as one of the most biologically diverse regions in North America. The Upper Delaware also includes the National Park Service's Delaware Water Gap Recreation Area, and much of the waterway is a designated Wild and Scenic River. The biggest restoration challenge in this region is identifying projects in an area with high development pressure due in large part to commuters from the New York City area, and the area includes Pennsylvania's fastest growing counties-Pike and Monroe. As the area has developed, small farms and forests have disappeared, and the area's water quantity and quality have suffered. There are a number of past and planned future habitat restoration projects in this focus area, including invasive plant control, wetland restoration, and bog turtle habitat restoration, with the current emphasis being on the Cherry Creek valley. The focus area also supports significant migratory waterfowl populations recognized by the North American Waterfowl Management Plan, and through partnerships with Ducks Unlimited, we will continue restoring wetland habitats benefiting waterfowl, with emphasis on the black duck. Along the Delaware River, important natural resources include the large concentrations of bald eagles, ospreys, and a number of aquatic species of concern, including the federally listed, endangered dwarf wedgemussel. Upland habitat enhancements, wetland restorations, streambank fencing,

and in-stream enhancement projects will all benefit these species. In addition, several ongoing and potential habitat restoration projects in the Cherry Creek valley have been identified through our work with The Nature Conservancy, our primary partner in this and neighboring areas.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Upper Delaware Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	140 acres
Wetlands Protected	0 acres
Uplands Improved	80 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

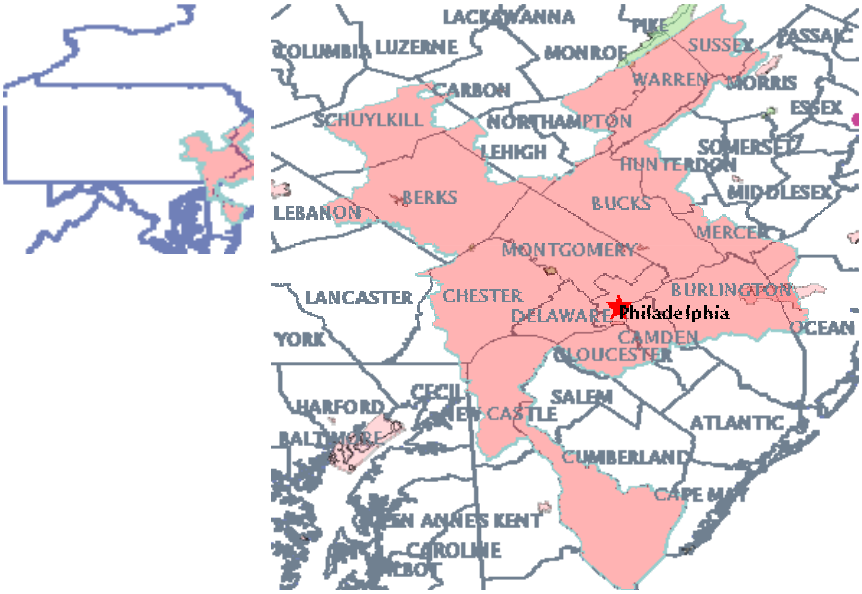
Listed Species Benefited

Dwarf wedgemussel
Bog turtle

Unlisted Species Benefited

American Black Duck
Bald Eagle
American woodcock
Charr
Osprey

Lower Delaware Focal Unit



Description

This area includes Chester County, which has the distinction of being one of Pennsylvania's fastest-growing, and also supporting the largest number of sites inhabited by the federally listed, threatened bog turtle. The area is also the home of the John Heinz NWR, and overlaps the Atlantic Coast Joint Venture's Delaware River Basin and Lower Susquehanna River Focus Areas, including six sub-focus areas. In addition, individual sub-basins support seven to eight Species of Conservation Concern, as identified by the Regional Fisheries Resources program. This focus area is highly urbanized, and includes the City and suburbs of Philadelphia. Outside of the city and suburbs to the north and west are extensive, but quickly disappearing agricultural lands. This area is also marked by some of our greatest habitat restoration challenges, since replicating the particular wetland habitat requirements of the bog turtle is both difficult and essential to the species' recovery. Although much of the area is densely populated and under intense development pressure, we have completed several cooperative bog turtle habitat projects with private landowners, and several more are planned. We will continue to work with landowners, the Natural Resources Conservation Service, and local partners such as the Berks County Conservancy and Natural Lands Trust to restore bog turtle habitat. These wetland restoration projects will also make significant contributions to water quality in area streams.

On the John Heinz NWR, we have designed and are constructing rare freshwater tidal wetlands through the Natural Resources Damage Assessment program, which enabled replacement of natural resources affected by an oil spill on the Refuge in 2000. In addition, the aquatic resources of the Lower Delaware overlap well with the priorities of the North American Waterfowl Management Plan (six sub-focus areas) and various shorebird protection initiatives.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the lower Delaware Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	120 acres
Wetlands Protected	0 acres
Uplands Improved	120 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	10 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species Benefited

Bog turtle

Unlisted Species Benefited

Wood duck

American woodcock

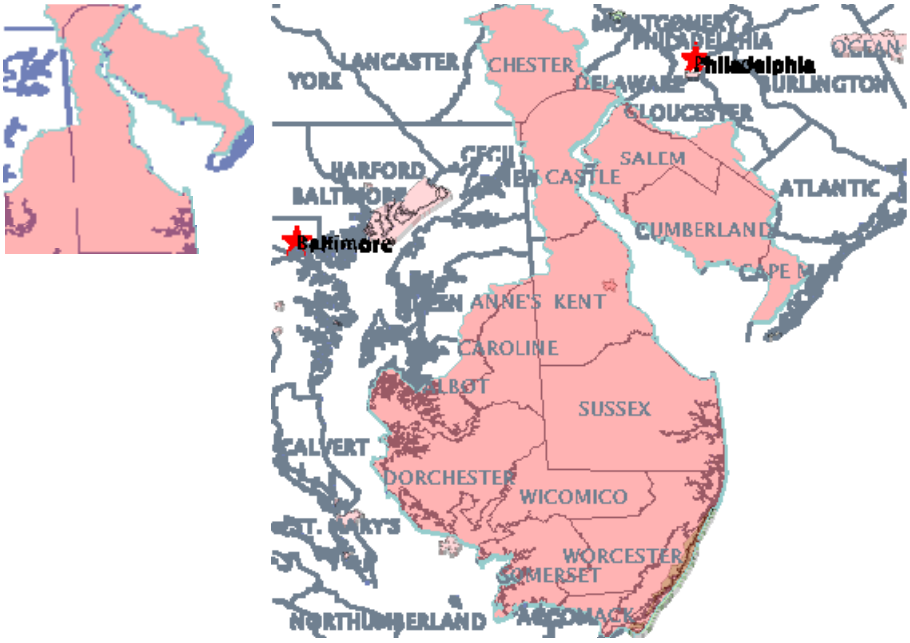
Louisinan Waterthrush

XIV. Delaware Bay Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- Twin Capes Focal Unit
- Delaware Estuary Focal Unit
- Delaware Bay Focal Unit
- Broadkill-Smyrna Focal Unit

Twin Capes Focal Unit



Description

This area is one of the most important migratory stopovers in the world. Due to the orientation and funnel-like shape of the two peninsulas, migratory songbirds and raptors (with a high proportion of juveniles) become concentrated along the coast and on the peninsulas during the fall migration. Migrating birds may rest and feed in this area for several days before continuing their migration. Some birds move some distance up the New jersey bay coast and probably the Virginia/Maryland Eastern Shore before crossing the bays. It appears that the coastal marsh edge is a habitat line followed by many fall-migrating birds that avoid the open water Delaware Bay crossing and seek a shorter crossing up-bay, a decision that might aid in their survival.

Recent work using weather radar to identify stopover habitat preferences of song birds in this area indicates that forested wetlands seem to be preferred habitat. Forested wetlands account for the greatest amount of wetland loss in the United States, with the loss of nearly 2.5 million hectares from the 1950s through the 1970s (FWS Wetland Report).

Historically, the coastal plain was dominated by mostly contiguous forest. Today, these forests have become badly fragmented by 300 years of land clearing, agriculture, and human development. Forest fragmentation and loss have reduced the available habitat for forest nesting birds, particularly those dependent on interior forest conditions. These birds depend heavily on the remaining patches of forested upland communities. At least 14 high priority species rely on forested interior habitat including the cerulean warbler (*Dendroica cerulean*), listed as Delaware State Endangered.

Loss of forested habitat originally stemmed from harvesting trees and later conversion to agriculture, but is now mostly the result of residential and commercial development and associated infrastructure. More striking than the overall loss of forest, is the fragmentation of that which remains. Mapping of tree cover in Delaware, completed in 2004, delineated about 4,150 separate wooded patches larger than 10 acres. The median size among those patches is only 34 acres, and just 6 percent are larger than 250 acres. An examination of patch "thickness," which accounts for size and shape, reveals only a few (<0.1 percent) that have sufficient interior habitat to sustain area-sensitive species like cerulean warbler (*Dendroica cerulean*), Northern parula (*Parula Americana*) and black-and-white warbler (*Mniotilta varia*) for the long-term. Additional analysis indicates that the patches are highly isolated from each other, with less than 10 percent meeting the isolation thresholds for hooded warbler (*Wilsonia citrine*), American redstart (*Setophaga ruticilla*), red-shouldered hawk (*Buteo lineatus*) and brown creeper (*Certhia Americana*). Finally, calculation of perimeter/area ratio for the forest blocks highlights their very irregular shapes. Almost 90 percent have a ratio greater than that of a 10:1 rectangle, a configuration that produces major edge effects.

Just south of the Delaware-Maryland border, the swamps and upland forests of the Pocomoke River and its tributaries comprise an area identified by the Gap Analysis Project as a hotspot for rare bird species and rare vertebrate species in general. The upper reaches of this watershed extend northward into Delaware, in an area known as Great Cypress Swamp, the largest remaining contiguous patch of forest (in terms of forest interior) on the Delmarva Peninsula. This swamp was once dominated by old growth stands of bald cypress and Atlantic white cedar, but has suffered from decades ditching, forest-clearing and other habitat alterations. The Service has identified this area as a priority focus area for ecological restoration, working with Delaware Wild Lands, the Natural Resources Conservation Service, and Vision Forestry, Inc. In addition, forested areas along the Nanticoke River have also been identified as important for several rare bird species, and targeted restoration in the headwaters of this river and those of the Broadkill River which flows in the opposite direction toward Prime Hook NWR, will help to tie these two watersheds together into a contiguous corridor which will also benefit the federally endangered Delmarva fox squirrel. Delaware Bay Estuary Project is working with several partners to strategically restore and protect forest and wetland habitats within the upper Nanticoke watershed, and is also assisting Prime Hook NWR in the development of its Comprehensive Conservation Management Plan. In addition, the Delaware Bay Estuary Program is assisting the Refuge in the development of a strategic forest restoration plan which will result in at least one contiguous patch of forest that exceeds the minimum patch size necessary to support a minimum viable population of fox squirrels for at least 100 years (based on requirements identified in this

species' recovery plan).

At one time, the Delmarva fox squirrel (*Sciurus niger cinereus*) ranged widely throughout the Delmarva Peninsula and Southeastern Pennsylvania. Currently the stronghold is the Delmarva Peninsula in the vicinity of Blackwater NWR. Small populations exist in other areas, including the Prime Hook NWR area. The State of Delaware, The Nature Conservancy, the Nanticoke Conservancy, and the Service all have large land-holdings within the corridor that spans the Nanticoke River and Broadkill River watersheds, and there is significant potential, through additional acquisition efforts and habitat restoration efforts, to knit together a more contiguous corridor of upland and palustrine forest habitats which will ultimately help to recover the fox squirrel while also improving the status of several rare, forest-dependent migratory bird species.

Unique and important landscape features in the Twin Capes Focus Area include isolated freshwater coastal plain ponds (Delmarva Bays) and associated upland forested habitats that are concentrated along the Maryland-Delaware border. Origin of these formations is unknown though meteorites, sinkholes, whales, wind, and chunks of ice from glacial outflow are a few of the theories. Their isolation results in a unique assemblage of species. Delmarva Bays support 68 percent of the amphibians of the Delmarva Peninsula and 61 rare vascular plants including the federally endangered Canby's dropwort (*Oxypolis canbyi*). Delmarva Bays aid in temporary storage of surface water and may help reduce local flooding. During the wet season, they receive groundwater discharge and precipitation and during the dry season, flow can be reversed, with these wetlands recharging regional groundwater supplies.

The highest concentration of coastal plain ponds occurs in an area known as the Blackbird-Millington Corridor, which recently became a focus area of The Nature Conservancy and the Delaware State Wildlife Action Plan. This area was identified by the Gap Analysis Project as the most significant hotspot for rare amphibian species in all of Delmarva, and possibly the entire three-state project area, which covers Maryland, Delaware, and New Jersey. The Delaware Bay Estuary Project assisted TNC and the State of Delaware with various GIS analyses which helped to prioritize habitat protection and restoration efforts within this corridor, and continues to work with these partners within this focus area.

Land ownership is primarily private in this area, with much of the Delmarva Peninsula still in agriculture. Development pressure is among the highest in the country, resulting in continued forest loss and fragmentation. Riparian buffers have been lost along most streams.

Delaware Bay Estuary Project is working with The Nature Conservancy, Delaware Department of Natural Resources and Environmental Control, Center for the Inland Bays, Partnership for the Delaware Estuary, Inc., Delaware Department of Agriculture, Natural Resources Conservation Service, Delaware Nature Society, and others to conserve and restore "large, round" forested patches, forested areas surrounding coastal plain ponds, and forested riparian habitat. By overlaying our GIS (computer mapping) data with ownership information we can identify the highest priority areas to work in. GIS analysis also allows us to identify areas that make connections or add to patch size and shape in significant ways.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Delaware Bay Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	440 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles

Target Species Benefited

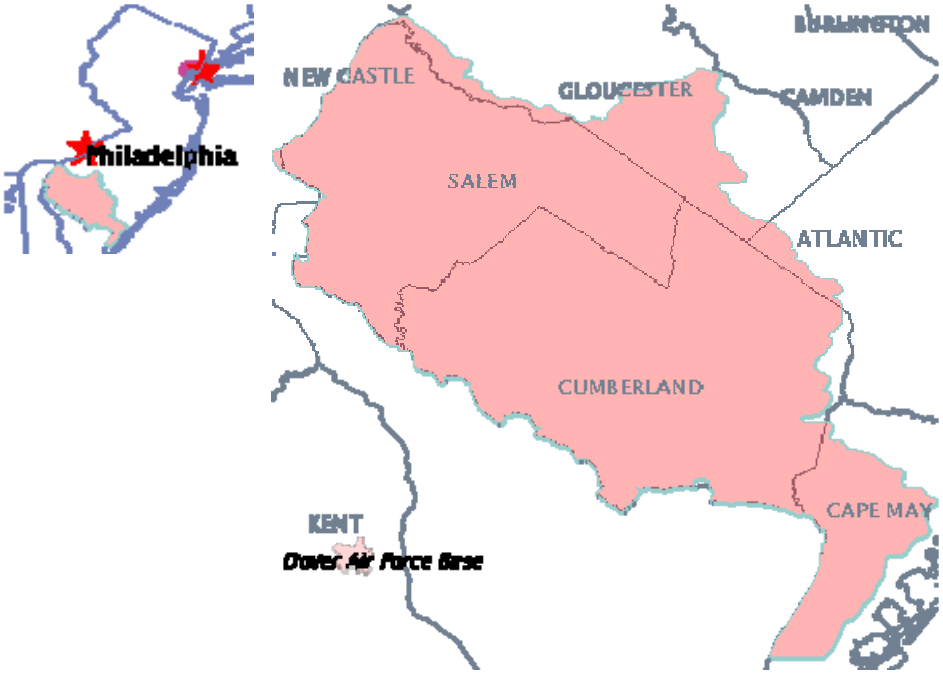
Listed Species Benefited

Delmarva fox squirrel

Unlisted Species Benefited

Brown creeper
Black-throated green warbler
American woodcock
Eastern tiger salamander
Cerulean warbler
Kentucky warbler
Canby's dropwort

Delaware Estuary Focal Unit



Description

Delaware estuary provides a diversity of wetland, riparian, and upland habitat types that are important to over 100 species for migratory and nesting birds, including waterfowl, raptors, shorebirds, and songbirds. The Cape May peninsula is a critical stop-over site for a variety of neotropical migratory birds.

Delaware estuary hosts the largest spawning population of horseshoe crabs in the world and the second largest population of migrating shorebirds in North America. Over80 percent of the Western Hemisphere's population of red knot (Calidris canutus rufa) depends upon horseshoe crab eggs. As a result, the Delaware Bay is designated within the Western Hemisphere Shorebird Reserve Network as having the highest reserve status.

The wetlands surrounding the Delaware estuary have been recognized as having international significance by the Ramsar Convention on Wetlands. The Delaware estuary serves as a spring staging areas for as many as 200,000 snow geese. The estuary annually winters approximately fifteen species of waterfowl, which comprise a population of nearly 500,000 birds. The Delaware Bay region is a critical migration and wintering area for American black duck and Atlantic Brant in the Atlantic flyway.

The Delaware estuary watershed's diverse habitats also support a variety of natural communities from Atlantic white cedar swamp to dunes and tidal marshes. Numerous species of rare plants exist in the focus area, including swamp pink and sensitive joint-vetch.

The Delaware estuary focus area includes two NWRs (Cape May and Supawna Meadows) and one Wild and Scenic River (Maurice River). The focus area also includes portions of the Pinelands National Reserve.

Restoration and enhancement activities in the focus area for migratory birds will be targeted toward pine savannah, salt marsh, forested wetlands, mixed upland forest and early successional habitats.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Delaware Estuary Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	1000 acres
Wetlands Protected	0 acres
Uplands Improved	650 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	5 miles
Riparian Streams Shorelines Protected	1 miles

Target Species Benefited

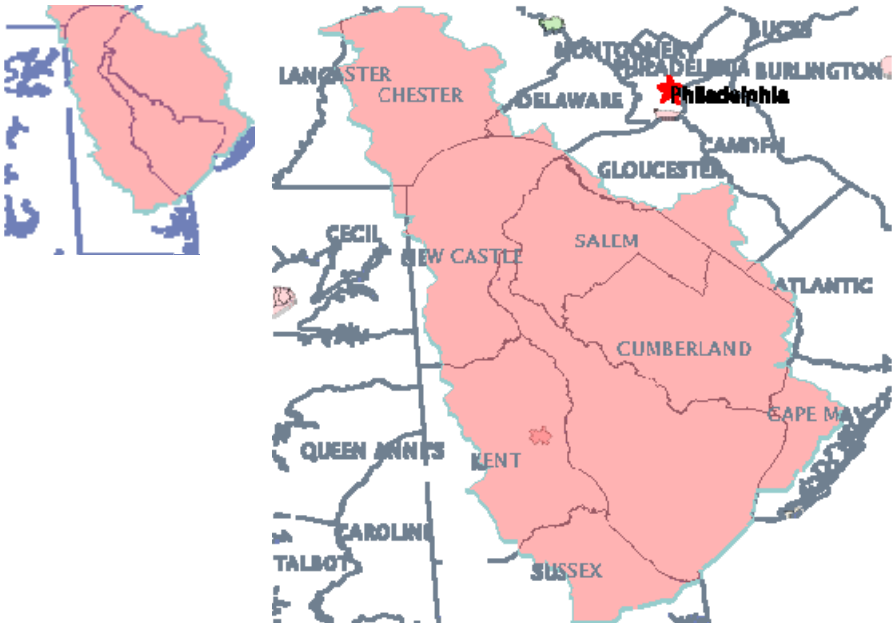
Listed Species Benefited

Bog turtle
Bald Eagle
Swamp pink

Unlisted Species Benefited

Wood Duck
Saltmarsh Sharp-tailed Sparrow
American Black Duck
Short-eared Owl
Brant
Dunlin
Red Knot
Great Egret
Snow Goose
Northern Harrier
Sedge Wren
Black Rail
Northern Diamondback Terrapin
Yellow-crowned Night-Heron
Osprey
Henslow's Sparrow
Grasshopper Sparrow
Upland Sandpiper
Northern Bobwhite
Cerulean Warbler
Prairie Warbler
Bobolink
Worm-eating Warbler
Wood Thrush
Swainson's Warbler
Prothonotary Warbler
Eastern Meadowlark
blueback shad
bigeye herring
American shad
American eel
rockfish

Delaware Bay Focal Unit



Description

The tidal wetlands and beaches of the Delaware Bay are important to waterfowl, waders, raptors, and shorebirds. Delaware Bay Estuary Project is working with partners to conserve the internationally important shorebird stopover and the extensive tidal wetlands.

Shorebirds

Delaware Bay hosts the largest spawning population of horseshoe crabs in the world and the second largest population of migrating shorebirds in North America. Over 80 percent of the Western Hemisphere's population of red knot (*Calidris canutus rufa*) depends upon horseshoe crab eggs to double their weight in less than 2 weeks before flying to the Arctic to nest. These migrants depend on the eggs of spawning horseshoe crabs for a major portion of their diets (50 to 90 percent) each spring before migrating from the Delaware Bay beaches to Artic nesting grounds. Delaware Bay is designated within the Western Hemisphere Shorebird Reserve Network as having the highest reserve status. In addition to providing the principal food source for migratory birds in Delaware Bay, horseshoe crabs comprise the main diet of juvenile loggerhead turtles.

Migratory shorebirds on Delaware Bay beaches have declined in recent years. The Service recently completed an internal candidate species status review for the red knot and in August 2006 concluded that listing the red knot was warranted, but precluded by higher priority listing actions. The local threats that have been identified include reduced food availability, human disturbance, predation, loss of sandy beaches and suitable roost sites, and risk of oil and hazardous materials spills. The high harvest of horseshoe crabs leading up until the late 1990s has reduced the crab population and may have led to declines in migratory shorebirds including red knot (*Calidris canutus rufa*), sanderling (*Calidris alba*), semipalmated sandpiper (*Calidris pusilla*), and ruddy turnstone (*Arenaria interpres*). Human disturbance associated with recreation is another serious threat to migratory shorebirds. A significant threat to habitats here is risk of oil and hazardous materials spills; Delaware Bay is the second largest port for oil transport on the East coast, so oil spills (such as the Athos I in 2004) are a real threat to habitats and animal populations. Erosion of beaches and roosting "islands" has been an ongoing concern, potentially affecting their suitability and use by spawning horseshoe crabs. Shoreline loss due to bulkheads and jetties is also a concern.

Due to the competing demands (as bait for the conch and eel fisheries, to supply Limulus Amoebocyte Lysate (LAL) for the biomedical industry, and as a critical food resource for shorebirds) and uncertain knowledge, management of horseshoe crabs has been characterized by divisive debate and conflicting views. Non-governmental shorebird conservation organizations have been very vocal participants in the debate, primarily in support of reduced or eliminated horseshoe crab harvest. Commercial watermen and seafood processors have been equally active in supporting a continued harvest at some level.

Delaware Bay Estuary Project is working with the Atlantic States Marine Fisheries Commission, States, and other conservation organizations to: 1) support research efforts that increase our understanding of horseshoe crabs and shorebirds, 2) identify management actions that will help conserve shorebirds, and 3) monitor the populations over time. This includes chairing the Service's Shorebird Technical Committee, participating in the Horseshoe Crab Technical Committee, providing equipment and manpower for field work by the International Monitoring Teams led by Delaware and New Jersey, and helping to prioritize projects and identify funding sources to carry out high priority research, monitoring and management actions to conserve

shorebirds, especially those focused upon the declining red knot (*Calidris canutus*) population.

Key Species: Red knot
Horseshoe crab

Herons, Egrets, Waterfowl, Rails, Raptors

The largest heron rookery north of Florida, Pea Patch Island Heronry, contains about 15,000 birds, composed of nine different species. The birds forage in the surrounding wetlands, at least as far as 25 kilometers away. The populations of some species are declining. A Special Area Management Plan has been developed to help conserve this resource. High quality wetlands provide important foraging habitat for these birds.

The wetlands surrounding Delaware Bay have been recognized as having international significance by the Ramsar Convention on Wetlands. The Delaware estuary serves as a spring staging area for as many as 200,000 snow geese (*Chen caerulescens*). The estuary annually winters approximately 15 species of waterfowl which comprise a population of nearly 500,000 birds. The Maurice River marshes host one of the largest fall populations of sora rail (*Porzana Carolina*) in the Atlantic Flyway and also serve as a key spring staging area for northern pintail (*Anas acuta*). The Delaware Bay region is a critical migration and wintering area for American black duck (*Anus rubripes*) in the Atlantic Flyway. The bay area supports federal and state endangered and threatened species including: bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), pied-billed grebe (*Podilymbus podiceps*), and short-eared owl (*Asio flammeus*).

While much of the tidal wetland habitat has been protected under federal, state, and private ownership, much is still grid ditched, invasive species such as phragmites are prevalent, and water quality is compromised due to non-point runoff from the surrounding agricultural and residential areas. Riparian areas are under a variety of ownerships, primarily private. Restoration activities are hampered by development pressure (among the highest in the United States) and the complex nature of tidal wetland restoration.

Delaware Bay Estuary Project is working with Ducks Unlimited, The Nature Conservancy, Delaware Department of Natural Resources and Environmental Control, Center for the Inland Bays, Partnership for the Delaware Estuary, Inc., Delaware River Keeper Network, Delaware Department of Agriculture, Natural Resources Conservation Service, Delaware Wild Lands, Inc., and others to conserve and restore these important tidal wetlands by plugging ditches, restoring the appropriate land surface elevations, controlling invasive plants, restoring riparian buffers, and replanting with locally native plant species.

A current focus area includes the tidal marshes along the Mispillion River and near its confluence with the Delaware Bay. These marshes have been heavily grid-ditched, and Delaware Bay Estuary Project and Ducks Unlimited are exploring restoration options with landowners, including the Delaware Division of Fish and Wildlife and The Nature Conservancy. The Mispillion River flanks an important focus area of the North American

Waterfowl Management Plan known as Milford Neck. In addition to state and TNC land-holdings, Delaware Wild Lands has also protected several thousand acres of land within this focus area, and the Delaware Bay Estuary Program continues to work with these partners to restore freshwater wetlands and adjacent upland habitats in this area.

The beaches, dunes, wetlands, and forests of the Delaware Bayshores are important to more than 100 species of migratory and nesting birds, including waterfowl, raptors, shorebirds, and songbirds. Delaware Bay also hosts the largest spawning population of horseshoe crabs in the world and the second largest population of migrating shorebirds in North America. Over 80 percent of the Western Hemispheres population of red knot (Calidris canutus rufa) depends upon horseshoe crab eggs to double their weight in less than two weeks before flying to the Arctic to nest. These migrants depend on the eggs of spawning horseshoe crabs for a major portion of their diets (50 to 90 percent) each spring before migrating from the Delaware Bay beaches to Artic nesting grounds. Delaware Bay is designated within the Western Hemisphere Shorebird Reserve Network as having the highest reserve status. In addition to providing the principal food source for migratory birds in Delaware Bay, horseshoe crabs comprise the main diet of juvenile loggerhead turtles.

Migratory shorebirds on the Delaware Bay beaches have declined in recent years. The high harvest of horseshoe crabs leading up until the late 1990s has reduced the crab population and may have led to declines in migratory shorebirds including red knot (Calidris canutus rufa), sanderling (Calidris alba), semipalmated sandpiper (Calidris pusilla), ruddy turnstone (Arenaria interpres). Other threats include: human disturbance and associated erosion; oil and hazardous materials spills; and shoreline loss due to bulkheads and jetties.

The wetlands surrounding Delaware Bay have been recognized as having international significance by the Ramsar Convention on Wetlands. The Delaware estuary serves as a spring staging area for as many as 200,000 snow geese (Chen caerulescens). The estuary annually winters approximately 15 species of waterfowl which comprise a population of nearly 500,000 birds. The bay area supports federal and state endangered and threatened species including: bald eagle (Haliaeets leucocephalus), peregrine falcon (Falco peregrinus), piping plover (Charadrius melodus), pied-billed grebe (Podilymbus podiceps), short-eared owl (Asio flammeus), shortnose sturgeon (Acipenser brevirostrum), and five species of sea turtles.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Delaware Bay Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	200 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles

Species Benefited

Listed Species Benefited

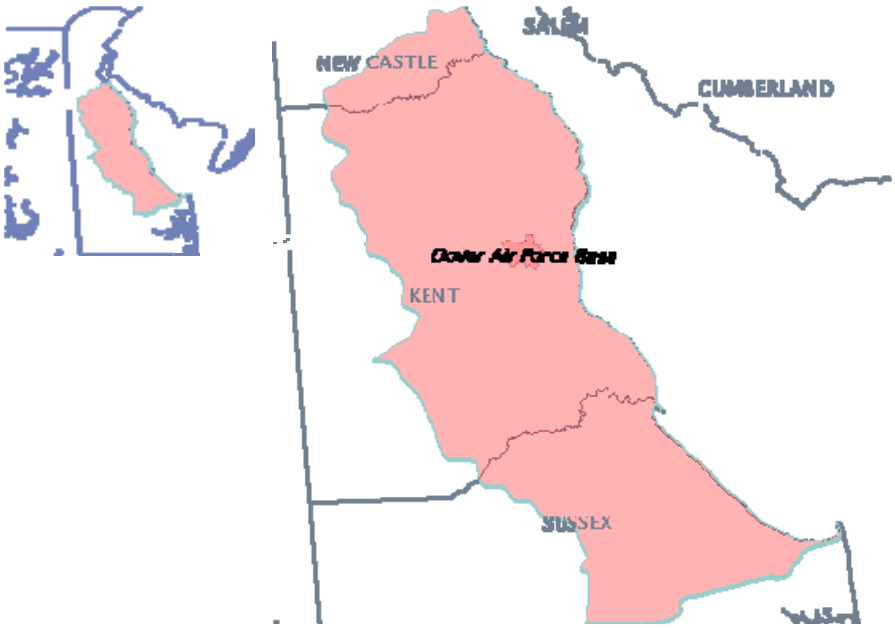
Atlantic sturgeon
Piping Plover
American peregrine falcon
Bald eagle
American burying beetle
Shortnose sturgeon
Loggerhead sea turtle

Unlisted Species Benefited

Wood Duck
Blueback shad
Henslow's Sparrow
Green-winged Teal
Blue-winged Teal
American Black Duck
Great Blue Heron
Short-eared Owl
American Bittern
Dunlin
Least Sandpiper
Semipalmated Sandpiper
Brown Creeper
Northern Harrier
Sedge Wren
Cerulean Warbler
Little Blue Heron
Snowy Egret
Black Rail
Short-billed Dowitcher
Diamondback Terrapin
Yellow-crowned Night-Heron
Black-crowned Night-Heron
Osprey

Northern Parula
Pied-billed Grebe
American Woodcock
American Redstart
Eastern Meadowlark
Lesser Yellowlegs
Greater Yellowlegs
Red-winged Blackbird
Solitary Sandpiper
Ruddy Turnstone
Sanderling
Dunlin
Red Knot
American Oystercatcher
Short-billed Dowitcher
Least Tern

Broadkill/Smyrna Focal Unit



Description

The Broadkill/Smyrna Focus Area encompasses broad upland interfluves with incised first and second order streams that ultimately drain to the Delaware Bay. The focus area includes the largest aerial extent of the Delaware State Soil (Greenwich series) and is highly coveted for development of residential communities due to the well drained nature of the soils. Upland forests in this area comprised of oak-hickory stands along with mixed Loblolly pine-oak stands. Terraces and floodplains with hydric soils continue to support forested wetlands dominated by black gum, red maple, chestnut oak, and loblolly pine. Small remnant populations of Atlantic white cedar and seaside alder, a state listed threatened species, occupy the flood plains of Cedar Creek and tributaries of the Broadkill River. Bombay Hook NWR and Prime Hook NWR are located within this focus area. Due to the extent of forest loss, the importance to migratory passerines (GAP analysis report developed by the Delaware Bay Estuary Program, 2006), the Proximity to two NWRs and two state Wildlife Management areas, this Hydrolic Unit Code (HUC) was chosen as a focus area.

Benefits to Trust Resources

According to the Atlantic Coast Joint Venture the Broadkill/Smyrna HUC is situated in the waterfowl, waterbird, shorebird and land bird focus areas for BCR 30. The North American Regional Shorebird Plan specifically targets the coastal portion of this HUC for its global importance to shorebirds of conservation concern such as the Red Knott. The Endangered Delmarva fox squirrel is dependent on forest habitat on and adjacent to the Prime Hook National Wildlife refuge which is contained in this focus area. Reforestation efforts targeted for this portion of the HUC may eventually help in the recovery of this species. Other forest dependent trust resources will also benefit such as the red-shouldered hawk, and a suite of neotropical migrants including worm-eating warblers, redstarts and cerulean warblers. Forested wetland restoration adjacent to Cedar Creek and other tributaries of the Broadkill River will also reduce sediment and nutrient loads that will benefit populations of the federally listed Swamp pink.

Needs and Opportunities

The Broadkiln/Smyrna River watershed encompasses a large percentage of the coastal marshes, maritime forests and upland forests that are critical habitat for migrating waterfowl, shore birds and neotropical birds. Two NWRs, three state Wildlife Management Areas, state forest lands, and private land holdings by conservation organizations such as the Nature Conservancy form a species rich mosaic of habitat coverage. Unbridled residential, commercial and infrastructure development pose a significant threat to sustainability of this mosaic. Due to the rapid pace of development, a concerted effort by state, federal and non-government organizations to restore and protect habitat along with other critical physical features such as aquifer recharge zones, is an imperative for the next five years. A myriad of protection and restoration programs exist in Delaware. Programs such as the Delaware State Land Owner Incentive Program, USDA Farm Bill programs , state and federal Farm Land Preservation programs, U.S. Forest Service Forest Legacy and private land trust conservation easement programs, as well as the Service's Partners for Fish and Wildlife Program. These programs alone or combined can provide resources needed to slow the rate of habitat loss and maintain an ecologically sustainable habitat hub that will aid in the recovery of federally listed endangered species such as the Delmarva fox squirrel and Swamp pink and reduce the need for future species listings.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Broadkill/Smyrna Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners and Coastal Programs will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	600 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	500 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	5 miles
Fish Passage Structures	0 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	40 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	.5 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species Benefited

Delmarva Peninsula fox squirrel

Unlisted Species Benefited

Wood Duck
American Wigeon
Green-winged Teal
Northern Shoveler
Cooper's Hawk
Sharp-shinned Hawk
Seaside Sparrow
Blue-winged Teal
Mallard
American Black Duck
Ring-necked Duck
Red-shouldered Hawk
Green Heron
Great Egret
Marsh Wren
Eastern Wood-Pewee
Little Blue Heron
Snowy Egret
Yellow-breasted Chat
Wood Thrush
Worm-eating Warbler
Swamp Sparrow

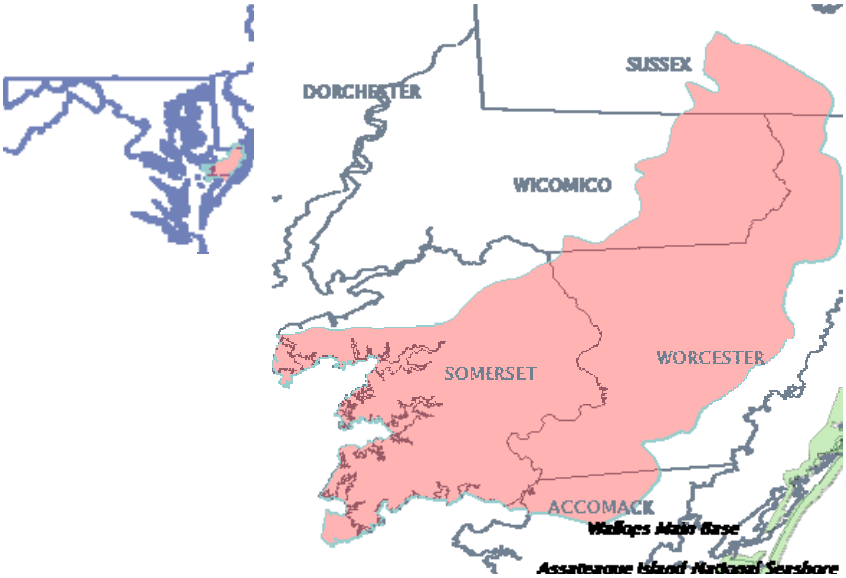
Scarlet Tanager
Carolina Chickadee
Prothonotary Warbler
Ovenbird
Greater Yellowlegs
Hooded Warbler
Northern Bobwhite
Northern Harrier
Prothonotary Warbler
American Woodcock
Eastern Bluebird
Dickcissel
Field Sparrow
Eastern Meadowlark
Brown Thrasher
Greater Yellowlegs
Red-shouldered Hawk
Turkey Vulture
Prairie Warbler
Yellow-throated Warbler
Blackburnian Warbler
Pine Warbler
Acadian Flycatcher
Common Yellowthroat
Kentucky Warbler
American Redstart
Louisiana Waterthrush
White-eyed Vireo
Red-eyed Vireo
Hooded Warbler

XV. Chesapeake Bay Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- Pocomoke River Focal Unit
- Mid-Atlantic Coastal Plain Focal Unit
- Maryland Coastal Bays Focal Unit
- Upper Chesapeake Focal Unit
- Nanitcoke-Blackwater Focal Unit
- Anacostia Focal Unit
- Mid Atlantic Highlands Focal Unit

Pocomoke River Focal Unit



Description

The conservation objectives for this focus area are to protect and restore large contiguous blocks of wetlands and wetland associated uplands, including: oak, hickory, and pine upland forests; bald cypress, black gum, and red maple forested wetlands and tidal emergent wetlands; restore riparian habitat; reduce sediment loads and nutrient runoff. Working in concert with the Chesapeake Bay Field Office (CBFO) Coastal Program, state and other federal agencies such as the U.S. Department of Agriculture, the anticipated restoration and protection outcomes over the next five years are: protect 2,500 acres of forested wetlands through conservation easements; restore 500 acres of riverine wetlands including riparian corridor habitats; restore 100 acres of upland forest.

Habitat Description

The Pocomoke River originates in Delaware and flows 49 miles south through Wicomico, Worcester, and Somerset Counties in Maryland prior to reaching Virginia and the Pocomoke Sound. Important habitat types include tidal emergent wetlands; extensive beds of submerged aquatic vegetation (SAV); forested wetlands dominated by bald cypress, red maple, and black gum; and oak, pine, and hickory forested upland. The SAV beds in Tangier Sound and around Martin NWR are considered to be the most extensive and robust in the Maryland portion of the Chesapeake Bay. The extensive riparian forested wetland and emergent wetland habitats in the Pocomoke drainage contribute greatly to the high water quality necessary to support SAV.

Benefits to Trust Resources

As a result of its importance to neotropical migrants and forest interior dwelling species, the watershed was designated as an Atlantic Coast Joint Venture BCR 30 focus area for landbirds.

Forested wetland species that will benefit from protection and restoration activities include the state endangered Swainson's warbler, Kentucky warbler, Acadian flycatcher, yellow throated vireo, and prothonotary warbler. In the Mid-Atlantic Coastal Plain, the Swainson's warbler occurs only in the Pocomoke watershed and the Dismal Swamp in Virginia. Other neotropical migrants and forest interior dwellers that will benefit include the northern parula, yellow warbler, yellow-throated warbler, pine warbler, prairie warbler, black and white warbler, American redstart, worm eating warbler, ovenbird, Louisiana waterthrush, common yellowthroat, hooded warbler, yellow breasted chat, wood thrush, eastern wood-peewee, red-headed woodpecker, Carolina chickadee, scarlet tanager, Cooper's hawk, red-shouldered hawk, and barred owl. The Atlantic Coast Joint Venture also identified the entire upper Pocomoke River watershed as a shorebird focus area, solely due to its importance to woodcock.

According to the Atlantic Coast Joint Venture Waterfowl Implementation Plan, the Tangier Sound Focus Area, including the northern portion of Pocomoke Sound, supports some of the best remaining submerged aquatic vegetation beds in Maryland, with extreme importance to American black duck and other waterfowl as a food source. In addition to black duck, emergent and forested wetlands and associated uplands support populations of northern pintail, mallard, lesser scaup, greater scaup, Atlantic brant, redhead, canvasback, ring-necked duck, and American wigeon.

Federally listed species that occur in the watershed include Delmarva fox squirrel, bald eagle, Northeastern beach tiger beetle, and sensitive joint vetch. The river provides important spawning and nursery habitat for American eel, American shad, striped bass, and blueback herring, which are fisheries species of conservation concern in Region 5 of the Service. Martin NWR is located in the Tangier Sound near the mouth of the Pocomoke.

Needs and Opportunities

The Maryland Wildlife Diversity Conservation Plan identified the Pocomoke River watershed as containing extensive tracts of floodplain forest requiring protection and restoration. These forests are under increasing pressure from intensive silviculture practices and residential development. Protection and restoration efforts are currently focused in the non-tidal forested portion of the Pocomoke River mainstem and its two major tributaries, Dividing Creek and Nassawango Creek, where there are still large undeveloped expanses of priority habitat to protect and restore at a reasonable price. Land cover in this area is equally divided between wooded lowlands and agricultural crops, with little urban cover. Despite large state park and forest holdings, this watershed is dominated (95 percent) by private ownership. As a result, protection and restoration of sufficient habitat to benefit trust resources will require a significant private land component.

CBFO’s Coastal, Partners for Fish and Wildlife, SHARP, and Endangered Species Programs work closely in this watershed to restore and protect habitat. CBFO has been working with partners to leverage resources and submit North American Wetland Conservation Act and National Coastal Wetland Grant proposals to protect and restore ecologically important habitat in this watershed through wetland and riparian habitat restoration, purchase of conservation

easements, fee-simple acquisition, and other means. Partners include the Maryland Department of Natural Resources, U.S. Department of Agriculture, The Nature Conservancy, The Conservation Fund, local land trusts, and local governments. Habitat targets are identified by proximity to the Pocomoke River, Nassawango Creek, and Dividing Creek, by rare species occurrences and by consulting the state's Green Infrastructure Program, which identifies ecologically important habitat hubs and corridors.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Pocomoke River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	500 acres
Wetlands Protected	2500 acres
Uplands Improved	100 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	1000 acres
Wetlands Protected	2500 acres
Uplands Improved	0 acres
Uplands Protected	1000 acres
Riparian Streams Shorelines Improved	.5 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	2 structures

Target Species Benefited

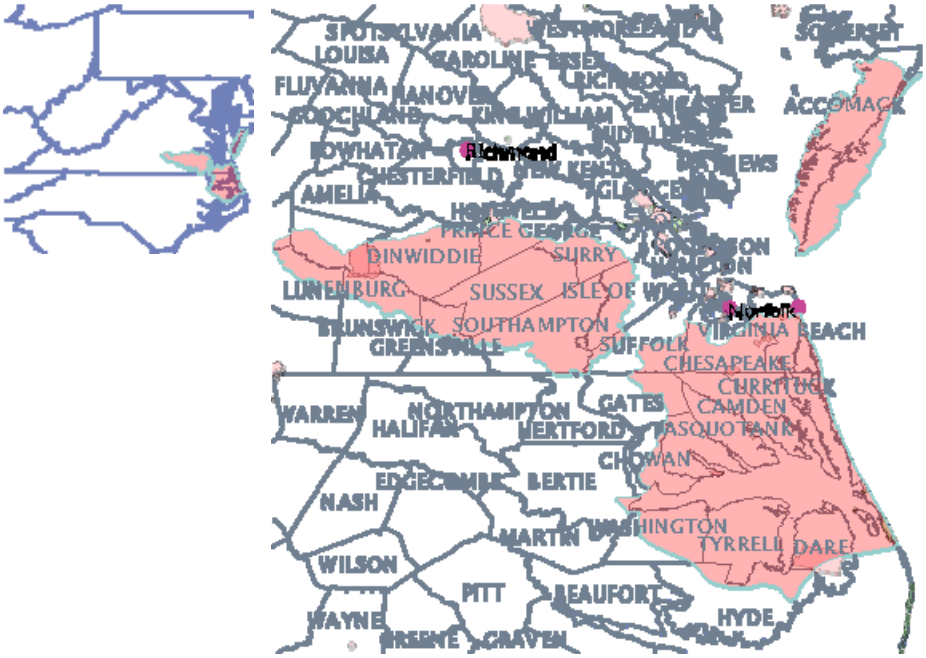
Listed Species Benefited

Sensitive joint-vetch
Northeastern beach tiger beetle
Bald eagle
Delmarva Peninsula fox squirrel

Unlisted Species Benefited

Wood Duck
American shad
Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
American Black Duck
American eel
Great Blue Heron
Red-shouldered Hawk
Green Heron
Blue crab
Chuck-will's-widow
Turkey Vulture
Belted Kingfisher
Marsh Wren
Northern Bobwhite
Yellow-throated Warbler
Snowy Egret
Common Loon
Common Yellowthroat
American Oystercatcher
Bald Eagle
Wood Thrush
Black Rail
Swainson's Warbler
Red-headed Woodpecker
Black Scoter
Rockfish
Kentucky Warbler
Osprey
Scarlet Tanager
Prothonotary Warbler
King Rail
Virginia Rail
Clapper Rail
Wood Frog
Black Skimmer
American Woodcock
Louisiana Waterthrush
Atlantic cordgrass
Saltmeadow cordgrass

Mid-Atlantic Coastal Plain Focal Unit



Description

The Mid-Atlantic Coastal Plain of Virginia contains four NWRs: Chincoteague, Eastern Shore of Virginia, Back Bay, and Great Dismal Swamp. This focal area has been identified as the second highest concentration in the state for Tier 1 species habitat, and the harbors the highest biodiversity of migratory bird species. The Virginia Coast has been designated by the United Nations as a Biosphere Reserve, and the Chesapeake Bay wetlands are designated Ramsar Wetlands.

The Eastern Shore of Virginia contains three Partners in Flight/State Wildlife Priority Areas: Delmarva Southern Tip, Delmarva Seaside, and Delmarva Seaside-Chincoteague Impoundments. The Delmarva Peninsula is uniquely situated to create a funnel of critical habitat for birds migrating up and down the east coast of the United States, and its importance is well recognized by conservation agencies and organizations attempting to enhance and protect this landscape for migratory birds. To the extreme north and south of Virginia's Eastern Shore, the Service operates Chincoteague and Eastern Shore of Virginia/Fisherman Island NWRs. Between these Refuges, The Nature Conservancy owns or holds easements on approximately 40,000 acres of barrier islands and coastal farms known as the Virginia Coast Reserve. Several state agencies and non-government organizations also own property or hold easements on the eastern shore of Virginia.

Our goal in this focal area is to form a chain of habitat that supports migratory birds as they fly down the coastline of the Delmarva Peninsula, or travel inland down the Chesapeake Bay, and move farther south along the coast of North Carolina and beyond. Planned projects will provide

migrating and wintering habitat for all of the high priority waterfowl species identified by the Atlantic Coast Joint Venture. Activities lie within three NAWMP Waterfowl Focus Areas, and are within Priority Habitat Areas for shorebirds, wading birds, and land birds as identified under the South Atlantic Migratory Bird Initiative . The following state or federally listed species will directly benefit: the Bald Eagle, Red-cockaded Woodpecker, Peregrine falcon, Eastern Big-eared Bat, and Canebrake Rattlesnake.

Based on mid-winter inventory data, southeastern Virginia and northeastern North Carolina often rank first or second for the total index of dabbling ducks within the entire Atlantic Flyway. The region winters 50 to 65 percent of the Atlantic Flyway winter census total for Northern Pintail. Estimates indicate that over 30,000 dabbling ducks and 45,000 divers winter in the Currituck/Albemarle/Pamlico Sound region of Virginia and North Carolina. Most of the continental population (>80 percent) of Tundra Swans winter in eastern Virginia and North Carolina. The Back Bay-Currituck Sound area has been a refuge for Canada geese since the late 1980s when hunting was eliminated due to precipitous regional declines in the Atlantic and North Atlantic Populations of Canada geese. North Carolina is the historic winter terminus for the North Atlantic Population.

The Partners in Flight Initiative published a Bird Conservation Plan for The South Atlantic Coastal Plain in 2001 and The Mid-Atlantic Coastal Plain in 1999; our activities span both area plans. Objectives of these plans include establishment and protection of forested and fresh/brackish emergent wetland habitats, pine savannahs, and early successional habitats.

For the past 2 years, Virginia's Partners Program has lead a team that includes TNC, the Commonwealth of Virginia, the Eastern Shore Land Trust, The Conservation Fund, and others in efforts to identify high priority habitat restoration and protection sites, collaborate on securing funding, and implement projects. Since 2004 we have completed over 1000 acres of habitat improvement. In addition, the Partners Program initiated discussions between federal, state, and private conservation land Eastern Shore that lead to these parties signing an Memorandum of Understanding in 2006 committing to coordinate and assist one another in meeting joint habitat goals.

Major impediments to conserving this coastal ecosystem are sharp increases in development pressure, accompanied by real estate price increases of 400-fold in a less than 5-year period. Paradoxically, Northampton County is one of the poorest per capita in the Commonwealth. This contrast places local government at risk of not having the resources to assess or plan for the onslaught of development that is inevitable. Conservation groups and agencies are providing funds and technical expertise to assist the County in making decisions that have both economic and environmental sustainability.

Conservation targets FY 2007 through FY 2011

Our habitat goals for the Mid-Atlantic Coastal Plain Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding

levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	400 acres
Wetlands Protected	0 acres
Uplands Improved	200 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	10 miles
Riparian Streams Shorelines Protected	0 miles

Target Species Benefited

Listed Species Benefited

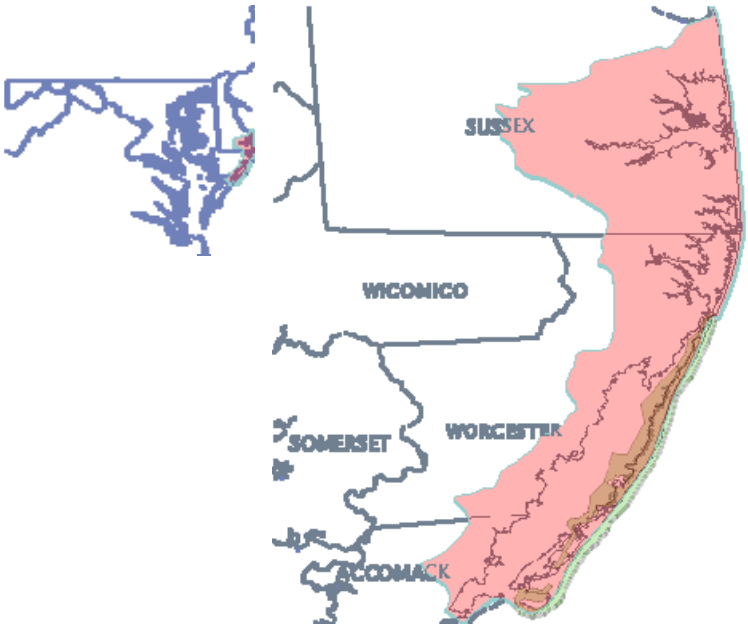
Sensitive joint-vetch
American chaffseed
Smooth coneflower
Bald eagle
Red-cockaded woodpecker
Michaux's sumac
American chaffseed
Delmarva Peninsula fox squirrel
Dwarf wedgemussel
Roanoke logperch

Unlisted Species Benefited

Saltmarsh Sharp-tailed Sparrow
Seaside Sparrow
Short-eared Owl
Red Knot
Stilt Sandpiper
Purple Sandpiper
Semipalmated Sandpiper
Piping Plover
Wilson's Plover
Black Tern
Marsh Wren
Sedge Wren
Yellow Rail
Cerulean Warbler
Black-throated Green Warbler
Little Blue Heron

Acadian Flycatcher
Rusty Blackbird
American Oystercatcher
Wood Thrush
Black Rail
Short-billed Dowitcher
Swainson's Warbler
Marbled Godwit
Red-headed Woodpecker
Whimbrel
Northern Parula
Prothonotary Warbler
Black Skimmer
American Woodcock
Least Tern
Common Tern
Royal Tern
Gull-billed Tern
Virginia wakerobin
Buff-breasted Sandpiper

Maryland Coastal Bays Focal Unit



Description

Conservation Objectives

The Conservation objectives for this watershed (Chincoteague Bay (Maryland Coastal Bays) Watershed (HUC 0206010) are to protect and restore large contiguous blocks of wetlands and wetland associated uplands, including: oak, hickory, and pine upland forests, and tidal emergent coastal salt marsh.

The Chincoteague Bay watershed is in the Atlantic Ocean drainage area, which includes portions of Maryland, Virginia, and Delaware. Maryland's portion of the watershed is about 48 percent land consisting of approximately 42,806 acres of upland and wetland, and 52 percent water, which covers about 46,483 acres. There are 7,269 acres of large forest blocks and 15,572 acres of wetlands in the Chincoteague Bay watershed. The majority of these wetlands are estuarine,

which account for 75 percent of the watershed's wetlands. Of the palustrine wetlands, 83 percent are forested wetlands (18 percent of the watershed's total). There are approximately 7,000 acres of submerged aquatic vegetation in Chincoteague Bay. Considering all types of land across the watershed, forest and brush lands account for about 40 percent of the watershed and wetlands cover about 23 percent. Active land uses encompass about 35 percent of the watershed, including agriculture (33 percent) and developed land (2 percent).

Benefits to Trust Resources

According to the Atlantic Coast Joint Venture Implementation Plan, the Atlantic Coastal Bays Focus Area, which includes the Chincoteague Bay watershed, is an important area for breeding and wintering waterfowl. The bays and associated wetlands within the focus area support American black duck, American wigeon, Atlantic brant, bufflehead, Canada goose, canvasback, gadwall, scaup, greater snow goose, mallard, Northern pintail, and red-breasted merganser.

Two Service's priority species identified in the Northern Atlantic Regional Shorebird Plan breed within or near the forested and coastal wetlands in the watershed. These species include American oystercatcher and American woodcock. The Forster's tern, identified as a species of moderate concern in the North American Waterbird Conservation Plan breeds within coastal wetlands in the watershed.

This watershed is located in the Partners in Flight BCR 44. Riparian forest supports breeding neotropical migrants such as the prothonotary warbler. Coastal salt marsh supports black rail, Henslow's sparrow, salt-marsh sharp-tailed sparrow, seaside sparrow, and American black duck. All of these species are listed as priority species in the Partners in Flight Plan. Other important species found in the watershed include, black skimmer, willet, terns, herons, and egrets.

Federally listed species that occur in the watershed include bald eagle, piping plover, swamp pink, and sea beach amaranth. Tributaries in the watershed provide important spawning and nursery habitat for American eel, American shad, striped bass, alewife, and blueback herring. Chincoteague NWR is located in the watershed.

Needs and Opportunities:
The Maryland Coastal Bay, which encompasses the Maryland portion of Chincoteague Bay, was identified in the Maryland Wildlife Diversity Conservation Plan as having extensive tracts of tidal brackish marsh requiring protection and restoration. This includes protection of upland buffers, restoration of hydrology in ditched marshes, and invasive species control. Despite large state and federal holdings, including Chincoteague NWR and Assateague National Seashore, this watershed is dominated (95 percent) by private ownership. As a result, protection and restoration of sufficient habitat to benefit trust resources will require a significant private land component. There are large expanses of unfragmented habitat in this watershed that are just beginning to be threatened by development. Water quality in much of the Chincoteague Bay is degraded due to poor flushing and large inputs of agricultural and urban run-off. Protection and restoration of emergent and forested wetland will assist in improving water quality in the Bay. The CBFO Coastal Program and the Partners for Fish and Wildlife Program work closely in this

watershed to restore and protect habitat. CBFO has been working with partners to leverage resources and submit North American Wetland Conservation Act and National Coastal Wetland Grant proposals to protect and restore ecologically important habitat in this watershed through wetland restoration, including mosquito ditch modification, the purchase of conservation easements, fee-simple acquisition, and other means. Partners include the Maryland Department of Natural Resources, Maryland Department of Agriculture, Maryland Department of the Environment, U.S. Department of Agriculture, The Nature Conservancy, The Conservation Fund, local land trusts, and local governments. Habitat targets are identified by rare species occurrences, proximity to Chincoteague Bay, and by consulting the state's Green Infrastructure Program, which identifies ecologically important habitat hubs and corridors.

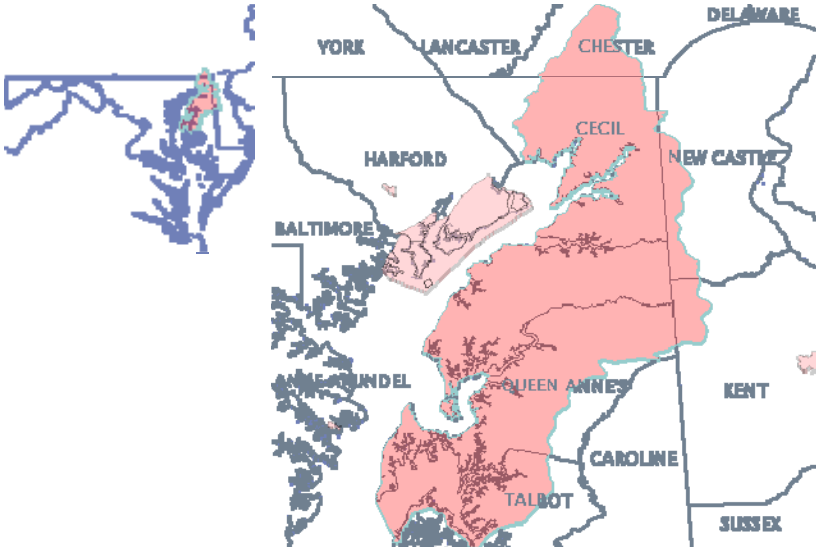
Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Maryland Coastal Bays Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	500 acres
Wetlands Protected	1000 acres
Uplands Improved	26 acres
Uplands Protected	1000 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Upper Chesapeake Focal Unit



Description

The upper Chesapeake watershed encompasses a portion of Maryland, Delaware, and Pennsylvania and spans eight counties. There are four major tributaries in this watershed, the Susquehanna, Elk, Sassafras, and Chester Rivers. This watershed is in the Eastern Coastal Plain Province, which has the highest diversity of emergent estuarine and palustrine wetland communities because both tidal and non-tidal freshwater marshes occur there. Important habitat types include upland forest, riparian forest, tidal and non-tidal wetlands, forested wetlands, and Delmarva Bays

Conservation Objectives

The Conservation objectives for this watershed are to protect and restore threatened and endangered species habitat, restore riparian and instream habitat, and restore fish passage, including: restoring bog turtle habitat; restoring and protecting puritan tiger beetle and dwarf wedgemussel habitat; protecting Delmarva fox squirrel habitat; restoring riparian and instream habitats in degraded Piedmont and Coastal plain streams; and removing blockages to fish passage.

Benefits to Trust Resources

According to the Atlantic Coast Joint Venture Waterfowl Implementation Plan, the Chester River and Kent County Bayshore Focus Area supports important beds of submerged aquatic vegetation that are critical to breeding and wintering waterfowl in the Atlantic Flyway. Approximately one third of Maryland's population of American black duck utilize the focus area. Other waterfowl that winter in the area include Canada goose, snow goose, scaup, canvasback, mallard, ruddy duck, merganser, tundra swan, bufflehead, ring-necked duck, and common

goldeneye, in addition to small numbers of scoters, redhead, long-tailed duck, American wigeon, gadwall, and Northern pintail.

This watershed is located in the Partners in Flight Bird Conservation Region (BCR) 44. Remaining riparian forests support breeding neotropical migrants such as cerulean warbler, prothonotary warbler, and Acadian flycatcher. Mixed upland forests support wood thrush, worm-eating warbler, and Kentucky warbler. The agricultural landscape provides habitat for grassland nesting species, including grasshopper and vesper sparrow. All of these species are listed as priority species in the Partners in Flight Plan.

Federally listed species that occur in the watershed include Delmarva fox squirrel, bald eagle, puritan tiger beetle, Canby's dropwort, swamp pink, bog turtle and dwarf wedgemussel. Tributaries in the watershed provide important spawning and nursery habitat for American eel, American shad, striped bass, alewife, and blueback herring. Eastern Neck NWR and Susquehanna Flats NWR are located in the watershed.

This watershed encompasses the head of the Chesapeake Bay at the mouth of the Susquehanna River. As a result, stream and riparian restoration work in this focus area limits the input of sediments and nutrients into the entire Chesapeake Bay. This focus area also supports key wildlife habitats identified in the Maryland Wildlife Diversity Conservation Plan.

Needs and Opportunities

This focus area contains a mixture of urban areas and farmland, woodland, and fallow fields. The development of uplands, especially the conversion of agricultural lands to residential developments is a great threat. The majority of the land in this focus area is in private ownership, so protection and restoration of sufficient habitat to benefit trust resources will require a significant private land component. Protection of large acreages in this watershed is difficult due to the high land value. As a result, efforts have focused on small restoration and protection projects to benefit less mobile threatened and endangered species, stream restoration projects to alleviate the impacts of development, and fish passage.

The CBFO Coastal, Partners for Fish and Wildlife, Stream Habitat Assessment and Restoration Program (SHARP), and Endangered Species Programs work closely in this watershed to restore and protect habitat. To accomplish our restoration and protection activities, CBFO works with partners including the Maryland Department of Natural Resources, Environmental Defense, The Nature Conservancy, local land trusts, and local governments to leverage resources and obtain funding through Service Section 6 Recovery Land Acquisition Grants, Private Stewardship Grants, National Fish and Wildlife Foundation Grants, Chesapeake Bay Trust Grants, and through partnerships. Habitat targets are identified by rare species occurrences and by consulting the state's Green Infrastructure Program, which identifies ecologically important habitat hubs and corridors.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Upper Chesapeake Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	530 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	0 miles
Riparian Streams Shorelines Protected	4 miles
Fish Passage Structures	1 structures

Species Benefited

Listed Species Benefited

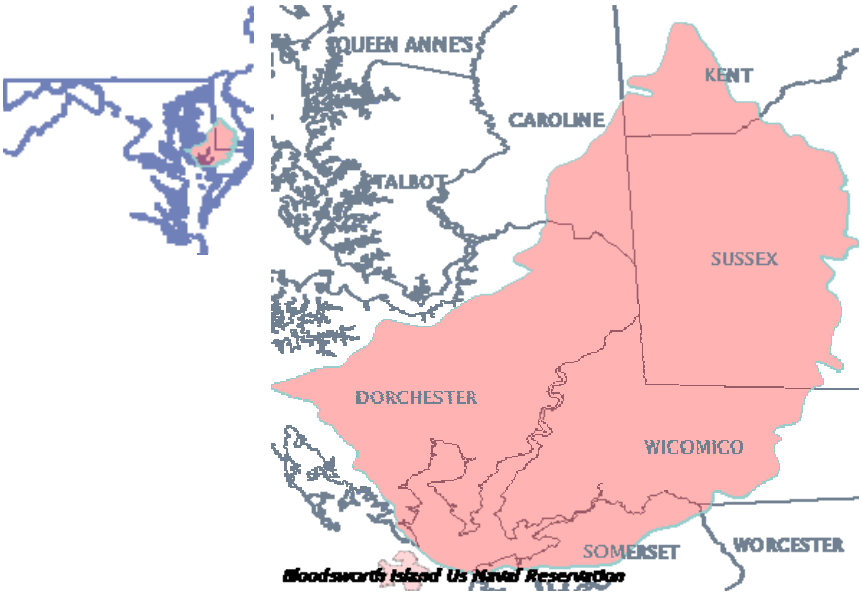
Bog turtle
Dwarf Wedgemusel

Unlisted Species Benefited

Green Heron
Wood Frog
Greater Yellowlegs
Red-shouldered Hawk
American Black Duck
Belted Kingfisher
Acadian Flycatcher
Prothonotary Warbler
Cerulean Warbler
American shad

Blueback shad
Bigeye herring
American eel
White perch
Rockfish

Nanitcoke-Blackwater Focal Unit



Description

The Nanticoke River-Blackwater watershed encompasses the Nanticoke River, its associated watershed, and the Blackwater River and watershed. The Nanticoke River originates in Delaware and meanders its way through southern Delaware into Maryland near the river's confluence with Marshyhope Creek, a major tributary. Just below the Marshyhope, freshwater starts to mix with brackish water. The Nanticoke merges with the northern part of Tangier Sound near Fishing Bay, which receives flow from the Blackwater River.

Important habitat types include upland forest, tidal and non-tidal wetlands, forested and scrub-shrub wetlands, ancient sand dunes, and Delmarva Bays. Much of the area is still undeveloped. Large stands of intact forested wetlands exist along the upper Nanticoke River. These forested wetlands are comprised primarily of red maple, green ash, pumpkin ash, blackgum, and sweetbay with scrub-shrub species of smaller ash, gum, maple, alders and dogwood. Freshwater emergent marshes are dominated by spatterdock, wild rice, arrow arum, and bulrush. Salt marshes support Spartina patens, S. alterniflora, three-square, black needle rush, marsh elder, and groundsel tree. Upland forest is characterized by native coastal plain species including white oak, southern red oak, and scarlet oak, hickory, poplar, and red maples mixed with loblolly pine. A unique intact ancient sand dune system occurs along the eastern shoreline of Marshyhope Creek. This type of sand dune natural community, dominated by Virginia pine and oaks, is thought to occur nowhere else except on the Delmarva Peninsula.

The wetland communities, tens of thousands of acres of more than a dozen tidal and non-tidal habitat types, retain a high-quality character while sharing a landscape of agricultural fields (40 percent of the watershed) and coastal plain forest (40 percent of the watershed).

Conservation Objectives

The conservation objectives for this watershed are to protect and restore large contiguous blocks of wetlands and wetland associated uplands. Oak, hickory, and pine upland forests will be protected through land acquisition to provide habitat for Delmarva fox squirrel. Tidal emergent salt marsh will be protected through land acquisition, nutria eradication, and Phragmites control. Palustrine forested wetlands also will be protected through land acquisition. Restoration of riparian and instream habitats; reeducation of sediment loads and nutrient runoff, and restoration of fish passage are also conservation objectives.

Outcomes FY 2007 to FY 2011

Protect 1,000 acres of forested and emergent wetland and 1,000 acres of upland. Enhance 500 acres of wetlands through Phragmites control. Enhance 15,000 acres of wetlands through nutria eradication. Restore 0.5 miles of instream and riparian corridor habitats, implement two fish passage projects, implement seven schoolyard habitat projects, and implement one BayScapes project.

Benefits to Trust Resources

According to the Atlantic Coast Joint Venture Waterfowl Implementation Plan, the Nanticoke River-Blackwater focus area is an important area for breeding and wintering waterfowl. The Nanticoke and Blackwater River watersheds support 35 percent of all wintering waterfowl that use the Atlantic Flyway. Canada goose, ruddy duck, snow goose, canvasback, mallard, American black duck, tundra swan, bufflehead, merganser, Northern pintail, redhead, scoter, green-winged teal, gadwall, American wigeon, scaup, common goldeneye, and long-tailed duck utilize the area for breeding, migration, or wintering.

These watersheds are located in the Partners in Flight BCR 44. Riparian forest supports breeding neotropical migrants such as the prothonotary warbler and wood thrush. Coastal salt marsh supports marsh nesting species such as Henslow's sparrow, salt-marsh sharp-tailed sparrow, seaside sparrow, black rail, clapper ail least bittern, and sedge wren. Many of these species are listed as priority species in the Partners in Flight Plan. The North American Regional Shorebird Plan identifies the Delmarva Peninsula uplands as being a significant area for shorebirds. The shoreline is utilized for breeding, foraging and roosting by a variety of shorebirds and water birds including several gull and tern species and two heron species. Great blue heron rookeries have been documented in the focus area and it is expected that the riparian forests may provide nesting habitat for this colonial nesting species. The state endangered (breeding populations only) royal tern and the laughing gull are recorded as a possible breeders in the area.

Federally listed species that occur in the watershed include the bald eagle and Delmarva fox squirrel. Tributaries in the watershed provide important spawning and nursery habitat for American eel, American shad, striped bass, alewife, and blueback herring. Chesapeake Marshlands NWR Complex (CMNWRC) is located in the watershed.

Needs and Opportunities

The Nanticoke-Blackwater watershed was identified in the Maryland Wildlife Diversity Conservation Plan as having extensive tracts of tidal marsh and forested wetland requiring protection and restoration. This includes protection of upland buffers, restoring and enhancing wetlands, and invasive species control. In addition to the 27,000-acre CMNWRC, there are over 40,000 acres of protected state land in the focus area. However, government-owned land still only encompasses approximately ten percent of all land in the watershed, the remainder being in private ownership. As a result, protection and restoration of sufficient habitat to benefit trust resources will require a significant private land component.

Development is not occurring as rapidly in the Nanticoke-Blackwater watershed as other areas in Maryland but it is steadily increasing. Conversion of agricultural lands to housing developments threatens wintering waterfowl by increasing the levels of nutrients entering the watershed. Habitat protection and restoration activities in the area improve and maintain aquatic habitat and water quality on the Chesapeake Marshlands NWR Complex, Fishing Bay, and Tangier Sound, which supports the most robust SAV beds in the Maryland portion of the Chesapeake Bay.

The CBFO Coastal, Partners for Fish and Wildlife, SHARP, and Endangered Species Programs work closely in this watershed to restore and protect habitat. In particular, CBFO is working with partners to protect and restore ecologically important habitat in this watershed through wetland and stream restoration, invasive species control, purchase of conservation easements, fee-simple acquisition, and other means. There are still large, undeveloped expanses of priority habitat to protect and restore at a reasonable price.

To accomplish our restoration and protection activities in this focus area, CBFO works with partners including the CMNWRC, Maryland Department of Natural Resources, U.S. Department of Agriculture, The Nature Conservancy, The Conservation Fund, local land trusts, and local governments to leverage resources and obtain funding through North American Wetland Conservation Act Grants, National Coastal Wetlands Grants, FWS Section 6 Recovery Land Acquisition Grants, Private Stewardship Grants, National Fish and Wildlife Foundation Grants, Chesapeake Bay Trust Grants, and the Nutria Eradication and Control Act of 2003. Habitat targets are identified by rare species occurrence, invasive species occurrence, and by consulting the state's Green Infrastructure Program, which identifies ecologically important habitat hubs and corridors**.**

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Nanticoke-Blackwater Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the

Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	1000 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	1000 acres
Riparian Streams Shorelines Improved	.5 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	2 structures

Species Benefited

Listed Species Benefited

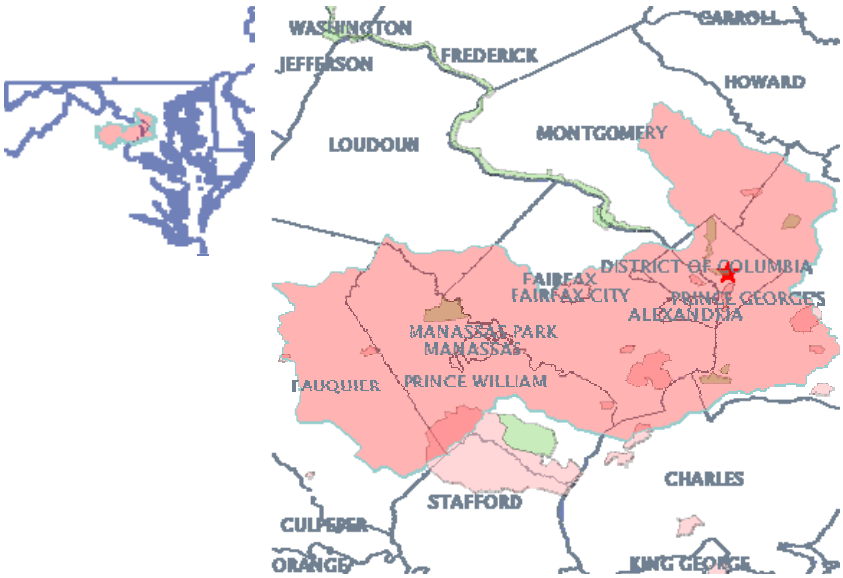
Bald eagle
Americal eel
Delmarva Peninsula fox squirrel

Unlisted Species Benefited

Saltmarsh Sharp-tailed Sparrow
Henslow's Sparrow
Seaside Sparrow
American Wigeon
Green-winged Teal
Mallard
Gadwall
Great Blue Heron
Lesser Scaup
Redhead
Ring-necked Duck
Greater Scaup
Canvasback
Canada Goose
Green Heron
Sedge Wren

Tundra Swan
Snowy Egret
Acadian Flycatcher
Common Moorhen
Least Bittern
Laughing Gull
Black Rail
Black Scoter
Surf Scoter
Ruddy Duck
Prothonotary Warbler
King Rail
Virginia Rail
Clapper Rail
Royal Tern
Wood Duck
Cooper's Hawk
Red-shouldered Hawk
Northern Bobwhite
Eastern Wood-Pewee
Wood Thrush
Baltimore Oriole
Red-headed Woodpecker
Kentucky Warbler
Northern Parula
Scarlet Tanager
Ovenbird
American Redstart
Great Blue Heron
American Woodcock
Blueback shad
Bigeye herring
American shad
American eel,
White perch
Rockfish

Anacostia Focal Unit



Description

The Anacostia River watershed, approximately 180 square miles, is an ecologically and physically diverse system, extending into two physiographic provinces, and containing free-flowing and freshwater tidal segments. It consists of three major drainage areas: the Northwest Branch, the Northeast Branch, and the tidal drainage. The watershed is highly developed with land uses comprised mostly of industry, residential, forests, wetlands, open water, agricultural,

and parks. Residential development is the single largest land use, comprising more than 43 percent of the watershed area and impervious surface representing 23 percent of the watershed. The wetlands represent three percent (approximately 3,208 acres) of the watershed and the forested areas represent 30 percent (approximately 33,400 acres) of the watershed. A majority of the wetlands are located in the Coastal Plain portion of the watershed. Palustrine wetlands make up more than three-quarters of the total wetlands, with the remainder as riverine (20 percent) and lacustrine (4 percent). Deciduous stands constitute the largest type of forest by area, followed by mixed stands, regenerating scrub/shrub, and coniferous forest. Within most Anacostia subwatersheds, more than 50 percent of the stream length is buffered by a riparian forest that is at least 35 feet in width. The majority (approximately 80 percent) of the land in this focus area is in private ownership. A significant portion of the public lands are linear, forested parks that follow the stream network. Some large to moderate sized terrestrial and wetland habitats are located adjacent to stream systems and are scattered throughout the focus area. The important habitat types for this focus area will be predominately associated with riverine habitats and include tidal and non-tidal emergent wetlands, forested wetlands, riparian woodlands, floodplains, vernal pools, and rivers and streams. The riparian woodland and floodplain habitats will be dominated by sweet gum, post oak, willow oak, black cherry, box elder, sycamore, tulip poplar, spicebush, blackberry, porcelain berry, and less celandine. The wetland habitats will be dominated by rice, duck potato, American lotus, polyganum species, soft rush, pickerelweed, sedges, bulrush, nuphar, common boneset, ferns, lichens, and moss.

Conservation Objectives

The Conservation objectives for this watershed are: to restore riparian corridors; conduct stream habitat restoration to improve water quality, aquatic habitat and reduce sediment loads; and facilitate fish passage through the removal of barriers.

Benefits to Trust Resources

Riparian woodland and floodplain species that will benefit from protection and restoration include the Kentucky warbler, acadian flycatcher, willow flycatcher, woodcock, and prothonotary warbler. Other neotropical migrants and forest interior dwellers that will benefit include the wood thrush, red-eyed vireo, northern parula, and yellow warbler. Cooper's hawk, red-shouldered hawk, and barred owl are found in the area. Great blue heron, green heron, black-crowned heron, Louisiana waterthrush, American black duck, wood duck, marsh wren, and mallard are found in wetland areas.

One federally listed species, the short nosed sturgeon, occurs in the watershed. The watershed historically provided important spawning and nursery habitat for alewife, American eel, American shad, Atlantic sturgeon, and striped bass, which are fish species of conservation concern in Region 5. The bowfin, central stoneroller, greenside darter, silverjaw minnow, warmouth, and blueback herring are state species of concern.

Threats and Opportunities

The Anacostia River has been identified by EPA as one of the 10 most contaminated rivers in the country and also one of three areas of concern identified by the Chesapeake Bay Program. The State of Maryland has listed the Anacostia River watershed as part of the prioritized list for rivers not meeting water quality standards according to section 303 (d) of the Federal Water Pollution Control Act. The river's decline began as settlers cleared fields for agriculture (leading to heavy erosion and sedimentation), then development accelerated rapidly from the late 19th century nearly to the present. Urbanization claimed forest and wetland habitat, altered stream flows, and fed ever-increasing flows of sewage and polluted runoff into the Anacostia. More than 4,000 acres of non-tidal wetlands and 2500 acres of tidal wetlands have been lost from the Anacostia watershed in the past five decades. There has been an eight percent decline in forest cover between 1936 and 2000. Nearly 70 percent of the 470 stream miles associated with the watershed have no riparian buffers. All of these factors, along with others, contribute to the poor water quality within the Anacostia. Large amounts of pollutants (i.e., sediment, excess nutrients, toxins, and trash/debris) are being flushed into streams as a result of high stormwater runoff and impervious surfaces, as well as combined sewer and stormwater overflows.

These severe impacts have resulted in large-scale, collaborative, multi-agency restoration initiatives. For example, in 1987 the District of Columbia, the State of Maryland, and the Counties of Montgomery and Prince George's jointly signed the Anacostia Watershed Restoration Agreement to restore stream and wetland habitats within the Anacostia. In 1999, the Anacostia Watershed Toxics Alliance was formed to address the problem of toxic sediments in the tidal Anacostia River. The EPA and COE selected the Anacostia River as one of four sites nationally under the Urban Rivers Pilot Initiative. This initiative will develop investigative and remediative strategies for dealing with urban watersheds. Negotiations began in 2006 to discuss the development of a Memorandum of Agreement (MOA) between EPA, the Service, NOAA, and the Army Corp of Engineers. The purpose of the MOA is to formalize the relationships these agencies have had in working on the Anacostia.

The CBFO SHARP has been an active member and will continue as an active member in the multi-agency initiatives to specifically implement stream habitat restoration projects to reduce erosion, sedimentation, and stormwater runoff. CBFO-SHARP will use Service resources and obtain grants (e.g., EPA Targeted Watershed grant, NFWF grants, NOAA Habitat Restoration Program grants, etc.) as leverage within the multi-agency groups to accomplish the Service's targeted restoration activities for this focus area.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Anacostia Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	0 acres
Wetlands Protected	0 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	6 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	1 structures

Species Benefited

Listed Species Benefited

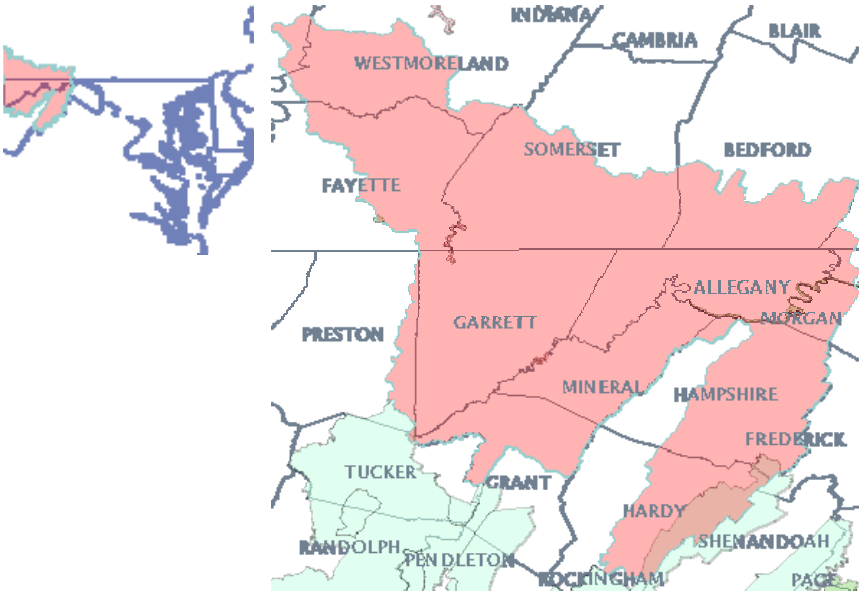
Shortnose sturgeon

Unlisted Species Benefited

Cerulean Warbler
Louisiana Waterthrush
American Woodcock
Bald Eagle
Kentucky Warbler
Willow Flycatcher
Acadian Flycatcher
Prothonotary Warbler
Wood Thrush
Red-eyed Vireo
Yellow Warbler
Northern Parula
Least Tern
Wood Duck
Great Blue Heron
Green Heron
Marsh Wren
Bowfin
Central stoneroller
Greenside darter
Silverjaw minnow
Warmouth

American eel
Alewife floater
American shad
Atlantic sturgeon
Rockfish
Blueback shad

Mid Atlantic Highlands Focal Unit



Description

The Mid-Atlantic Highlands encompasses 79,000 square miles and hosts some of the most diverse and globally important ecological resources on Earth (Canaan Valley Institute, July 2002). It contains the most extensive interior hardwood forest in the world at the temperate latitudes. The Nature Conservancy identified the Mid-Atlantic Highlands as one of its top six priorities because of species diversity and richness and the presence of species not found any where else in the United States. The streams in the Mid-Atlantic Highlands contain over 150 fish species, 75 mussel species and 20 crayfish species, several of which are endangered, threatened or of special concern. While there is more land in private ownership than public lands, there are significant large tracks of public land throughout this focus area. The important habitat types for this focus area include forests, tidal and non-tidal emergent wetlands, forested wetlands, riparian woodlands, floodplains, vernal pools, bog and fen wetland complexes, and rivers and streams. The forested habitats are dominated by northern conifer-hardwood, early successional forests and mesic deciduous forests. Old growth forest habitat is also present, and is unique to this geographic region in Maryland. The riparian woodland and floodplain habitats will be dominated by eastern hemlock, red spruce, white pine, sweet gum, post oak, willow oak, black cherry, box elder, sycamore, tulip poplar, spicebush, blackberry, porcelain berry, and less celandine. The wetland habitats will be dominated by rice, duck potato, American lotus, polyganum species, soft rush, pickerelweed, sedges, bulrush, nuphar, common boneset, ferns, lichens, and moss.

Conservation Objectives

The Conservation objectives for this watershed are: to protect and restore riparian corridors; restore wetland habitats; conduct stream habitat restoration to improve water quality, aquatic habitat and reduce sediment loads; and facilitate fish passage through the removal of barriers.

Benefits to Trust Resources

These watersheds are located in the Partners in Flight Physiographic Region 12. Restoration and protection of riparian habitat will benefit early successional birds such as golden-winged warbler, prairie warbler, American woodcock, whip-poor will, Northern bobwhite, field sparrow, Eastern towhee, blue-winged warbler, and willow flycatcher. Restoration and protection of mature deciduous forest will benefit cerulean warbler, worm-eating warbler, Louisiana waterthrush, and woodthrush. Restoration of grasslands will benefit the Henslow's sparrow. Restoration and protection of northern hardwood and spruce-fir forests will benefit black-throated blue warbler, and blackburnian warbler. Birds such as the northern saw-whet owl, black-throated blue warbler, blackburnian warbler, mourning warbler, golden-winged warbler, Nashville warbler, chestnut-sided warbler, magnolia warbler, alder flycatcher, least flycatcher, black-capped chickadee, winter wren, and hermit thrush breed almost exclusively in habitat types that are unique to the Mid-Atlantic Highlands (Maryland Department of Natural Resources, 2005).

The Atlantic Coast Joint Venture Implementation Plan identified Canaan Valley as an important wetland area. Canaan Valley contains the largest wetland area in West Virginia, making up 39 percent of the state's wetlands. It also contains one of the largest shrub swamp and bog complexes in the eastern United States. The area supports nesting and wintering black duck, mallard, and wood duck, and is a stopover point for migrating black duck, mallard, green-winged teal, blue-winged teal, ring-necked duck, hooded merganser, gwall, American wigeon, northern shoveler, pintail, bufflehead, common goldeneye, and lesser scaup.

Federally listed species that occur in the watershed include Indiana bat and Harperella. The rivers provide important spawning and nursery habitat for American eel, which are a fish species of conservation concern in Region 5. The rivers also contain a variety of fish species such as: brook trout, comely shiner, striped shiner, greenside darter, Johnny darter, mottled sculpin, Northern hogsucker, and silverjaw minnow, many of which occur no where else in the state. The comely shiner and striped shiner were designated as threatened and in need of conservation, respectively, by the Maryland Department of Natural Resources. Two state endangered aquatic species, the stonecat and hellbender also occur exclusively in the Mid-Atlantic Highlands region of Maryland. Canaan NWR is located in this area.

Threats and Opportunities

Land use practices such as urban infringement, rural sprawl, forest timbering, agricultural, and mining are significantly affecting the natural resources in the Mid-Atlantic Highlands. The Environmental Protection Agency has identified stream acidification and deposition, forest

fragmentation, nutrient runoff, habitat alteration, riparian and aquatic habitat losses, fish-tissue contamination, watershed disturbance and non-native fish introductions as major stressors to the Mid-Atlantic Highlands. Almost 25 percent of streams (17,000 miles) have poor aquatic habitat and 40 percent (29,000 miles) have only fair aquatic habitat. Acid rain and acid mine drainage have affected over 10,000 miles of streams. Moreover, almost 47 percent of the Highlands' landscape is considered to be in poor to fair habitat because of forest fragmentation.

EPA, recognizing the loss of significant natural resources in the Highlands, has undertaken several courses of action. They have three major research efforts (Mid-Atlantic Highlands Environmental and Assessment Program, Regional Vulnerability Assessment, and Mid-Atlantic Integrated Assessment) and one major implementation effort (Mid-Atlantic Highlands Action Plan (HAP)). The HAP is a recent initiative where EPA seeks to establish a multi-agency program that trains locals to implement restoration projects. The ultimate goal is to have a grass-roots based program to increase environmental stewardship awareness and contribute to the local economy through the restoration projects.

EPA has already established multi-agency partnerships at the federal, state, and local levels as well as with non-government organization's. Four state liaison (Pennsylvania, Maryland, Virginia, and West Virginia) positions have been created to coordinate and initialize restoration efforts within their perspective states. The CBFO has entered into a 5-year partnership with EPA and the state liaisons to assist in the establishment of the grass-roots program and implement protection and restoration projects. Additionally, EPA is in the initial planning phases to conduct a detailed green infrastructure study of the Mid-Atlantic Highland region that will be used to target and prioritize restoration and protection activities in this focus area.

EPA has contributed over $3 million as initial funding to establish the Highlands Program and has programmed for future funding to secure its existence. Along with EPA funding, the other HAP partners are contributing matching funds and in-kind services.

Through EPA's HAP initiative, the CBFO Coastal, Partners for Fish and Wildlife, SHARP, and Endangered Species programs will accomplish the Service's targeted restoration activities for this focus area.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Mid Atlantic Highlands Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	10 acres
Wetlands Protected	200 acres
Uplands Improved	0 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	9 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	3 structures

Species Benefited

Listed Species Benefited

Harperella
Indiana bat

Unlisted Species Benefited

Blue-winged Teal
Green-winged Teal
Ring-necked Duck
Hooded Merganser
Gadwall
American Wigeon
Northern Shoveler
Northern Pintail
Bufflehead
Common Goldeneye
Lesser Scaup
American Black Duck
Wood Duck
Bald Eagle
Cerulean Warbler
Worm-eating Warbler
Louisiana Waterthrush
Black-throated Blue Warbler
Blackburnian Warbler
Henslow's Sparrow
American eel
Comely shiner

Striped shiner
Silverjaw minnow
Stonecat
Hellbender

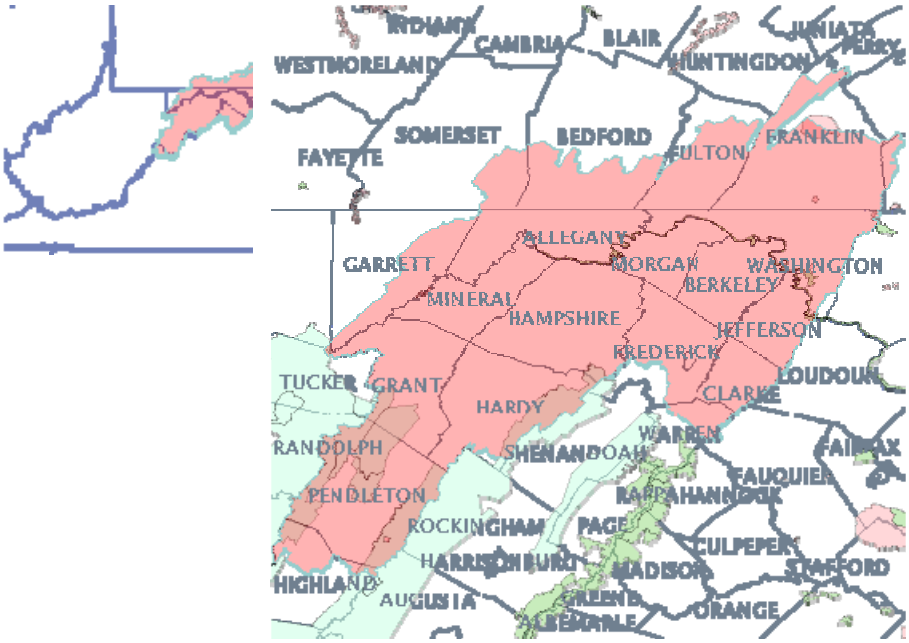
Mottled sculpin
Greenside darter
Johnny darter

XVI. Potomac River and Highlands Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- Upper Potomac River Focal Unit
- Hackers Creek Basin Focal Unit
- Greenbrier River Basin Focal Unit
- Elk River Basin Focal Unit
- Mid-Atlantic Highlands Focal Unit

Upper Potomac River Focal Unit



Description

The Upper Potomac River Basin in West Virginia includes the major 8-digit HUC basins of North Branch Potomac River (02070002) South Branch Potomac River (02070001), Cacapon River (2070003), Potomac River Direct Drains (02070004), and the Shenandoah River Direct Drains (0207007). The basins support a number of listed species and one species of concern in addition to other important species. Ecosystems in the focus area include high elevation (above 3000 feet msl) red spruce-mixed northern hardwood forests, vast tracts of mixed mesophytic forests, mature riparian river bottom, and farmland (primarily pastureland). This diversity of

habitats results in a high diversity of species in the watershed. The basin provides nesting and wintering habitat for bald eagles. The upperparts of the basin support Indiana bat and Virginia big-eared bat year-round habitat including cave systems. The high elevation (above 3,000 feet) portions of the focus area provide habitat for the listed West Virginia Northern Flying Squirrel and Cheat Mountain salamander. The Madison Cave isopod is known to inhabit subterranean systems in Jefferson County. The focus area supports three listed plant species. Harperella lives in riparian areas of Morgan and Berkeley County streams. Restoration efforts have focused on streambank stability, water quality improvement and control of invasive species.

Riparian bottomlands in the focus area are considered priority habitats for the Cerulean Warbler and the Louisiana Waterthrush as noted in the West Virginia Wildlife Conservation Action Plan (http://www.wvdnr.gov/wildlife/PDFFiles/wvwcap.pdf). The eastern three counties make up the Eastern Panhandle Focus Area of the Atlantic Coast Joint Venture. Wetland and riparian habitat is critical wintering habitat for black ducks and other waterfowl. Many of these aquatic habitats are productive spring fed systems that stay open during the winter (http://www.acjv.org/wip/acjv_wip_midatlantic.pdf).

A significant portion of the focus area has been delineated as having intact or reduced populations of eastern brook trout by the National Fish Habitat Action Plan's Eastern Brook Trout Joint Venture (http://www.easternbrooktrout.org). Restoration of brook trout streams, typically headwater streams, greatly enhances the recovery of listed species occupying downstream habitat and the enhancement of populations of "candidate" species in the focus area. The American Eel is also found in this focus area.

Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, cave gating, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will collaborate with willing landowners, U.S. Department of Agriculture (USDA), state agencies, and non-governmental organizations to implement these projects.

Landownership is largely (80 percent) private; public land consists of the Monongahela National Forest, George Washington National Forest, and a number of West Virginia state parks and wildlife management areas. Land use is primarily timberland, family farms and some coal mining. Eliminating sediment sources from timber operations, farming and coal mining make up the greatest challenge for restoring habitat for listed species. Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will continue to collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Upper Potomac River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	60 acres
Wetlands Protected	0 acres
Uplands Improved	1400 acres
Uplands Protected	1000 acres
Riparian Streams Shorelines Improved	16 miles
Riparian Streams Shorelines Protected	0 miles

Species Benefited

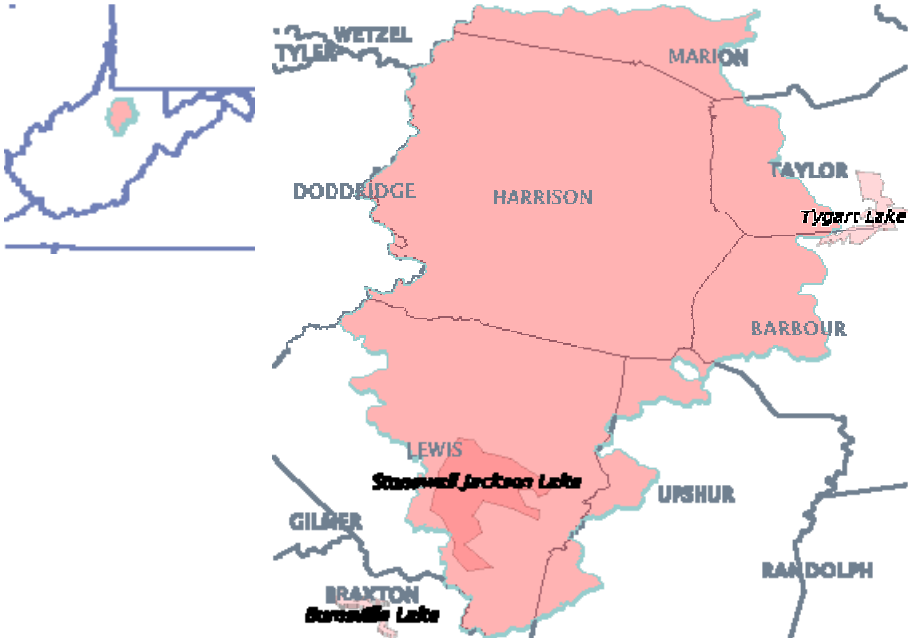
Listed Species Benefited

Madison Cave isopod
Northeastern bulrush
Virginia northern flying Squirrel
Virginia big-eared bat
Bald eagle
Green floater
Indiana bat
Harperella

Unlisted Species Benefited

American Black Duck
American eel
Charr
American Woodcock
Louisiana Waterthrush
Cerulean Warbler

Hackers Creek Basin Focal Unit



Description

The Hackers Creek sub-basin of the West Fork River basin (05020002) supports populations of the endangered clubshell mussel. These populations have suffered declines due to poor habitat conditions from pollutants and sediment from agriculture, oil and gas exploration, timbering, coal mining, and transportation. A cooperative effort by the Service, willing landowners, USDA, State agencies, and non-governmental organizations will concentrate on restoring streambanks and adjacent wetlands and uplands to Hackers Creek and its tributaries by excluding livestock, providing alternative livestock water sources, and pasture division fencing (where necessary). In addition we will be working with the West Virginia Department of Transportation to reduce or eliminate the adverse impacts of transportation related spills (fuel, chemicals, etc.) from entering the watercourse along Interstate 79 which bi-sects the basin.

Ecosystems in this focus area include mixed mesophytic forests, riparian bottomland, farmland (primarily pastureland), and reclaimed strip mines. According to the West Virginia Wildlife Conservation Action Plan (http://www.wvdnr.gov/wildlife/PDFFiles/wvwcap.pdf) riparian bottomlands in the focus area are considered priority habitats for Cerulean Warbler, Louisiana Waterthrush, and Acadian Flycatcher. The plan also lists mature oak-hickory forests in the focus area are priority habitats for Worm-eating Warblers. Indiana Bats are found statewide in the summer months and make use of riparian and wetland habitat for feeding. These and other trust resources in the focus area will benefit from improved water quality and habitat.

Landownership is largely (99.5 percent) private. Land use is primarily timberland, family farms, and some mineral extraction. Eliminating sediment sources from timber operations, oil and gas exploration, farming and mineral extraction make up the greatest challenge for restoring habitat

for listed species. Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas, sinkholes, and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	10 acres
Wetlands Protected	0 acres
Uplands Improved	50 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	3 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Species Benefited

Listed Species Benefited

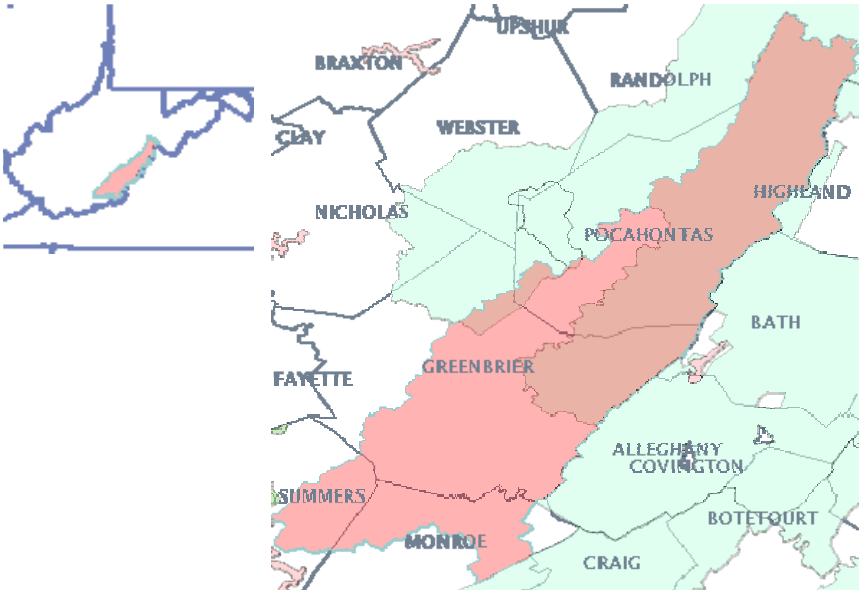
Indiana bat
Clubshell
Northern riffleshell

Unlisted Species Benefited

Wood Duck
American Black Duck
Acadian Flycatcher
American Woodcock

Louisiana Waterthrush
Cerulean Warbler
Acadian Flycatcher
Worm-eating Warbler

Greenbrier River Focal Unit



Description

The Greenbrier River (05050003) in West Virginia supports a number of listed species and one species of concern in addition to other important species. Ecosystems in the focus area include high elevation (above 3,000 feet msl) red spruce-mixed northern hardwood forests, vast tracts of mixed mesophytic forests, mature riparian farmland, karst landscapes, and farmland (primarily pastureland). This diversity of habitats results in a high diversity of species in the watershed. Listed species include the endangered Indiana Bat (summer habitat) and two threatened plants (Virginia Spiraea and Small Whorled Pogonia).

The species of concern, Green Floater Pearly Mussel is known from the upper reaches of the Greenbrier and tributaries. Riparian bottomlands in the focus area are considered priority habitat for the Cerulean Warbler and the Louisiana Waterthrush according to the West Virginia Wildlife Conservation Action Plan (http://www.wvdnr.gov/wildlife /PDFFiles/wvwcap.pdf). A significant portion of the focus area has been delineated as having intact or reduced populations of eastern brook trout by the Eastern Brook Trout Joint Venture (http://www.easternbrooktrout.org). Restoration of brook trout streams, typically headwater streams, greatly enhances the recovery of listed species occupying downstream habitat and the enhancement of populations of “candidate” species in the focus area.

Landownership is largely (70 percent) private land with the remainder largely made up of the Monongahela National Forest. Land use is primarily timberland, family farms, and some mineral extraction. Eliminating sediment sources from timber operations, farming and mineral

extraction make up the greatest challenge for restoring habitat for listed species.

Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas, sinkholes, and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Greenbrier River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	20 acres
Wetlands Protected	0 acres
Uplands Improved	200 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	10 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Species Benefited

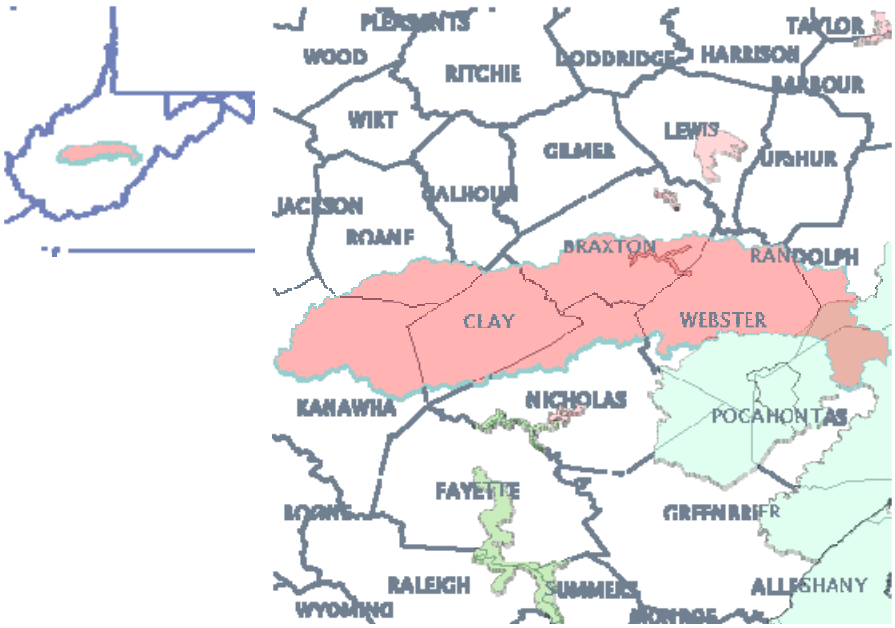
Listed Species Benefited

Virginia northern flying Squirrel	Virginia spiraea
Indiana bat	Small whorled pogonia
Cheat Mountain salamander	Green floater

Unlisted Species Benefited

Wood Duck	American Woodcock
American Black Duck	Louisiana Waterthrush
Charr	Cerulean Warbler

Elk River Basin Focal Unit



Description

The Elk River watershed (05050007) supports a number of listed species and one species of concern in addition to other important species. Ecosystems in the focus area include high elevation (above 3000 feet msl) red spruce-mixed northern hardwood forests, vast tracts of mixed mesophytic forests, mature riparian river bottom, and farmland (primarily pastureland). This diversity of habitats results in a high diversity of species in the watershed. Listed Freshwater mussel species include the Clubshell, Northern Riffleshell, Pink Mucket, and Rayed Bean. The Diamond Darter (Etheostoma cincotta, a proposed new species) has not been listed but low numbers of the only known population of this species are found near the lower end of the watershed. The mixture of ecosystems in the watershed provides summer habitat for the endangered Indiana bat. The high elevation (above 3,000 feet) portions of the focus area provide habitat for the endangered West Virginia Northern Flying Squirrel and threatened Cheat

Mountain salamander.

Riparian bottomlands in the focus area are considered priority habitats for the Cerulean Warbler and the Louisiana Waterthrush, as noted in the West Virginia Wildlife Conservation Action Plan (http://www.wvdnr.gov/wildlife/PDFFiles/wvwcap.pdf). A significant portion of the focus area has been delineated as having intact or reduced populations of eastern brook trout by the National Fish Habitat Action Plan's Eastern Brook Trout Joint Venture (http://www.easternbrooktrout.org). Restoration of brook trout streams, typically headwater streams, greatly enhances the recovery of listed species occupying downstream habitat and the enhancement of populations of candidate species in the Focus Area. The American Eel is found in the focus area.

Landownership is largely (>90 percent) private. Land use is primarily timberland, family farms and some coal mining. Eliminating sediment sources from timber operations, farming and coal mining make up the greatest challenge for restoring habitat for listed species. Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will continue to collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Elk River Basin Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	10 acres
Wetlands Protected	0 acres
Uplands Improved	100 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	5 miles
Riparian Streams Shorelines Protected	0 miles

Target Species Benefited

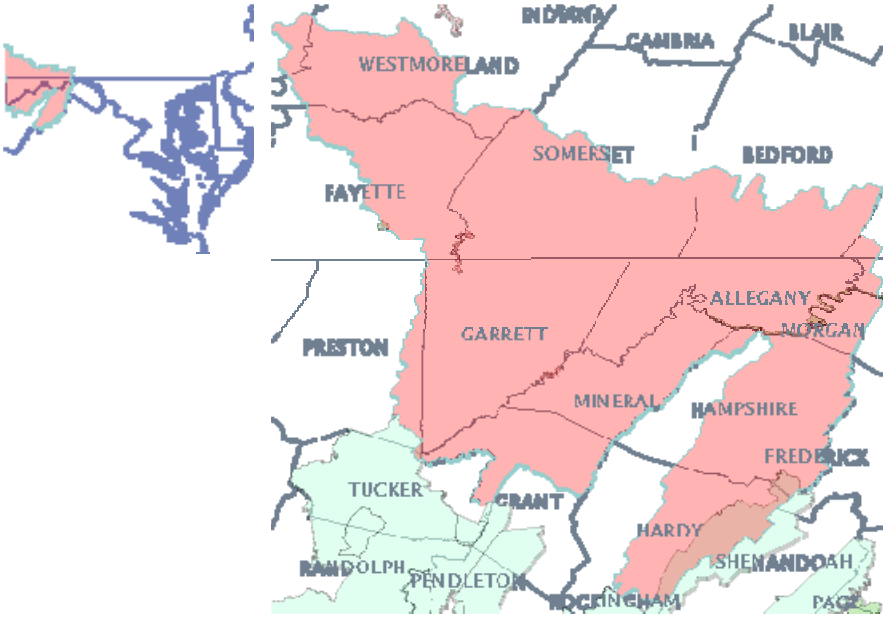
Listed Species Benefited

Virginia big-eared bat
Crystal darter
Northern riffleshell
Virginia northern flying Squirrel
Pink mucket (pearlymussel)
Indiana bat
Cheat Mountain salamander
Clubshell
Rayed Bean
Cheat Mountain salamander

Unlisted Species Benefited

Wood Duck
American Black Duck
American eel
Louisiana Waterthrush
Cerulean Warbler

Mid-Atlantic Highlands Focal Unit



Description

Conservation Objectives
The Conservation objectives for this watershed are: to protect and restore riparian corridors; restore wetland habitats; conduct stream habitat restoration to improve water quality, aquatic habitat and reduce sediment loads; and facilitate fish passage through the removal of barriers.

Outcomes FY 2007 to FY 2011
Restore 2 miles of instream and 7 miles riparian habitats, implement 3 fish passage projects, restore or enhance 200 acres of upland habitat, restore 10 acres of wetland habitat, implement 5 schoolyard habitat projects, and implement 1 BayScapes projects.

Habitat Description
The Mid-Atlantic Highlands encompasses 79,000 square miles and hosts some of the most diverse and globally important ecological resources on Earth (Canaan Valley Institute, July 2002). It contains the most extensive interior hardwood forest in the world at the temperate latitudes. The Nature Conservancy identified the Mid-Atlantic Highlands as one of its top six priorities because of species diversity and richness and the presence of species not found any where else in the United States. The streams in the Mid-Atlantic Highlands contain over 150 fish species, 75 mussel species and 20 crayfish species, several of which are endangered, threatened or of special concern. While there is more land in private ownership than public lands, there are significant large tracks of public land throughout this focus area. The important habitat types for this focus area include forests, tidal and non-tidal emergent wetlands, forested wetlands, riparian woodlands, floodplains, vernal pools, bog and fen wetland complexes, and rivers and streams. The forested habitats are dominated by northern conifer-hardwood, early successional forests and mesic deciduous forests. Old growth forest habitat is also present, and

is unique to this geographic region in Maryland. The riparian woodland and floodplain habitats will be dominated by eastern hemlock, red spruce, white pine, sweet gum, post oak, willow oak, black cherry, box elder, sycamore, tulip poplar, spicebush, blackberry, porcelain berry, and less celandine. The wetland habitats will be dominated by rice, duck potato, American lotus, polyganum species, soft rush, pickerelweed, sedges, bulrush, nuphar, common boneset, ferns, lichens, and moss.

Benefits to Trust Resources

These watersheds are located in the Partners in Flight Physiographic Region 12. Restoration and protection of riparian habitat will benefit early successional birds such as golden-winged warbler, prairie warbler, American woodcock, whip-poor will, Northern bobwhite, field sparrow, Eastern towhee, blue-winged warbler, and willow flycatcher. Restoration and protection of mature deciduous forest will benefit cerulean warbler, worm-eating warbler, Louisiana waterthrush, and woodthrush. Restoration of grasslands will benefit the Henslow's sparrow. Restoration and protection of northern hardwood and spruce-fir forests will benefit black-throated blue warbler, and blackburnian warbler. Birds such as the northern saw-whet owl, black-throated blue warbler, blackburnian warbler, mourning warbler, golden-winged warbler, Nashville warbler, chestnut-sided warbler, magnolia warbler, alder flycatcher, least flycatcher, black-capped chickadee, winter wren, and hermit thrush breed almost exclusively in habitat types that are unique to the Mid-Atlantic Highlands (Maryland Department of Natural Resources, 2005).

The Atlantic Coast Joint Venture Implementation Plan identified Canaan Valley as an important wetland area. Canaan Valley contains the largest wetland area in West Virginia, making up 39 percent of the state's wetlands. It also contains one of the largest shrub swamp and bog complexes in the eastern United States. The area supports nesting and wintering black duck, mallard, and wood duck, and is a stopover point for migrating black duck, mallard, green-winged teal, blue-winged teal, ring-necked duck, hooded merganser, gwall, American wigeon, northern shoveler, pintail, bufflehead, common goldeneye, and lesser scaup.

Federally listed species that occur in the watershed include Indiana bat and Harperella. The rivers provide important spawning and nursery habitat for American eel, which are a fish species of conservation concern in Region 5. The rivers also contain a variety of fish species such as: brook trout, comely shiner, striped shiner, greenside darter, Johnny darter, mottled sculpin, Northern hogsucker, and silverjaw minnow, many of which occur no where else in the state. The comely shiner and striped shiner were designated as threatened and in need of conservation, respectively, by the Maryland Department of Natural Resources. Two state endangered aquatic species, the stonecat and hellbender also occur exclusively in the Mid-Atlantic Highlands region of Maryland. Canaan NWR is located in this area.

Threats and Opportunities

Land use practices such as urban infringement, rural sprawl, forest timbering, agricultural, and mining are significantly affecting the natural resources in the Mid-Atlantic Highlands. The EPA has identified stream acidification and deposition, forest fragmentation, nutrient runoff, habitat alteration, riparian and aquatic habitat losses, fish-tissue contamination, watershed disturbance and non-native fish introductions as major stressors to the Mid-Atlantic Highlands. Almost 25

percent of streams (17,000 miles) have poor aquatic habitat and 40 percent (29,000 miles) have only fair aquatic habitat. Acid rain and acid mine drainage have affected over 10,000 miles of streams. Moreover, almost 47 percent of the Highlands' landscape is considered to be in poor to fair habitat because of forest fragmentation.

The EPA, recognizing the loss of significant natural resources in the Highlands, has undertaken several courses of action. They have three major research efforts (Mid-Atlantic Highlands Environmental and Assessment Program, Regional Vulnerability Assessment, and Mid-Atlantic Integrated Assessment) and one major implementation effort (Mid-Atlantic Highlands Action Plan (HAP)). The HAP is a recent initiative where the EPA seeks to establish a multi-agency program that trains locals to implement restoration projects. The ultimate goal is to have a grass-roots based program to increase environmental stewardship awareness and contribute to the local economy through the restoration projects. The EPA has already established multi-agency partnerships at the federal, state, and local levels as well as with non-government organizations. Four state liaison (Pennsylvania, Maryland, Virginia, and West Virginia) positions have been created to coordinate and initialize restoration efforts within their perspective states. The Chesapeake Bay Field Office has entered into a 5-year partnership with the EPA and the state liaisons to assist in the establishment of the grass-roots program and implement protection and restoration projects. Additionally, the EPA is in the initial planning phases to conduct a detailed green infrastructure study of the Mid-Atlantic Highland region that will be used to target and prioritize restoration and protection activities in this focus area. The EPA has contributed over $3 million as initial funding to establish the Highlands Program and has programmed for future funding to secure its existence. Along with the EPA funding, the other HAP partners are contributing matching funds and in-kind services.

Through the EPA's HAP initiative, the Chesapeake Bay Field Office Coastal, Partners for Fish and Wildlife, SHARP, and Endangered Species Programs will accomplish the Service's targeted restoration activities for this focus area.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Mid-Atlantic Highlands Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Coastal Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	10 acres
Wetlands Protected	0 acres
Uplands Improved	200 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	9 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	3 structures

Target Species Benefited

Listed Species Benefited

Indiana bat
Harperella

Unlisted Species Benefited

American eel
Comely shiner
Striped shiner
Silverjaw minnow
Stonecat
Hellbender
Mottled sculpin
Greenside darter,
Johnny darter
Wood Duck
American Woodcock
Golden-winged Warbler
Prairie Warbler
Blue-winged Warbler
Willow Flycatcher
Bald Eagle
Cerulean Warbler
Worm-eating Warbler
Louisiana Waterthrush
Black-throated Blue Warbler
Blackburnian Warbler
Henslow's Sparrow
Blue-winged Teal
Green-winged Teal
Ring-necked Duck
Hooded Merganser

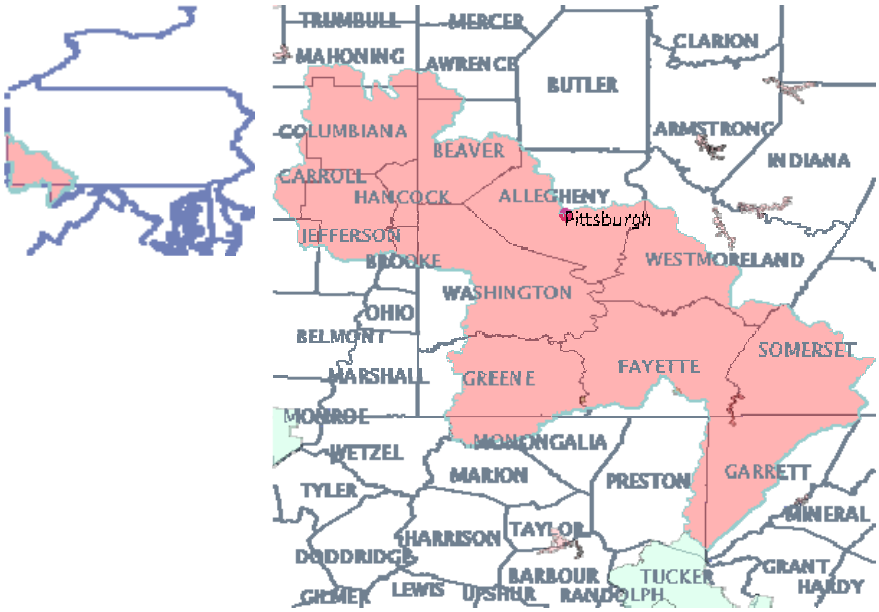
Gadwall
American Wigeon
Northern Shoveler
Northern Pintail
Bufflehead
Common Goldeneye
Lesser Scaup
American Black Duck
Wood Duck

XVII. Ohio River Focus Area

This focus area encompasses the following focal units identified in HabITS:

- Ohio River Focal Unit
- Middle Island/Little Kanawha Basin Focal Unit

Ohio River Focal Unit



Description

This focus area encompasses the Ohio River subbasins in Pennsylvania. More than 75 percent of the units have streams where brook trout have been extirpated or greatly reduced. This area hosts the largest known bat hibernacula in the state, including the federally endangered, Indiana Bat.

Native perennial grasslands were once common to portions of western Pennsylvania, and this area has more recently been the location for a large number of our native grassland restoration projects, which will benefit several grassland-dependent migratory bird species that are either of federal concern, or on the state's list of endangered and threatened species. Grassland-dependent migratory birds such as the Henslow's sparrow, and species tied to early-successional habitat,

such as the golden-winged warbler and field sparrow, have been identified as Partners in Flight Priority Bird Populations and Habitats. The area also supports the largest known concentrations of bat hibernacula in Pennsylvania, including several inhabited by the federally listed, endangered Indiana bat. In addition, over 75 percent of the streams in this area have lost or are losing their native eastern brook trout populations. Individual sub-basins have from three to seven Species of Conservation Concern identified by the Service's Fisheries Resources Program.

Land uses in this area range from the rapidly expanding urbanization of greater Pittsburgh to extensive pasturelands, and active and reclaimed surface coal-mined lands. Large tracts of forest are also present to the south. The effects on the area's lands and waters of both surface and underground coal mining have been especially acute, and the aquatic resources of the mainstem Ohio and Monongahela Rivers have suffered accordingly. The large number of aquatic species of concern in the sub-basins includes the federally listed, endangered clubshell and sheepnose mussels. Acid mine drainage is a particular threat to water quality in this area, and a number of our wetland restoration and streambank fencing projects have served to improve water quality in the impaired tributaries of these systems (http://workforce.cup.edu/taracido/WetlandPhotos.html).

Our challenge has been to bring farmers, coal companies, and other landowners together to collaborate on large-scale watershed restorations to bring back important habitat values and clean sources of water. Although the extensive coal mining in this area adds regulatory controversy, it can also be used to leverage tremendous habitat restoration opportunities.

Partnerships with Pheasants Forever, Ducks Unlimited, California University of Pennsylvania, the Natural Resources Conservation Service, and a host of state partners have made this a focus area for the Service in native grassland and wetland restoration. We will continue to restore large tracts of native grasses and enhance early-successional shrublands. We will also continue work on already successful projects such as the Pike Run watershed restoration, a large, landowner-driven initiative emphasizing stream and riparian protection, and native grassland restoration.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Ohio River Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	200 acres
Wetlands Protected	0 acres
Uplands Improved	200 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	15 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Species Benefited

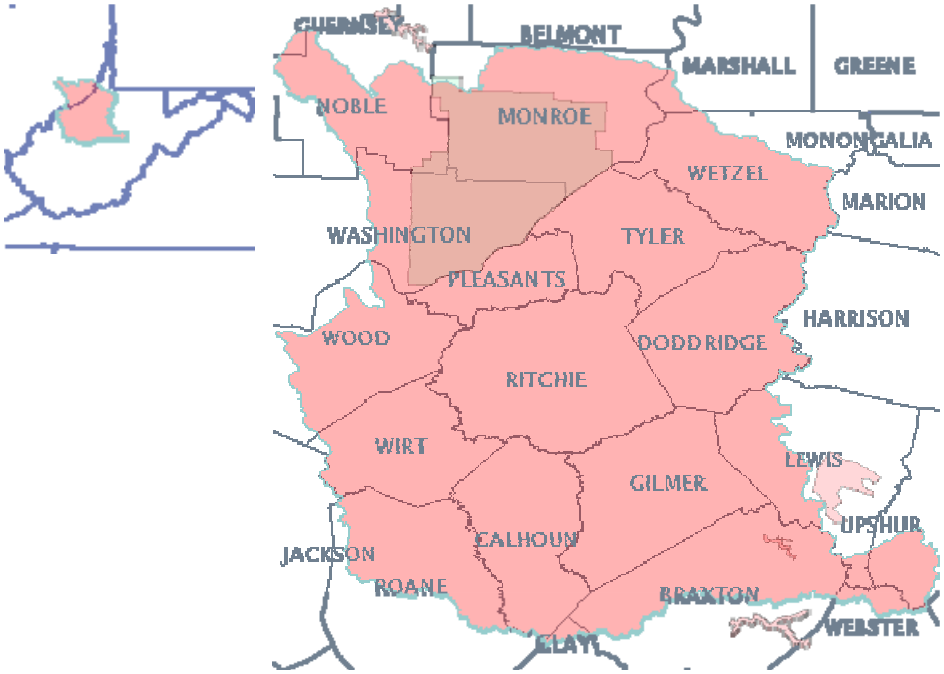
Listed Species Benefited

Indiana bat
Sheepnose mussel
Clubshell musell

Unlisted Species Benefited

American Black Duck
Charr
Henslow's Sparrow
Golden-winged Warbler

Middle Island/Little Kanawha Basin Focal Unit



Description

The Middle Island Creek (05030201) and Little Kanawha River (05030203) watersheds make up the Middle Island/Little Kanawha Basin Focus Area. Both watersheds have extremely diverse fish and wildlife populations. Within this focus area we will be concentrating our efforts on the Middle Island Creek watershed (including Meathouse Fork) and the South Fork of the Hughes River watershed as they support populations of the endangered clubshell mussel. Historical records for the species include the North Fork of the Hughes and the mainstem Little Kanawha. Both streams are tributaries of the Ohio River and enter the Ohio in a region with a high density of islands managed by the Ohio River Island NWR. The Ohio River just downstream of the Little Kanawha River and Middle Island Creek supports populations of the endangered pink mucket pearly mussel and fanshell pearly mussel, and the sheepnose pearly mussel, a species of concern.

Ecosystems in the focus area include vast tracts of mixed mesophytic forests, mature riparian river bottom, and farmland (primarily pastureland). This diversity of habitats results in a high diversity of species in the watershed. Riparian bottomlands in the focus area are considered priority habitat for Cerulean Warbler, Louisiana Waterthrush, and Acadian Flycatcher as noted in the West Virginia Wildlife Conservation Action Plan (http://www.wvdnr.gov/wildlife/PDFFiles/wvwcap.pdf). The plan also notes that mature oak-hickory forests in the focus area are priority habitats for Worm-eating Warblers. Indiana Bats are found statewide in the summer months and make use of riparian and wetland habitat for feeding. The upper reaches of the focus area are delineated as having reduced populations of eastern brook trout by the National Fish Habitat Action Plan's Eastern Brook Trout Joint Venture

(http://www.easternbrooktrout.org). Restoration of brook trout streams, typically headwater streams, greatly enhances the recovery of listed species occupying downstream habitat and the enhancement of populations of "candidate" species in the Focus Area. The American Eel is also found in this focus area.

Landownership is largely (95 percent) private; public land consists of the Ohio River Islands NWR and a number of West Virginia state parks and wildlife management areas. Land use is primarily timberland, family farms, oil and gas exploration, and some coal mining. Eliminating sediment sources from timber operations, farming, oil and gas operations, and coal mining make up the greatest challenge for restoring habitat for listed species. Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will continue to collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Middle Island/Little Kanawha Basin Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	20 acres
Wetlands Protected	0 acres
Uplands Improved	100 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	10 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Species Benefited

Listed Species Benefited

Indiana bat
Clubshell

Unlisted Species Benefited

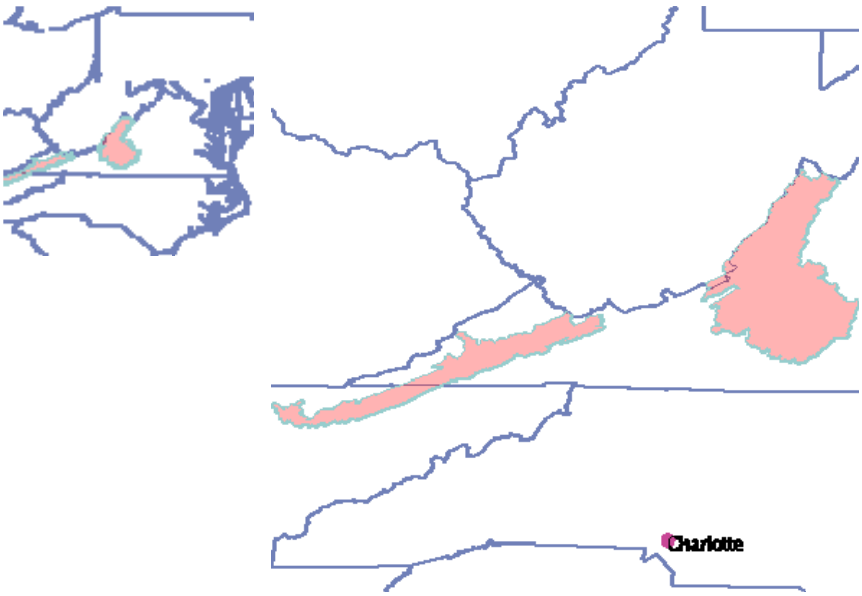
Wood Duck
American Black Duck
American eel
Acadian Flycatcher
American Woodcock
Louisiana Waterthrush
Cerulean Warbler
Worm-eating Warbler

XVIII. James River Focus Area

This Focus Area encompasses the following focal units identified in HabITS:

- Central Appalachians Focal Unit
- Potts Creek Mussels Focal Unit

Central Appalachians Focal Unit



Description

The Central Appalachian Focus Area encompasses three watersheds with high concentrations of rare species: the Upper Clinch River, Upper James River, and Upper Roanoke River hydrologic units. These were chosen because of the large number of federally listed threatened and endangered species: 31 endangered, 8 threatened, 6 candidate, and 140 federal species of concern. There is also Critical Habitat designated for 7 species within this focal area, and 4 species identified as Brink Species (either on the brink of extinction or recovery). Most of the listed species in these watersheds are aquatic, creating a strong area of mutual interest in this focal area between the Endangered Species Act recovery actions and activities in support of the Service's National Fisheries Habitat Initiative. There are 31 Fisheries Species of Conservation Concern in the Central Appalachian Focal Area. Other Trust Resources include 11 priority bird species from BCR 28 and 29. Virginia's State Wildlife Action Plan highlights the Central Appalachians as one of two high priority habitat concentrations for Tier 1 species. A portion of this focal area has been designated by the United Nations as a Biosphere Reserve. There are no NWRs in the western portion of Virginia.

The Partners for Fish and Wildlife Program is partnering with private landowners, local governments, Soil and Water Conservation Districts, The Nature Conservancy, FishAmerica

Foundation, Ward Burton Wildlife Foundation, the Commonwealth of Virginia, USDA, EPA, the Canaan Valley Institute and many others to improve water quality and increase the likelihood that we will continue to have a diversity of aquatic species in our rivers. Over 50 private conservation groups, localities, and state and federal agencies are working closely with the Service to provide technical assistance and funding for stream restoration projects for aquatic species recovery.

There are many impediments to achieving our conservation goals. The Appalachians are infamously rich in natural resources and yet economically depressed. Local citizens are often wary of government programs, and resistant to the complex structure of most cost share programs. The simplicity of the Partners Program is a major asset in reaching these landowners, but staff and project funding have been severely limited when compared to the great need. Anyone observing riparian and stream conditions during a drive through the mountains in late winter would be taken aback by the degraded condition of most waterways, especially in the Upper Tennessee Basin. There is much work to do, and technical outreach accompanied by strong inter-personal skills will always be key.

Mussel biologists predict that 45 species of freshwater mussels in North America could become extinct in the next 10 years due to habitat degradation in our waterways. Most of the problems that have led to the decline of freshwater mussels are associated with land use activities and changes in water quality. The Upper Tennessee River Basin in the Blue Ridge Valley of southwest Virginia is comprised of the Clinch, Powell, and Holston Rivers and is one of the finest, last remaining strongholds for freshwater mussels worldwide. However, it is estimated that the endemic mussel population of the Tennessee River Basin declined in density by approximately 50 percent during the 1980's. There are currently 18 species of mussels and 5 species of fish in the Upper Tennessee Basin that are listed as threatened or endangered under the Endangered Species Act. The Upper James and Upper Roanoke Basins support three additional species of federally listed fish and mussels. To date, 78 landowners have restored water quality and wildlife habitat to over 80 miles of western Virginia streams in voluntary cooperation with the Service.

Restoration practices being implemented include erecting fences to exclude livestock from streams, creating wooded buffer zones to filter sements and nutrients, providing alternative water sources for livestock, and stabilizing eroding streambanks. Habitat restoration activities are shared with the communities via regular farm tours and outreach to local school systems. These efforts show that large-scale restoration of stream habitats and water quality is possible and that riparian landowners are truly interested in being good stewards of river ecosystems.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Central Appalachians Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	20 acres
Wetlands Protected	0 acres
Uplands Improved	100 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	42 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	4 structures

Target Species

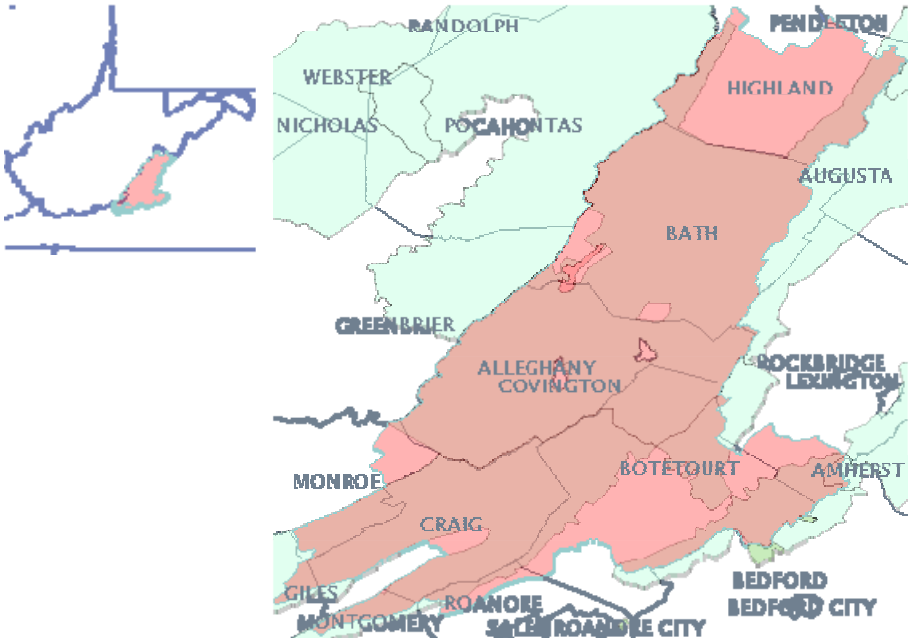
Listed Species Benefited

Birdwing pearlymussel
Spectaclecase
Fanshell
Dromedary pearlymussel
Cumberlandian combshello
Oyster mussel

Unlisted Species Benefited

Tan riffleshell
Green blossom
Spotfin Chub
Slender chub
Duskytail darter
Shiny pigtoe
Finerayed pigtoe
Cracking pearlymussel
Pink mucket (pearlymussel)
Slabside pearlymussel
Yellowfin madtom
Littlewing pearlymussel
Roanoke logperch
Blackside dace
Sheepnose Mussel
James spinymussel
Rough pigtoe
Fluted kidneyshell
Rough rabbitsfoot
Cumberland monkeyface
Appalachian monkeyface
Rayed Bean
Purple bean

Potts Creek Mussels Focal Unit



Description

The North and South Forks of Potts Creek and the main Potts Creek in the Southeast corner of Monroe County make up a small watershed (40 square miles) in the Upper James River (02080201) watershed in West Virginia. The basins support one listed species and one species of concern in addition to other important species. Ecosystems in the focus area include large tracts of mixed mesophytic forests (Jefferson National Forest), riparian bottomlands, and farmland (primarily pastureland). Populations of the endangered James River spinymussel are currently confined to the South Fork Potts Creek and Potts Creek. Land is owned by a relatively small number of landowners and the land is primarily in agriculture. A century of unrestricted livestock grazing and the lack of alternative offstream livestock watering areas have contributed to adverse effects to mussel populations. These populations are thought to have held on in this watershed because of good water quality in the South Fork of Potts Creek with its headwaters in the Jefferson National Forest.

Livestock exclusion fencing coupled with alternative livestock water and pasture division fencing (as necessary) to restore riparian areas, wetlands and adjacent uplands in the basin should result in improved water quality and streambed stability thus improving habitat for the James River spinymussel. The West Virginia Field Office-Partners for Fish and Wildlife Program will collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Riparian bottomlands in the focus area are considered priority habitats for the Cerulean Warbler and the Louisiana Waterthrush as noted in the West Virginia Wildlife Conservation Action Plan

(http://www.wvdnr.gov/wildlife/PDFFiles/wvwcap.pdf). A significant portion of the focus area has been delineated as having reduced populations of eastern brook trout by the National Fish Habitat Action Plan's Eastern Brook Trout Joint Venture (http://www.easternbrooktrout.org). Restoration of brook trout streams, typically headwater streams, greatly enhances the recovery of listed species occupying downstream habitat and the enhancement of populations of listed species in the focus area. Indiana Bats are found statewide in the summer months and make use of riparian and wetland habitat for feeding. The bats, waterfowl and other trust resources in the focus area will benefit from improved water quality and habitat.

Landownership is largely (60 percent) private; public land consists of the Jefferson National Forest. Land use is primarily timberland and family farms. Eliminating sediment sources from farming makes up the greatest challenge for restoring habitat for listed species. Restoration efforts will encompass livestock exclusion fencing for wetlands, riparian areas and forested lands, wetland restoration via hydrologic modification, wetland enhancement via vegetation planting, invasive species control, and riparian enhancement via vegetation planting. The West Virginia Field Office-Partners for Fish and Wildlife Program will continue to collaborate with willing landowners, USDA, state agencies, and non-governmental organizations to implement these projects.

Conservation Targets FY 2007 through FY 2011

Our habitat goals for the Potts Creek Focal Unit are based on the needs identified by the conservation plans referenced. The habitat conservation targets are an estimate of what the Partners Program will strive to accomplish for Federal Trust Species given FY 06 funding levels and knowledge of our past partnerships.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY 2007-2011*
Wetlands Improved	5 acres
Wetlands Protected	0 acres
Uplands Improved	10 acres
Uplands Protected	0 acres
Riparian Streams Shorelines Improved	2 miles
Riparian Streams Shorelines Protected	0 miles
Fish Passage Structures	0 structures

Target Species Benefited

Listed Species Benefited

Indiana bat

James spinymussel

Unlisted Species Benefited

Wood Duck

Cerulean Warbler

Louisiana Waterthrush

II. Regional Performance Targets

Each of the projections for enhancement, restoration and protection represent a cumulative number projected by each field station for the focal areas described in this plan. In addition, these projections are premised on funding levels equivalent to the 06 appropriated funding for Subactivity 1121 and 1124 independent of any earmarked funding.

Both the Partners and Coastal Programs are premised on "partnership opportunities" within specific geographic areas. Based on this reasoning, it is not anticipated that all future projects will occur within these focal areas–instead, each unit will be a priority for project activities provided that partnership opportunities are available. Partnership development is multi-year in nature. The development of focal areas may indicate a need to shift work activities – a transition which can require several years. By the end of FY 2011, it is anticipated that 75 percent of Coastal and Partners projects will be occurring in focal areas identified in this plan or in contiguous watersheds or other areas which have a hydrological nexus to the focus area.

The primary trigger for determining focal areas has been federal trust species. Given that "the federal trust" feature is not a static measure, focal areas may change within this 5-year period or subsequent to it. The development of a new national wildlife refuge, new candidate species, listed species, species status based on five year reviews, and such factors as periodic data updates for migratory bird national plans will require a re-assessment of focal areas–at a minimum–every 3 years.

Region 5 5-year Performance Targets

The following table lists the Region 5 Partners and Coastal Programs habitat conservation targets in the context of the Department of the Interior Strategic Plans and its performance measures for these two programs, FY 2007 through FY 2011, for all focus areas combined.

Partners for Fish and Wildlife Program

Habitat Type	*Target Acreage FY '07-'11*
Wetlands Improved	8,070 acres
Wetlands Protected	2,540 acres
Uplands Improved	7,595 acres
Uplands Protected	10 acres
Riparian/Streams/Shorelines Improved	373 miles
Riparian/Streams/Shorelines Protected	0 miles
Fish Passage Structured	40 structures

Coastal Program

Habitat Type	*Target Acreage FY '07-'11*
Wetlands Improved	3,210 acres
Wetlands Protected	9,700 acres
Uplands Improved	825 acres
Uplands Protected	8,175 acres
Riparian/Streams/Shorelines Improved	39 miles
Riparian/Streams/Shorelines Protected	33 miles
Fish Passage Structured	36 structures

GOAL TWO: BROADEN AND STRENTHEN PARTNERSHIPS

Region 5 will continue to be a leader and essential partner in fish and wildldife conservation, known for our restoration expertise, cross-program integration and support, scientific excellence, dedicated professionals, and commitment to public service. This region excels in field capability to deliver restoration and conservation and its unique ability to provide biological information to assist the development of partnerships, the location of projects and actual project design.

In addition, landscape level biological planning will continue to play an important role in building partnerships and focusing joint efforts on the most important trust resources over the next 5 years. Tools such as GIS and concepts from Strategic Habitat Conservation have allowed this Region to help our partners develop high quality grant applications, justify and improve on-the-ground projects, and identify the most important resources and areas in which to work. In addition, these tools have helped build a strong cross-program partnership to identify the best recovery actions, plan for future land management of the refuge system, and identify focus areas.

The Partners and Costal Programs in Region 5 work with our varied partners to successfully accomplish our mutual objectives across the landscape primarily targeting within our focus areas. The credit is to our partners who share our conservation interests and willingness to collaborate to conserve fish and wildlife habitats across the Northeast Region. It is a goal of the Partners and Coastal Programs to broaden and strengthen our partnerships to further the objectives of habitat conservation for the benefit of our Federal Trust Species.

Broad and diverse partnerships exist throughout our region. Collaborative partnerships have been established with federal and state agencies, local governments, non-governmental organizations, private corporations, foundations, land trusts and private landowners. Partners from each of these categories have cooperated with the Partners and Coastal Programs to accomplish our common goals.

Regional Objectives

To address our goal to broaden and strengthen partnerships, the Partners and Coastal Programs will work toward the following key objectives:

1. Maintain existing partnerships. High priority will be given to maintaining and continuing the productive relationships established in the region with an already broad partnership base. These partnerships are the key to past and future successes of the Partners and Coastal Programs in the Northeast.
2. Increase the partnership base. To implement strategic conservation projects in the Northeast additional partners will be needed in areas to address effective delivery of habitat conservation on the landscape. Every partner organization has limitations that can include work loads, capability, geographic interest, and funds. Increasing the partnership base can expand the capability to work in our focus areas along the coast, improve leveraging of funds and also preserve and strengthen existing partnerships. It is the goal of our programs to establish one new partnership in those focus areas each year to

address priority resource needs. Staff will also seek our non traditional partners in order to help effectively deliver on-the-ground benefits to Federal Trust species.

3. Provide technical assistance to our partners to achieve on-the-ground results. Many partners do not possess the time or skills necessary for all aspects of a conservation project. Partners and Coastal Programs personnel will provide assistance, which may include grant writing assistance, coalition building and project planning, to strengthen a partnership and achieve conservation results.
4. Leverage funds. Budget constraints exist with the Partners and Coastal Programs and all partnering organizations. Through collaboration, the Partners and Coastal Programs can help our partners identify and utilize appropriate sources of funds and leverage secured funding towards additional grants to implement their conservation projects.

Key Strategic Activities

The accomplishment of each regional objective will be addressed through the implementation of the key strategic activities described below.

Maintain exiting partnerships

- Maintain regular communication with partners by participating in project meetings, briefings and field visits.
- A field and regional representative will participate at the annual meeting of the Northeast Association of Service State Directors. Special emphasis will be given to states which have been partners with the Service on projects and to states which have not been as active in partnership opportunities.
- All program staff must become familiar with resources offered through other agencies, organizations and institutions. Many cost-share programs exist to aid the private landowner in getting conservation practices on the ground. Few landowners are familiar with all of the opportunities available to them.
- All program staff will become familiar with the USDA cost-share conservation programs (e.g., Conservation Reserve Program, Environmental Quality Incentives Program, Wildlife Habitat Incentives Program, Wetlands Reserve Program) that offer opportunities for partnering with landowners and other federal and state agencies. Program staff should understand these conservation programs and their implementation processes, including collaboration with local and state staff that administer them. Representative program staff should also represent the agency by serving on USDA State Technical Committees.
- Have personal meetings (i.e., face-to-face) to discuss status and updates within the partner's organization and the Service.
- Promote partner recognition through awards programs, news releases and outreach documents.

Increase our partnership base

- Perform outreach activities through public presentations. These outreach efforts at public meetings, conferences and workshops will inform attendees about the Partners and Coastal Programs and invite participation.

- Communicate with existing partners of the Partners and Coastal Programs objective to ask for their assistance in broadening the base of potential partners. Most existing partners represent a broader constituency. Communication at their councils, board meetings and other venues can reach new partner organizations. Additionally the outreach and communications of existing partners of their successful projects and partnership with the Partners and Coastal Programs provide an excellent way to gain trust and encourage participation by new partners, especially with private landowners.
- Identify key stakeholders in focal areas and make direct contact with those which haven't previously partnered with the Partners and Coastal Programs.
- As part of annual Congressional visits (both national and district), collaborative conservation stories will be exchanged with staff for Congressional members. A potential activity is an annual award for a Member in the Region who has been an ardent supporter of the Partners and Coastal Programs.
- Websites will be developed and maintained to highlight the office's mission, point of contact, projects achieved and partnering opportunities (both project funding and technical assistance).

<u>Provide technical assistance to our partners to achieve on-the-ground results</u>

- Partners and Coastal Programs personnel will work with our partners to identify technical assistance needs and provide assistance that meets a real need of the partner in the absence of program funding. Often, partners need specific technical assistance in order to implement and accomplish project goals. Our assistance will be tailored to the specific need such that it will move the partner's project forward.

<u>Leverage funds</u>

- Compile and maintain a list of potential funding sources including federal, state and known private sources. The list should identify the fund source, eligibility of applicant and match, and application dates. This list can be used to solicit additional funds to support a project or to provide technical assistance.
- Capture and include all costs and funding sources associated with projects in reports and proposals. Including all costs and sources of funds in project proposals, agreements and reports will insure accurate reporting of fund leveraging and show true costs of projects.
- A "user-friendly" general interest pamphlet will be developed which describes the grant programs administered by the Service annually. This pamphlet will be sufficiently succinct to encourage readers' interest and will include a description of each grant program and specific criteria, deadlines and cost-share (with accompanying photographs), and will be updated at least triennially. The pamphlet will be designed to indicate which grant program is most applicable to a particular conservation or species enhancement or conservation opportunity. The pamphlet will refer to related websites and will be available for downloading from each regional Partners and Coastal workshop. It will also be accessible from each field station's website.

Performance Measures

The goal of broadening and strengthening partnerships will be measured by the following, which will be reported annually:

- The number of working partnerships per year.
- The number of new partnerships established per year.
- The number of partners adopting and/or implementing recommended technical assistance actions.
- The amount of funds and in-kind services leveraged or otherwise contributed to projects per year.

GOAL THREE: IMPROVE INFORMATION SHARING AND COMMUNICATION

Communication and information sharing are important elements of successful conservation initiatives. Communication provides a mechanism to learn of project successes, failures, or strategies to improve project coordination and implementation. Successful communication directly affects on-the-ground results. Partnerships are strengthened and broadened through this goal with an end result of improved accountability.

Regional Objectives

1. Increase coordination with other agencies, stakeholders, and internal Service programs. This will help insure that Partners and Coastal Programs habitat conservation projects are meeting the priorities of both are external and internal partners. .
2. Improve project results through information sharing. Sharing of project specific information with partners and stakeholders will assist planning efforts and reduce duplication of effort. Information sharing will also improve project results by helping to eliminate previously attempted and failed techniques.
3. Inform stakeholders and decision-makers of Partners and Coastal Programs activities and accomplishments in the region. Informed decision-makers, partners, and stakeholders will be better prepared to support the Partners and Coastal Programs.

Key Strategic Activities

The following strategies will be implemented to accomplish the regional objectives of this goal.

Increase coordination with other agencies, stakeholders and internal Service programs.

- Conduct regular project meetings to maintain communication among all partners. These meetings will consist of the primary Field Office Program staff implementing the various projects. Project meetings will be conducted as necessary for successful initiative and project implementation.
- Continue participation in regional conservation councils and committees. In Region 5, councils and committees organized by various federal, state and non governmental organizations meet at least quarterly. Participation in these council and committee meetings provides an open channel of communication between agencies, and other partners and stakeholders.

- Host an annually or bi-annual Partners and Coastal Programs meeting that provides an avenue for our partners and stakeholders to communicate with the Service's programs.
- Participate, co-sponsor bi-annual professional conference, workshop that address partnerships and habitat conservation. Encourage active program staff involvement with presentation of professional papers and/or posters.
- Increased information exchange between the Partners and Coastal Programs and the Endandered Species Program will be emphasized including: case studies on restoration successes from past Coastal and Partners activities for listed and candidate species; priority focal species for Partners and Coastal conservation efforts on an annual basis (including brink species and species eligible for listing or delisting); candidate species which can best be prevented from listing by habitat conservation activities); greater explanation of safe harbor and candidate conservation agreements for private landowners; and increased emphasis on updating recovery plans for which habitat conservation has been has been discerned as a Tier 1 priority recovery action.
- Conduct annual coordination with NWR program to determine protection and restoration of off-refuge lands to determine priority areas for conservation actions to protect the refuge resources.
- Continue Regional Office cross-program exchanges of trust species programs (T&E; Fisheries; Refuges; and Migratory Birds to provide updates on respective activities which are critical to ascertainment and re-assessment of focal areas contained in this plan and to strengthen the regional contribution to Strategic Habitat Conservation. This effort would also encompass updates on other focal area activities (e.g., outyear budget exercises and the regional step-down of the Fisheries Strategic Plan. Related activities include updates of species recovery plans; development of FMPs for Service trust fishery resources; updated Migratory Birds information for all of the Bird Conservation Regions and status reviews of listed species.

<u>Improve project results through information sharing.</u>

- Share information on successes and failures of related projects at project meetings. This information sharing is one form of technical assistance. Program biologists can assist a partner during project planning and development by providing information on lessons learned. Building from these lessons improves project results.
- Program staff make oral and poster presentations at scientific and technical conferences. National or regional conferences and workshops provide an opportunity to reach a broad audience. Through these presentations, ideas and techniques can be exchanged with professionals from around the Nation and at regional levels.
- Collaborate with project partners to publicize accomplishments through newsletters and peer-reviewed journals. Written descriptions of project results are a useful tool to share information. Proper permissions should be received by all cooperating partners before publishing.
- Select pilot approaches for monitoring activities to gauge the success of restoration projects using projects in which monitoring protocols has been developed prior to project implementation and ascertaining that the project's budget includes monitoring costs. Seek cost-effective methods for monitoring (e.g., graduate school research; projects for which an adequate baseline is available; or projects which may be funded as part of

NOAA's National Estuarine Research Reserve System. Emphasize monitoring protocols which assesses the "value-added" component to trust species.

- Increase distribution of several major publications to both our internal and external partners and stakeholders to illustrated our Program efforts with implementing Strategic Habitat Conservation: Gulf of Maine Habitat Suitability Analysis, Significant Habitats and Habitat Complexes of the New York Bight Watershed, A Gap Analysis of Animal Species Distributions in Maryland/Deleware/New Jersey, Habitat Needs for Chesapeake Bay Wildlife, and Beginning with Habitat–Gulf of Maine

Inform stakeholders and decision-makers of Partners and Coastal Programs activities and accomplishments in the region.

- Hold periodic partner and stakeholder meetings, annually or bi-annually, to provide an opportunity to share updates on the Partners and Coastal Programs. These meeting are also useful to improve project results and promote inter-agency coordination.
- Present annual program accomplishments and updates at local meetings and committees.
- Prepare annual accomplishments report and briefings. Present these materials during the annual "Hill Week" or other briefing opportunities in Washington D.C. and local congressional and district offices.

Performance Measures

The goal to improve information sharing and communication will be measured by the:

- Numbers of projects implemented each year as reported through the HabITS database.
- Program staff person will enter all required information, including project narratives, photographic images, species links and references, for their assigned habitat improvement projects and technical assistance into the HabITS database.
- Written narratives of type and number of technical assistance projects and outreach activities provided in annual data call reports requested by the Washington Office.
- Annual program fact sheet updates.

GOAL FOUR: ENHANCE OUR WORKFORCE

Enhancing our workforce allows us to improve our ability to deliver on-the-ground results for federal trust resource species. Providing personnel with the opportunity to increase knowledge and technical expertise through continued training helps ensure a proficient workforce and achieving on the ground results for Federal Trust Species.

Under this goal, we will continue developing staff, maintain our reputation for excellent customer service, provide employees with opportunities to teach and lead in their respective geographic areas, and continue to use an appropriate breadth of disciplines in delivering habitat conservation projects throughout the Northeast. These skills and abilities are the key to the future success of the Partners and Coastal Programs.

Regional Objectives

1. Develop and retain skilled staff with state-of-the-art restoration knowledge, skills and abilities. A key to delivering quality projects is skilled and motivated staff. These

employees are the front line of communication to area partners and stakeholders which deliver on-the-ground habitat conservation projects.

2. Excellent customer service. Providing our customers with timely and quality assistance with their habitat needs will help maintain the integrity of the Partners and Coastal Programs.
3. Increased use of our expertise for technical assistance. These skills will be shared with our partners and stakeholders to implement on-the-ground initiatives and projects.

Key Strategic Activities

Develop and retain skilled local staff with state-of-the-art restoration knowledge, skills and abilities.

- Assess current staff skills and capabilities needed for effective and efficient operation of the program. This assessment will also include an evaluation of skills needed in the future.
- Use skills assessment to develop employees Individual Development Plans (IDP) and Individual Action Plans (IAP).
- Continue to provide training and educational opportunities for staff in conservation biology, restoration science, and landscape ecology, as well as in other fields such as, conflict resolution, and community-based conservation techniques.
- Review progress on an employee's IDP or IAP during mid–year and annual performance appraisals. Update and revise these annually.
- Encourage staff to perform work details in other Service Programs and Regions.
- Promote a staff mentoring program, developed by the Washington Office, to connect highly experienced staff to new hires or less experienced employees.
- The Region will investigate a pilot process for providing experience to current Service staff in another entity including a non-governmental organization; state or local government, or another federal agency. This would be envisioned as a 1-year placement to learn the approaches and activities of another entity. Applications would be solicited on an annual basis and would be competitive. Approaches such as use of the Intergovernmental Placement Act would be investigated as a partnership placement.
- All Coastal and Partners staff in the Region (field and Regional Office) will be encouraged to send to other staff: examples of successful grant applications for diverse grant programs; press releases which describe activities undertaken in their field offices or completed projects; notices regarding award ceremonies for projects; notices of new grant opportunities; peer-review technical literature related to landscape conservation; GIS analysis; restoration scenarios and respective successes; and monitoring needs and monitoring protocols. These efforts will augment the current distribution of material by the Regional Grants and Partnership Coordinator.
- Subject to budgetary constraints in Region 5, efforts will be made to ensure hydrologic and soil science expertise in at least three field offices with the intent that their services be available with a geographically-defined portion of the Region.

Excellent customer service

- Provide prompt responses to electronic mail, phone messages and other correspondence

from both intra-service and outside partners.

- Create and opportunity for partners to provide customer satisfaction evaluations through written surveys or open stakeholders meetings.

Increased use of our expertise for technical assistance

- Improve record keeping of the quantity and types of technical assistance provided or otherwise facilitated without formal partnership agreements.
- Promote technical assistance capabilities to potential partners at conferences, meetings and workshops.

Performance Measures

Successful progress toward this goal and the regional objectives above will be captured predominantly in performance measures under Goals One, Two, Three and Five. Additional performance measures under this goal include:

- Number staff completing training relating to effective customer service.
- Number of employees participating in mentoring programs developed by the Regional or Washington Office.
- Number of employees participating cross-program details as available both within and across Service regions.

GOAL FIVE: INCREASE ACCOUNTABILITY

This goal ensures to ourselves, our partners, and the American public that project impacts are known, accurate, and meet the standards we have set. Further, we will ensure that program project operations are administratively efficient and fiscally transparent. Finally, accountability occurs by continuing to measure, assess, and report on the effectiveness, efficiency and fiscal integrity of our habitat conservation activities. Throughout, we understand that overall effectiveness relies on new and maintained relationships with other Service programs and partners. Our product must have the benefit of the best information, expertise, and know-how from others.

The objective, strategies and performance measures of this goal are critically linked to the HabITS database. This system provides the primary input of accomplishment data, which includes restored and protected acres/miles, species benefits, project funding, focus areas and project locations. Through the HabITS database, reports can be generated to display accomplishment data in a variety of formats and sorted by various criteria. To report accomplishments effectively and increase accountability, the HabITS database must operate efficiently and be user-friendly. Strategic activities to increase the quantity and quality of project data entered into HabITS will assist the Partners and Coastal Programs in achieving a higher level of accountability.

Cross-program collaboration across Service programs and offices entrusted with trust resource responsibilities will be emphasized as part of program delivery by varied field stations; in allocations of project funding; and, in any system of competitive project funding and during development of proposals between field stations. Dissemination of project funding will ensure

that each established Partners and Coastal Office will have a minimal funding level to engage in partnership development. Implementation costs for projects will reflect the full range of activities including baseline assessments, design, permitting/appraisals as well as implementation.

Regional Objectives

Region 5 will pursue the following objectives in support of this goal to increase our programs accountability:

1. Attain acreage goals outlined for Governmental Performance and Results Act (GPRA).
   Annual GPRA performance goals are established each year for the following categories in Region 5, wetlands restored or enhanced, uplands restored or enhanced, wetlands protected and uplands protected. These goals are accomplished through activities of Goals One and Two of this plan.
2. Increased management and control of program activities.
   This objective is planned to improve the administration of projects and cooperative or grant agreements which the Partners and Coastal Programs and its partners exercise to accomplish on-the-ground results.
3. Increased control and quality of accomplishment data.
   Accurate reporting of program accomplishments is a critical link in all goals of this plan. Accomplishment data is used for both internal and external outreach and evidence of progress toward conservation goals. This data should be accessible and accurate to meet these uses.
4. Increased visual resources in HabITS.
   HaBITS database provides both storage of raw data (text) and visual data such as maps and photographs. These photos and map can easily be used form the database in preparation of annual accomplishment reports and outreach materials.
5. Subactivity funding fidelity.
   Funds are approved by Congress and allocated to the Regions for the programs (1121, 1124 subactivity code). These funds are to be used to support and implement the objectives as described here and in other Service manuals or policies specific to the Partners and Coastal Programs. Ensuring these funds are used for their intended purpose is critical to our accountability to the public and trust resources.

Key Strategic Activities

The following strategies will be implemented to accomplish the regional objectives of this goal.

- Attain acreage goals outlined for GPRA.
- Annually develop cooperative habitat conservation projects. Landowner agreements, Cooperative agreements are the primary mechanism we utilize to implement on-the-ground projects that result in acres restored, protected, or enhanced.

- Establish annual GPRA habitat conservation goals which positively address the focus area acreage goals described in Goal One.

Increased Management and Control of Program Activities

- Develop and further refine criteria for project selection based on Service cross-program goals and objectives. As Program goals and objectives change over time, this standardized set of criteria will guide project selection.
- Increase monitoring of projects. Our project agreements have varied deadlines, and each year additional projects and agreements are initiated, while a number of projects are completed. Continued monitoring of all projects, existing and new, is essential for successful habitat conservation and management and future project development.
- Increase accountability of cooperators. Ensure all requirements for reporting, invoicing, and monitoring are clearly stated in all new agreements and the cooperators are aware of and follow those requirements. Coordinate training with the Service's Contracting and General Services Program to all staff on "Project Office" responsibilities.

Increased control and quality of accomplishment data

- Increase communication with cooperators to ensure that required documentation, monitoring, and accurate funding and acreage data are provided to the Service's project officer. Validate the accomplishment data with the project cooperators.
- Standardize information recorded into HabITS database by having the regional coordinator review and edit all project entries. Program biologists will continue to enter initial project information into HabITS, however, the regional coordinator will review and finalize all entries.
- Train all employees on the HabITS data entry and reporting functions.
- Annually review projects entered in HabITS and update information and completion status.

Increased visual resources in HabITS

Include electronic formatted photos to projects entered into HabITS database. When appropriate, photos should include pre-existing conditions, construction activity, and project completion documentation.

- Include accurate GIS based information for HabITS mapping tools. This data may include point or polygon data to identify project sites or area.

Increased subactivity funding fidelity

Perform management control reviews on the Regional office and all field offices receiving 1124, 1124 funds to ensure the appropriate use and tracking of those funds. Each office is expected to have a review conducted within 5 years. Management Control reviews will include staff from the Services Contracting and General Service. Budget and Finance. An independent organizational representative will be included to represent an independent party reviewer.

Annually calculate percentage of Partners and Coastal Programs dollars allocated for program overhead, including salaries, versus those applied through agreements to projects.

Performance Measures

Increasing our accountability will largely be measured by the quality of our HabITS database reports as well as other measures included here.

Annual account of acres/miles restored or protected within each geographic focus area reported through the HabITS database.

- Timely submission of annual data call reports.
- Management control reviews performed once every 5 years.
- Proportion of projects accurately entered into the HabITS database.
- Annual certification from the regional coordinator that entered HabITS data is accurate.
- Proportion of HabITS accomplishments linked to species.
- Percent of HabITS project accomplishments with images.
- Annual regional report on number of FTE's supported by the Partner and Coastal Programs.
- Annual ratio for project funds leverage against Partners and Coastal Programs funds.

Stakeholder and Partner Involvement

Part I: Vision Document

Several meeting and individual one-on-one contacts were initiated in 2004 through 2006 to gather input from our partners and stakeholders. A diverse representation of partners participated in the meetings, including representatives from local, state, and federal government agencies, private industry, educational institutions, and non-profit organizations. Discussions not only centered around shared resource issues and measurements of success, but also how our partners and stakeholders view the role of the Service's Partners and Coastal Programs, its strengths, weaknesses, threats, and potential opportunities. Stakeholder and partner comments were compiled and incorporated as the Vision Document.

Part II: Region 2 Step-Down Strategic Plan

Preliminary discussions pertaining to Region 5 Geographic Focus Areas began during a Region 5 Habitat Conservation workshop in 2006. Input was gathered from all Service programs as to how best delivery the priorities on Endangered Species, Migratory Birds, Fisheries and the National Wildlife Refuges. Staff of the Partners and Coastal Programs worked with their varied partners to develop focus areas. Boundaries around each focus areas have been refined as additional stakeholder input was gathered and will continue to be refined as we gain additional information which will reflect priority on-the-ground actions to benefit Federal Trust species.

List of stakeholders involved in Part I of Region 5's Strategic Planning Process

Federal Agencies

U.S. Army Corps of Engineers
U.S. Army Corps of Engineers Wetland Research and Technology Center
U.S. Environmental Protection Agency
Federal Emergency Management Agency
Federal Highway Administration
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Natural Resources Conservation Service
Natural Resources Conservation Service
Wetland Science Institute
U.S. Forest Service
Farm Service Agency
U.S. Coast Guard
Department of Defense
National Park Service
Leetown Science Center (West Virginia)
EPA National Estuary Program
U.S. Geological Survey

State Agencies

State Department of Environmental Protection
State Division of Fisheries
State Wetlands Habitat and Mosquito Management Programs
State Department of Agriculture/Forest Service
State Cooperative Extension Service Offices
State Department of Natural Resources and Environmental Control
State Soil and Water Conservation Districts
State Department of Public Works
State Department of Parks and Recreation
New Jersey Department of Corrections
Hackensack Meadowlands Commission
Connecticut River Joint Commission
State Coastal Zone Management
Office of State Planning
State Fish and Boat Commissions
State Coastal Programs

Universities

All State Universities in Region 5
Sea Grant Programs

Nonprofit Groups/Organizations

National Association of Conservation Districts
State Sportsmen's Alliance
International Council for the Exploration of the Sea
Atlantic Salmon Federation
Trout Unlimited
State Watershed Councils
The Nature Conservancy
Ducks Unlimited
Connecticut Waterfowl Association
Delaware Wildlands, Inc.
Chesapeake Bay Foundation
National Fish and Wildlife Foundation
The Nanticoke River Conservancy
Potomac River Conservancy
The Eastern Shore Land Conservancy
Chesapeake Bay Trust
Maine Coastal Mountains Land Trust
Kittery Land Trust
Maine Coast Heritage Trust
Clayton Lake Woodlands, Inc.

Georges River Land Trust
Ducktrap River Coalition
Coastal Conservation Association
Phippsburg Land Trust
Boy Scouts of America
Bangor Public Library
Audubon Society
Trout Unlimited
Pheasants Forever
Ruffed Grouse Society
Huguenot Society
Albany Pine Bush
Camp Saratoga
Saratoga Land Conservancy
Mohonk Preserve
Museum of the Hudson Highlands
Greenwood Conservancy
Great Swamp Conservancy
Student Conservation Association
American Sportfishing Association-Fish America Foundation
Izaak Walton League
American Forests
Vermont Youth Conservation Corps
Missisquoi River Basin Association
White River Partnership
Lewis Creek Association
Battenkill Watershed Alliance
Friends of the Mad River
Poultney-Mettowee Watershed Partnership
Friends of the Winooski River
Lamoille River Anglers Association
Green Mountain Fly Tiers
The Mountain Institute
Save the Bay
American Rivers
Various Watershed Councils
James River Association
Delaware River Watershed Association
Association of State Wetland Managers
State Baykeeper Programs
Massachusetts Trustees of Reservations
Sheepscot Valley Conservation Association
Damariscotta River Association
Scarborough Land Conservation Trust
Friends of Scarborough Marsh

Private Organizations

Northeast Utilities
Iroquois Gas Transmission Systems
Champion Paper Company
Ben and Jerry's, Inc.
Orvis Company, Inc.
Niagara Mohawk Electric Company
New England Forestry Foundation

Tribal Groups

Penobscot Indian Nation
Passamaquoddy Tribe
Houlton Band of Maliseet
Aroostook Band of Micmac
Ramapough Lenape Nation
Narragansett Tribe
Eastern Pequot Nation
Nanticoke Lenni-Lenape Indians of New Jersey

Stakeholders

Susquehanna River Basin Commission
Maine Bass Federation
Lake Champlain Basin Commission
Town Planning Departments
Connecticut River Salmon Association
Connecticut River Watershed Association
Farmington River Watershed Association
National Wildlife Federation

The Wildlife Society
Society of Ecological Restoration
Conservation Fund
Wildlife Management Institute
Restore America's Estuaries
The Long Island Sound Foundation
Clean Sound, Inc. (Long Island Sound)
River Network
Wildlife Habitat Council
Society of Wetland Scientists
State Association of Conservation Commissions
Northeastern Mosquito Control Association
State Water Resources Authority
Connecticut River Joint Commissions

Primary References

Appalachian Mountains Bird Conservation Region Partnership. 2005. Appalachian Mountains bird conservation initiative concept plan. Appalachian Mountains Bird Conservation Region Partnership

Askins, R. A. 1993. Population trends in grassland, shrubland, and forest birds in eastern North America. Current Ornithology 11:1-34.

Askins, R. A. 1995. Conservation of grassland birds of the northeast. Bird Observer 23(2):85-88.

Askins, R .A. 1998. Restoring forest disturbances to sustain populations of shrubland birds. Restoration and Management Notes 16:166-173.

Askins, R .A. 2000. Restoring North America's Birds: lessons from landscape ecology. Yale University Press 320p. Hill, N. P., and J. M. Hagan, III. 1991. Population trends of some northeastern North American landbirds: a half-century of data. Wilson Bulletin 103:165-182.

Association of Fish and Wildlife Agencies. State Wildlife Action Plans. 2006. Washington, D.C 32 p.

Atlantic Coast Joint Venture. 2005. Atlantic Coast Joint Venture Waterfowl Implementation Plan Revision (Draft).

Atlantic States Marine Fisheries Commission. 1985. Fishery management plan for anadromous alosid stocks of the eastern United States: American shad, hickory shad, alewife, and blueback herring: phase II in interstate management planning for migratory alosids of the Atlantic coast. Washington, D.C.

Atlantic States Marine Fisheries Commission. Fishery Management Report No. 35, Amendment 1 to the Interstate Fishery Management Plan for Shad and River Herring. April 1999. (http://www.asmfc.org/speciesDocuments/shad/fmps/shadam1.pdf). Fishery Management Report No. 35b, Addendum 1 to Amendment 1 and Technical Addendum to the Interstate Fishery Management Plan for Shad and River Herring. August 2002. (http://www.asmfc.org/speciesDocuments/shad/fmps/addendumI.pdf).

Atlantic States Marine Fisheries Commission. Fishery Management Report No. 36, Interstate Fishery Management Plan for the American Eel, 2000 (http://www.asmfc.org/speciesDocuments/eel/fmps/eelFMP.pdf) and Addendum I, February 2006 (http://www.asmfc.org/speciesDocuments/eel/fmps/addendumI.pdf).

Atlantic State Marine Fisheries Commission, Atlantic Striped Bass Plan Development Team. 2003. Fishery Management Report No. 41 of the Atlantic States Marine Fisheries Commission, Amendment 6 to the Interstate Fishery Management Plan for Atlantic Striped Bass.

Atlantic State Marine Fisheries Commission, Atlantic Sturgeon Plan Development Team. 1998. Fishery Management Report No. 31 of the Atlantic States Marine Fisheries Commission, Amendment 1 to the Interstate Management Plan for Atlantic Sturgeon.

Atlantic States Marine Fisheries Commission Interstate Fishery Management Plans. 2004. http://www.asmfc.org.

Back, G. N. 1979. Avian communities and management guidelines of the aspen-birch forest. Pages 67-79 in the Proceedings of a Workshop on the Management of Northcentral and Northeastern Forests for Non-game birds. USDA Forest Service General Technical Report. GTR NC-51. DeGraaf, R. M. 1992. Effects of even-aged management on forest birds at northern hardwood stand interfaces. Forest Ecology and Management 46:95-110.

Barnegat Bay National Estuary Program. May 2002. Barnegat Bay Comprehensive Conservervation and Management Plan. http://www.bbep.org.

Barrett, N. E. 1989. Vegetation of the tidal wetlands of the lower Connecticut River: Ecological relationships of plant community-types with respect to flooding and habitat. University of Connecticut, M.S. Thesis.

Bell, M. 1985. The Face of Connecticut: People, Geology, and the Land. CT Geol. Nat. Hist. Surv. Bull. 110, 196 p.

Bevier, L. (ed.). 1994. The Atlas of Breeding Birds of Connecticut. CT Geol. Nat. Hist. Surv. Bull. 113, 461 p.

Beatley T. 2000. Preserving biodiversity: challenges for planners. Journal of American Planning Association 66:5-21.

Botton, M. L. 1995. Horseshoe crab. Pages 51-57 In L. E. Dove and R. M. Nyman (eds.). Living Resources of the Delaware Estuary. The Delaware Estuary Program. U.S. Environmental Protection Agency. Philadelphia, Pennsylvania.

Broberg, L. 2003. Conserving ecosystems locally: A role for ecologists in land-use planning. Bioscience 53:670-673.

Brooks, R. T. and T. W. Birch. 1988. Changes in New England forests and forest owners: Implications for wildlife habitat resources and management. Trans. N. Am. Wildl. Nat. Res. Conf. 53:78-87.

Buckley, J. and B. Kynard. 1985. Habitat use and behavior of pre-spawning and spawning shortnose sturgeon, *Acipenser brevirostrum*, in the Connecticut River. Dev. Environ. Biol. Fish. 6:111-117.

Buzzards Bay National Estuary Program Comprehensive Conservation Management Plan - http://www.buzzardsbay.org

Chesapeake Bay Nutria Control. 2004. U.S. Fish and Wildlife Service. http://www.fws.gov/invasives/Indexhottop.NU.html.

Craig, R. J. 1973. Distributional ecology of marsh birds of the Connecticut River. M.S. thesis. University of Connecticut.

Craig, R. J. 1990. Historic trends in the distribution and populations of estuarine marsh birds of the Connecticut River. Dept. Nat. Res. Management and Engineering, Storrs Agricultural Experiment Station. Research Report No. 83.

Crecco, V. and T. Savoy. 1988. Fishery Management Plan for American Shad in the Connecticut River. CT-DEP, Bureau of Fisheries. Waterford, Connecticut.

Dater, C. 1963. Status survey of rails and wading birds in Connecticut. Connecticut Audubon Council, Harwinton, Connecticut, 127 p.

Defenders of Wildlife. 2007. Linking Conservation and land use planning: Using the State Wildlife Action Plans to Protect Wildlife From Urbanization. 60 pp.

DeGraaf, R. M., and R. I. Miller. 1996. The importance of disturbance and land-use history in New England: implications for forested landscapes and wildlife conservation. Pages 3-35 in R. M. DeGraaf, and R. I. Miller, (eds.). Conservation of faunal diversity in forested landscapes. Chapman and Hall.

Delaware Climate Change Action Plan. 2000. Center for Energy and Environmental Policy, University of Delaware.

Delaware Estuary Program. 1996. Comprehensive Conservation and Management Plan for the Delaware Estuary. http://www.delawareestuary.org/pdf/CCMP.pdf.

Delaware Estuary Program. September 1996. Comprehensive Conservation Plan for the Delaware Estuary. http://www.delawareestuary.org/pdf/CCMP.pdf.

Delaware Invasive Species Management Plan. 2005. Delaware Invasive Species Council.

Delaware National Estuarine Research Reserve Management Plan: 2004-2009. 2004. Delaware National Estuarine Research Reserve.

Delware Natural Resources Division. 2005. Blackbird-Millington Corridor Conservation Area Plan, 2005. http://www.dnrec.state.de.us/nhp/information/blackbird.asp.

Delaware River Fish and Wildlife Cooperative, Review and Recommendations Relating to Fishways within the Delaware River Basin. August 1985.

Delaware River Fish and Wildlife Cooperative, American Shad Stock Assessment Peer Review Report, March 1998.

Delaware River Fish and Wildlife Cooperative. March 1998. American Shad Report. Philadelphia, Pennsylvania.

Denette, R. E. 1975. 1975 Connecticut River rail census. CT DEP, Wildlife Unit, 48 p.

Dettmers, R. and K. V. Rosenberg. October 2000. Partners In Flight Landbird Conservation Plan, Physiographic Area 9: Southern New England. http://www.blm.gov/wildlife/pl_09sum.htm.

Dowhan, J. J. and R. J. Craig. 1976. Rare and endangered species of Connecticut and their habitats. State Geol. Natur. Hist. Surv., CT Dept. Environmental Protection, Rep. Invest. No. 6, 137 p.

Ducks Unlimited. 2005. Ducks Unlimited's International Conservation Plan: U.S. Great Lakes System, Region 12. Retrieved April 19, 2006, at http://www.ducks.org/conservation/icp/Part2/US%20Great%20La.

Dunn, E. H., B. L. Altman, J. Bart, C. J. Beardmore, H. Berlanga, P. J. Blancher, G. S. Butcher, D. W. Demarest, R. Dettmers, W. C. Hunter, E. E. Iñigo-Elias, A. O. Panjabi, D. N. Pashley, C. J. Ralph, T. D. Rich, K. V. Rosenberg, C. M. Rustay, J. M. Ruth, and T. C. Will. 2005. High priority needs for range-wide monitoring of North American landbirds. Partners in Flight Technical Series No. 2. Partners in Flight website: http://www.partnersinflight.org/pubs/ts/02-MonitoringNeeds.pdf.

Endangered and Nongame Species Program, NJ Division of Fish and Wildlife. Northern Atlantic 2000. Northern Atlantic Regional Shorebird Plan.

Environmental Law Institute. 2003b. Planning for Biodiversity: authorities in state land use laws. The Environmental Law Institute and Defenders of Wildlife, Washington D.C.

Ewing, R., J. Kostyack, D. Chen, B. Stein, and M. Ernst. 2005. Endangered by Sprawl: How runaway Development Threatens America's Wildlife. National Wildlife Federation, Smart Growth America, and NatureServe. Washington, D.C.

Federal Power Commission. 1976. Report on significant interrelationships between electric power generation and natural and developed resources in the Connecticut River Basin. Office of Energy Systems. Washington, D.C.

Fishery Management Report No. 31 of the Atlantic States Marine Fisheries Commission Amendment 1 to the Interstate Fishery Management Plan for Atlantic Sturgeon, July 1998. http://www.asmfc.org/speciesDocuments/sturgeon/fmps/fmps/sturgeonAm1.pdf.

Fishery Management Report No. 41 of the Atlantic States Marine Fisheries Commission Amendment 6 to the Interstate Fishery Management Plan for Atlantic Striped Bass. February 2003. (http://www.asmfc.org/speciesDocuments/stripedBass/fmps/sbAmendment6.pdf).

Gale, J. A. and J. S. Perkins. 1982. Great Meadow: A Connecticut River estuarine marsh, Essex, Connecticut. Yale School of Forestry and Environmental Studies, New Haven, Connecituct.

Gamble, M. 2002. Fishery Management Report No. 35b of the Atlantic States Marine Fisheries Commission, Addendum 1 to Amendment 1 and Technical Addendum to the Interstate Fishery Management Plan for Shad and River Herring.

Gap Analysis of Animal Species Distributions in Maryland, Delaware, and New Jersey: 2006 Final Report.

Groves, C. R., D. B. Jensen, L. L. Valutis, K. H. Redford, M. L. Shaffer, J. M. Scott, J. V. Baumgartner, J. V. Higgins, M. W. Beck, and M. G. Anderson. 2002. Planning for biodiversity conservation: putting conservation science into practice. Bioscience 52:499-512.

Howard, C. S. 1940. Salt water intrusion in the Connecticut River. Trans. Amer. Geophys. Union 21:455-457.

Hunter, C., Katz, R., Pashley, D., and Ford, B. 1999. Partners in Flight bird conservation plan for the southern Blue Ridge. Partners in Flight, Atlanta, Georgia.

Hunter, W. C. 2000. Southeastern Coastal Plain-Caribbean Region Report. U.S. Fish and Wildlife Service, Atlanta, Georgia

Johnson, G., and A. R. Breisch. 1993. The eastern massasauga rattlesnake in New York: occurrence and habitat management. Pages 4854 *in* B. Johnson and V. Menzies, editors. International symposium and workshop on the conservation of the eastern massasauga rattlesnake. Metro Toronto Zoo, West Hill, Ontario, Canada.

Johnstone, R. A. 1990. Vegetation management: mowing to spraying. Journal of Arboriculture 16:186-189.

Kearney, R. F. September 2003. Partners In Flight Landbird Conservation Plan, Physiographic Area 10: Mid-Atlantic Piedmont. http://www.blm.gov/wildlife/pl_10sum.htm.

Kushlan, J. A., et al. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Waterbird Conservation for the Americas, Washington , D.C., U.S.A., 78 pp. Copies of this publication may be downloaded from www.waterbirdconservation.org.

Lake Champlain Basin Program - Opportunities For Action Document. http://www.lcbp.org/viewofa.htm.

Leggett, W. C. 1969. Studies on the reproductive biology of the American shad, *Alosa sapidissima*: A comparison of populations from four rivers of the Atlantic seaboard. Ph.D. thesis. McGill University.

Litvaitis, J. A. 1993. Response of early-successional vertebrates to historic changes in land use. Conservation Biology 7:866-873.

Litvaitis, J. A., D. L.Wagner, J. L. Confer, M. D. Tarr, and E. J. Snyder. 1999. Early-successional forests and shrub-dominated habitats: land-use artifacts or critical community in the northeastern United States. Northeast Wildlife 54:101-118.

Lower Great Lakes/St. Lawrence Plain Bird Conservation Region Draft Plan (BCR 13). http://www.acjv.org/bcr13_plan.htm.

Maine's Department of Inland Fisheries and Wildlife. 2003. Beginning with Habitat. Accessed from http://www.beginningwithhabitat.org.

Marcy, B. C. Jr. 1972. Spawning of the American shad, *Alosa sapidissima*, in the lower Connecticut River. Ches. Sci. 13 (2):116-119.

Master, L. 1986. *Alasmidonta heterodon*: Results of a Global Status Survey and Proposal to List as An Endangered Species. Report submitted to Region 5 of the U. S. Fish and Wildlife Service.

Metzler, K. J. and R. W. Tiner. 1992. Wetlands of Connecticut. Connecticut Geol. & Nat. Hist. Survey, Report of Investigations No. 13, 115 p.

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1991. Recovery Plan for U.S. Population of Loggerhead Turtle. National Marine Fisheries Service, Washington, D.C.

National Park Service. 1991. Great Egg Harbor River Wild and Scenic River study, final study report. Philadelphia, Pennsylvania.

The Nature Conservancy. 2005. The Nature Conservancy Binational Conservation Blueprint for the Great Lakes. Produced in collaboration with the Nature Conservancy of Canada (NCC). Retrieved at http://www.nature.org/.

NatureServe. 2006. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer.

NOAA. 1994. Distribution and abundance of fishes and invertebrates in Mid-Atlantic estuaries. ELMR Report #12. Silver Spring, Maryland: NOAA National Ocean Service, Strategic Assessment Division.

New Jersey Audubon Society. 1999. New Jersey Breeding Bird Atlas. http://www.njaudubon.org/Research/Atlas.html.

New Jersey Department of Environmental Protection. December 2005. Highlands Water Protection and Planning Act. http://www.state.nj.us/dep/highlands/docs/highlands_bill.pdf.

New Jersey Department of Environmental Protection. February 2007. New Jersey Wildlife Action Plan: http://www.state.nj.us/dep/fgw/ensp/wap/pdf/wap_draft.pdf.

Nothnagle, P. 1992. Analysis of historic collection sites for *Cicindela dorsalis dorsalis*, the Northeastern beach tiger beetle, and *C. puritana*, the Puritan tiger beetle, in Connecticut, with comments on potential reintroduction. Unpublished report submitted to The Nature Conservancy.

North American Waterfowl Management Plan, Plan Committee. 1986. North American Waterfowl Management Plan. U.S. Fish and Wildlife Service and Canadian Wildlife Service.

Odum, W. E., T. J. Smith III, J. K. Hoover, and C. C. McIvor. 1984. The ecology of tidal freshwater marshes of the United States East Coast: a community profile. U.S. Fish and Wildlife Service. FWS/OBS-83/17. 177 p.

Pennsylvania's Comprehensive Wildlife Conservation Strategy, January 2006. http://www.pgc.state.pa.us/pgc/lib/pgc/SWG/PAWAP.pdf

Ramsar Convention Secretary. May 1991. Delaware Bay Nomination Report. http://www.ramsar.org/.

Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, T. C. Will. 2004. Partners in Flight North American Landbird Conservation Plan. Cornell Lab of

Ornithology. Ithaca, New York. Partners in Flight website. http://www.partnersinflight.org/cont_plan/ (VERSION: March 2005).

Rosenberg, K. V. and B. Robertson. October 2003. Partners In Flight Landbird Conservation Plan, Physiographic Area 17. http://www.blm.gov/wildlife/pl_17sum.htm.

Savoy, T. and D. Shake. 1991. Population dynamics studies of American shad, *Alosa sapidissima*, in the Connecticut River. Progress Report AFC-19-1. Connecticut Department of Environmental Protection. 49 p.

Smith, C. R., D. M. Pence, and R. J. O'Connor. 1993. Status of Neotropical Migratory Birds in the Northeast: A Preliminary Assessment. Pp. 172-188 in Status and Management of Neotropical Migratory Birds (Finch, D. M. and P. Stangel, eds.), Gen. Tech. Rep. RM-229. Fort Collins, Colorado: USDA, Forest Service, Rocky Mtn. Forest and Range Exp. Sta. 422 p.

Stone, S. L., T. A. Lowery, J. D. Field, C. D. Williams, D. M. Nelson, S. H. Jury, M. E. Monaco and L. Anderson. 1994. Distribution and abundance of fishes and invertebrates in Mid-Atlantic estuaries. ELMR Report No.12, NOAA/NOS Strategic Environmental Assessments Division, Silver Spring, Maryland. 280 p.

Thompson, F. R. III, and R. M. DeGraaf. 2001. Conservation approaches for woody, early successional communities in the eastern United States. Wildlife Society Bulletin 29:483-494.

U.S. Department of Commerce. National Oceanic and Atmospheric Administration. Strategic Planning 2007-2012. 19 p.

U.S. Fish and Wildlife Service. 1982. Gray Bat Recovery Plan. Fort Snelling, Minnesota.

U.S. Fish and Wildlife Service. 1983. Appalachian Monkeyface Pearly Mussel Recovery Plan. Atlanta, Georgia. 55 pp.

U.S. Fish and Wildlife Service. 1983. Birdwing Pearly Mussel Recovery Plan. U.S. Fish and Wildlife Service, Atlanta, Georgia. 56 pp.

U.S. Fish and Wildlife Service. 1983. Green-Blossom Pearly Mussel Recovery Plan. Atlanta, Georgia. 50 pp.

U.S. Fish and Wildlife Service. 1983. Slender Chub Recovery Plan. Atlanta, Georgia. 34 p.

U.S. Fish and Wildlife Service. 1983. Spotfin Chub Recovery Plan. Atlanta, Georgia. 46 pp.

U.S. Fish and Wildlife Service. 1983. Yellowfin madtom Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Cumberland Bean Pearly Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Cumberland Monkeyface Pearly Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Dromedary Pearlymussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Fine-Rayed Pigtoe Pearly Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Ozark/Virginia Big-eared Bats Recovery Plan. Newton Corner, Massachusetts.

U.S. Fish and Wildlife Service. 1984. Rough Pigtoe Pearly Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Shiny Pigtoe Pearly Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1984. Tan Riffleshell Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1985. Pink Mucket Pearly Mussel Recovery Plan. Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1988. Blackside Dace Recovery Plan. Atlanta, Georgia. 23 pp.

U.S. Fish and Wildlife Service. 1989. Little-wing Pearly Mussel Recovery Plan. Atlanta, Georgia. 29 pp.

U.S. Fish and Wildlife Service. 1990. Appalachian Northern Flying Squirrels (Glaucomys sabrinus fuscus and Glaucomys sabrinus coloratus) Recovery Plan. Newton Corner, Massachusetts. 53 pp.

U.S. Fish and Wildlife Service. 1990. Cracking Pearlymussel (*Hemistena (lastena)lata)* Recovery Plan. Atlanta, Georgia. 25 pp.

U.S. Fish and Wildlife Service. 1990. James Spinymussel (*Pleurobema collin*) Recovery Plan. Newton Corner, Massachusetts. 38 pp.

U.S. Fish and Wildlife Service. 1991. Northeast Coastal Areas Study: Significant Habitats of Southern New England and Portions of Long Island, New York. Report to Congress. 249 p.

U.S. Fish and Wildlife Service. 1991. A Blueprint for Migratory Birds. Migratory Bird Program Strategic Plan, 2004-2014. 23 p.

U.S. Fish and Wildlife Service. 1991. Fanshell (*Cyprogenia stegaria (C. irrprata))* Recovery Plan. Atlanta, Georgia. 37 pp.

U.S. Fish and Wildlife Service. 1991. Shale Barren Rock Cress (Arabis serotina) Recovery Plan. Newton Corner, Massachusetts. 40 pp.

U.S. Fish and Wildlife Service. 1992. Roanoke Logperch (Percina rex) Recovery Plan. Newton Corner, Massachusetts. 34 pp.

U.S. Fish and Wildlife Service. 1992. Small Whorled Pogonia (*Isotria medeoloides)* Recovery Plan, First Revision. Newton Corner, Massachusetts. 75 pp.

U.S. Fish and Wildlife Service. 1992. Virginia Spiraea (*Spiraea virginiana Britton*) Recovery Plan. Newton Corner, Massachusetts. 47 pp.

U.S. Fish and Wildlife Service. 1993. Delmarva Fox Squirrel Recovery Plan. Hadley, Massachusetts. 112 pp. http://www.fws.gov/endangered/recovery/index.html#plans.

U.S. Fish and Wildlife Service. 1993. Duskytail Darter Recovery Plan. Atlanta, Georgia. 25 pp.

U.S. Fish and Wildlife Service. 1993. Dwarf Wedge Mussel (*Alasmidonta heterodon*) Recovery Plan. Hadley, Massachusetts. 52 pp.

U.S. Fish and Wildlife Service. 1993. Northeastern Bulrush *(Scbpus ancistrochaetus)* Recovery Plan. Hadley, Massachusetts. 68 pp.

U.S. Fish and Wildlife Service. 1995. Bald Eagle Recovery Plan, Chesapeake Bay Region. Hadley, Massachusetts.

U.S. Fish and Wildlife Service. 1995. Indiana Bat Recovery Plan. Hadley, Massachusetts. http://www.fws.gov/midwest/pdf/inbat.pdf.

U.S. Fish and Wildlife Service. 1995. Smooth Coneflower Recovery Plan. Atlanta, Georgia. 31 pp.

U.S. Fish and Wildlife Service. 1996. Piping Plover, Atlantic Coast Population, Revised Recovery Plan. Hadley, Massachusetts. 258 pp. http://www.fws.gov/endangered/recovery/index.html#plans.

U.S. Fish and Wildlife Service. 1996. Recovery Plan for Seabeach Amaranth *(Amaranthuspumilius)* Rafinesque. Atlanta, Georgia.

U.S. Fish and Wildlife Service. November 1997. USFWS Significant Habitat and Habitat Complexes of the NY Bight Watershed. http://training.fws.gov/library/pubs5/web_link/text/toc.htm.

U.S. Fish and Wildlife Service. 1997. Lee County Cave Isopod *(Lirceus usdagalun)* Recovery Plan. Hadley, Massachusetts. 40 pp.

U.S. Fish and Wildlife Service. 1997. Recovery Plan for Mitchell's Satyr Butterfly *(Neonympha mitchellii mitcheliji* French). Fort Snelling, Minnesota. viii+71 pp.

U.S. Fish and Wildlife Service. May 2001. Bog Turtle (Clemmys muhlenbergii), Northern Population Recovery Plan. http://www.fws.gov/northeast/nyfo/es/bogturtle.pdf.

U.S. Fish and Wildlife Service. 2001. Bog Turtle, Northern Population Recovery Plan. Hadley, Massachusetts. 109 pp. http://www.fws.gov/endangered/recovery/index.html#plans.

U.S. Fish and Wildlife Service. June 2004. Cape May National Wildlife Refuge Comprehensive Conservation Plan. http://library.fws.gov/CCPs/capemay_final04.pdf.

U.S. Fish and Wildlife Service. August 2004. USFWS Northeast Region Fisheries Strategic Plan. www.fws.gov/northeast/fisheries/docs/reports/Regional%20Strategic%20Plan%20Final.pdf.

U.S. Fish and Wildlife Service. 2004. Northeast Region Fisheries Strategic Plan. http://www.fws.gov/northeast/fisheries/docs/reports/Regional%20Strategic%20Plan%20Final.pdf.

U.S. Fish and Wildlife Service. 2004. Recovery Plan for Cumberland Elktoe, Oyster Mussel, Cumberlandian Combshell, Purple Bean, and Rough Rabbitsfoot. Atlanta, Georgia. 168 pp.

U.S. Fish and Wildlife Service. 2005. A Blueprint for the Design and Delivery of Bird Conservation in the Atlantic Northern Forest. http://www.acjv.org/bird_conservation_regions.htm.

U.S. Fish and Wildlife Service. May 2006. USFWS Hackensack Meadowlands, Initiative Preliminary Conservation Plan.

U.S. Fish and Wildlife Service. 2006. R-5 Refuge Comprehensive Conservation Plans. http://www.fws.gov/northeast/planning/refugeccps.html.

U.S. Fish and Wildlife Service. 2007. Hackensack Meadowlands Initiative, Preliminary Conservation Plan. Hadley, Massachusetts.

U.S. Fish and Wildlife Service. 2007. Indiana Bat (*Myotis sodalis*) Draft Recovery Plan: First Revision. Fort Snelling, Minnesota. 258 pp.

U.S. Fish and Wildlife Service. 2007. National Fish Habitat Action Plan. http://www.fishhabitat.org/plan/National_Fish_Habitat_Action_Plan.pdf.

U.S. Fish and Wildlife Service. Missisquoi National Wildlife Refuge - Draft Comprehensive Conservation Plan. http://www.fws.gov/northeast/planning/Missisquoi/draftCCP.html.

U.S. Fish and Wildlife Service. Northeast Coastal Areas Study. Hadley, MA http://www.fws.gov/r5snep/Publications.htm.

U.S. Fish and Wildlide Service. Significant Habitats and Habitat Complexes of the New York Bight Watershed. http://www.fws.gov/r5snep/Publications.htm..

U.S. Fish and Wildlide Service. Waterbird Conservation Plan: 2006-2010 for the Mid-Atlantic/New England/Maritimes Region (MANEM). http://www.fws.gov/birds/waterbirds/manem/index.htm.

U.S. Fish and Wildlife Service's Native American Policy Implementation Plan. http://www.fws.gov/northeast/nativeamerican/imp_plan.html.

U.S. Fish and Wildlife Service/Canadian Wildlife Service. April 1993. Final Draft-Strategic Plan, Black Duck Joint Venture.

United States Shorebird Conservation Plan, by S. Brown, C. Hickey, B.Harrington, and R. Gill (eds.). Second edition. May 2001. Manomet Center for ConservationS ciences, Manomet, Massachusetts. http://www.fws.gov/shorebirdplan/.

Vermont Agency of Natural Resources. Clean and Clear Action Plan. http://www.anr.state.vt.us/cleanandclear/overview.htm.

Vermont Fish and Wildlife Department. Wildlife Action Plan. http://www.vtfishandwildlife.com/swg_cwcs_report.cfm.

Vermont Fish and Wildlife Department. Draft Native Mussel Recovery Plan. No link available.

Virginia Department of Game and Inland Fisheries. 2005. Virginia's comprehensive wildlife conservation strategy. Virginia Department of Game and Inland Fisheries, Richmond, Virginia.

Watts, B. D. April 1999. Partners in Flight. Mid-Atlantic Coastal Plain Bird Conservation Plan, Physiographic Area #44. http://www.blm.gov/wildlife/pl_44sum.htm.

Weber, T. 2003. Maryland's Green Infrastructure Assessment: A Comprehensive Strategy for and Conservation and Restoration. Maryland Department of Natural Resources, Annapolis, Maryland.

Wildlife Management Institute. 2006. Regional Wildlife Habitat Needs Assessment for the 2007 Farm Bill: A Summary of Successes and Needs of Farm Bill Conservation Programs. 24 pp.

Zankel, M., C. Copeland, P. Ingraham, J. Robinson, C. Sinnott, D. Sundquist, T. Walker, and J. Alford. 2006. The Land Conservation Plan for New Hampshire's Coastal Watersheds. The Nature Conservancy, Society for the Protection of New Hampshire Forests, Rockingham Planning Commission, and Strafford Region Planning Commission. Prepared for the New Hampshire Coastal Program and the New Hampshire Estuaries Project, Concord, New Hampshire.