CONNECTICUT

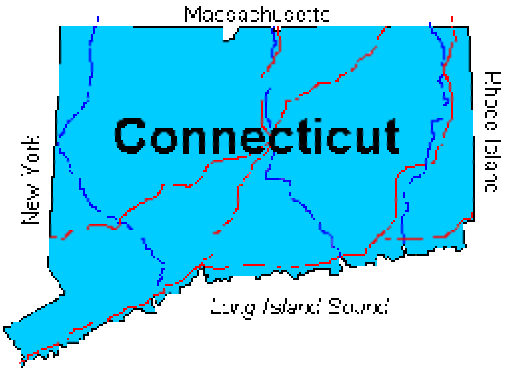
Introduction and General Description

"Connecticut" comes from the Mohegan word "Quinnehtukqut," which means "long tidal river." The name reflects the river that bisects the State. The State is roughly divided into four sections, known as the eastern highland, the western highland, the Connecticut Valley lowland and the coastal plain along Long Island Sound.

The varied habitats of Connecticut support a diverse mix of fish, wildlife, and plant species. The uplands provide habitat for a wide variety of neotropical migratory birds. Freshwater wetlands and coastal marshes are home to waterfowl, wading birds (e.g., great blue heron, snowy egret), hawks, shorebirds (e.g, piping plover, least tern) and nursery areas for fish, shellfish and aquatic invertebrates.

The Connecticut Valley is one of the best agricultural regions in New England, producing cigar tobacco, truck crops and dairy products.

The large river systems of the State provide habitat for migratory fish, such as the American shad, Atlantic salmon, shortnose and Atlantic sturgeon, alewife, and American eel, plus a host of resident fish, freshwater mussels and other aquatic species.
The U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program in Connecticut began in 1989. Since 1991, the Partners Program and Connecticut Department of Environmental Protection have worked together to protect and restore wetlands for the benefit of migratory birds and other wetland-associated wildlife on private lands.



Habitat restoration in Connecticut has focused primarily on restoring degraded tidal salt marshes along the coast. Restoration activities have included removing old dredge spoil material to reestablish the original marsh elevation, replacing damaged or undersized culvert pipes, cleaning out existing ditches to reestablish tidal flow and selectively using herbicides in targeted areas to control less desirable, invasive plants such as phragmites (also called common reed, *Phragmites australis*).

The Connecticut River, the longest river in New England, flows from the Connecticut Lakes in northern New Hampshire, south through Vermont, New Hampshire, Massachusetts and Connecticut to empty into Long Island Sound. The value and complexity of the habitats along and within this river led to the establishment of the Silvio O. Conte National Fish and Wildlife Refuge. Its mission is to protect the natural diversity along the river corridor by involving the people of the watershed, especially private landowners and land managers, in cooperative habitat restoration and management projects. The Partners Program in Connecticut works with willing private landowners within the watershed to restore fish and wildlife habitat on their own lands.

Habitats of Special Concern

Coastal Wetlands

By the early 1900s, more than 50 percent of Connecticut's coastal wetlands had been drained or filled for industry and development, resulting in a significant loss of habitat for many fish and wildlife species. Only 18,000 acres of coastal wetlands remain in the State today.

Long Island Sound was designated by Congress as an "Estuary of National Significance" under Section 203 of the Clean Water Act. The Sound and its coastal wetlands sustain: saltwater and anadromous fishes, such as striped bass, several species of herring, Atlantic salmon, bluefish; shorebirds, waterfowl, and wading

birds; sea turtles; marine mammals; and a myriad of small fish, crustaceans, shellfish, aquatic invertebrates, plankton and diatoms.

Uplands and Freshwater Systems

Fields and forest edges provide food and cover for many neotropical migratory songbirds, American woodcock, northern bobwhite quail, wild turkey and white-tailed deer in this State. Forests now cover more than 75 percent of New England and the grasslands and field habitats are vanishing.

Threats

Invasive Plant Species

A major threat to fish and wildlife habitat is invasive plant species that encroach into native habitats and crowd out native plant species. These non-native dominated sites have reduced habitat values for

Phragmites is an invasive grass from Europe. It tolerates higher salinity and can eliminate native saltmarsh plants from sections of coastal wetlands.

native fish and wildlife.

Wetland Impairment and Loss

Industrial, commercial and residential development have greatly impaired or eliminated coastal wetlands, especially saltmarshes in Connecticut. Major cities along Long Island Sound have existed since colonial times and the landscape has been modified to fit human growth and needs. Wetlands have been filled for construction of buildings, roads, and marinas. Saltmarshes have been ditched and drained for mosquito control and agricultural needs. Tidal streams have been gated to prevent normal tidal flows from flooding residential developments that were constructed in or near saltmarshes.

Replacing an undersized culvert on the Little River to provide normal tidal circulation to the saltmarsh.

Wetlands in the interior of the State have been lost for many of the same reasons. Within the Connecticut Valley, many wetlands have been drained or modified for agricultural purposes.

Urban Development

The coast of Connecticut has seen enormous development in the 300+ years since European settlement. Interior cities have also had urban development pressures throughout the 20th century. Fish and wildlife habitats have been greatly reduced or eliminated in some areas. In fact, the watersheds of the Pequobeck and Farmington Rivers, tributaries of the Connecticut River, are enclosed in underground pipes in some urban areas. Urban development is a major threat to the health and productivity of 75 percent of the freshwater streams and rivers that feed Long Island Sound.

Riparian (Streamside) and In-stream Habitat Loss

Streamside vegetation has been eliminated from streams and rivers in many developed areas of the State. Riparian areas have also been impacted by livestock use.

The in-stream habitat of most of the large rivers has been impacted by dredging, sand and gravel mining and contaminated runoff from adjacent uplands. Dams obstruct migratory fish movement. Streams and rivers that flow to Long Island Sound have been degraded by development, erosion and contamination. The Partners Program works with private landowners and other partners to restore streamside habitats.

Conservation Strategies

Control of Invasive Plants

The Partners Program has assisted with the propagation and release of insects that feed exclusively on purple loosestrife, an invasive plant, and significantly reduced

purple loosestrife in targeted wetlands. Costs for invasive species control projects range from $100-$500 per acre.

Saltmarsh and Freshwater Marsh Restoration and Enhancement

Coastal habitat restoration has focused on restoring degraded tidal saltmarshes through a variety of techniques including dredge spoil removal, replacement of undersized culverts to provide adequate tidal exchange, and selective herbicides to control phragmites, an invasive grass. These integrated management techniques involve the creation of interconnected, shallow water channels and pannes (small, open water areas within a saltmarsh) in the marsh to reestablish the hydrology of the marsh and provide habitat for small fish that feed on mosquito larva.

The Partners Program uses special equipment designed to work in wetland habitats to complete these projects. The cost of coastal marsh restoration ranges from $130 to $78,500 per acre, depending on the size and complexity of the project. The average cost is $9,450 per acre.

East River Marsh in Guilford before any restoration work. Red flagging indicates where to plug a mosquito ditch.

An aerial picture of the East River Marsh after the marsh restoration. Note that the old drainage ditches now hold water between high tides rather than draining the marsh.

Excavators working at the East River saltmarsh restoration site.

Streamside Restoration and Enhancement

Livestock fencing, streambank stabilization (using bioengineering techniques), and streambank revegetation are techniques used to restore riparian habitat in partnership with private landowners and other partners. Restoration of streamside forest habitats reduces runoff and erosion and improves the water quality in the streams. Forested riparian areas provide habitat for wildlife that depend on these areas for breeding and as dispersal corridors.Livestock fencing at $1-2 per foot is often combined with tree and shrub planting at $500-$1000 per acre.

Fish Passage Restoration

The Partners Program in Connecticut is working with private landowners and the Connecticut Fisheries Division to remove dams that no longer provide public benefits, are in need of repair or pose a potential flood hazard. To date, 20 structures have been identified and their removal will reopen over 200 miles of riverine habitat to a variety of migratory fish species. Due to the variation in each fish passage project, the costs vary from $5,000 to $500,000 per project.

Grassland Restoration

The Partners Program is working with private landowners and the Natural Resources Conservation Service to restore grasslands using native grass seeding and late season brush-hogging (removing larger brush and saplings to set back vegetation to an early successional stage habitat) and mowing. Grassland habitat has declined greatly in New England as farmland has reverted to forest, causing significant declines in migratory bird species that depend on grassland and shrub/sapling habitats. The cost for grassland restoration averages $250 per acre.

Partners

U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
Federal Emergency Management Agency
Federal Highway Administration
National Marine Fisheries Service
Natural Resources Conservation Service
U.S. Forest Service
Farm Service Agency
Connecticut Sportsmen's Alliance
Connecticut Department of Environmental Protection
Connecticut Division of Fisheries
Connecticut Wetlands Habitat and Mosquito Management Program
International Council for the Exploration of the Sea
Atlantic Salmon Federation
Trout Unlimited
Connecticut River Watershed Council
Connecticut River Salmon Association
Northeast Utilities
The Nature Conservancy
Ducks Unlimited
Connecticut Waterfowl Association
Iroquois Gas Transmission Systems

Accomplishments

- Restored over 400 acres of saltmarsh.
- Restored 500 acres of freshwater wetland habitats.
- Restored or created 600 acres of grassland habitats.

Restored saltmarsh in Mumford Cove.

Photo: Paul Capotosto (State of Connecticut)

- By restoring and enhancing native habitats, and controlling invasive plants, 20 species of native plants and animals have been conserved.

Future Needs

- Restore 650 miles of riparian habitat.
- Restore 4,400 acres of tidal wetlands.
- Control invasive plants on more than 5,000 acres of wetlands.
- Remove 80 obstructions to fish passage and reopen hundreds of miles of stream to migratory fish species.
- Restore 500 acres of grassland and old field habitats.
- There are 380,000 acres of farmland in the State; the unproductive acres and many of these acres could be voluntarily restored by private landowners in partnership with the Partners Program and/or other Federal, State or non-governmental agencies.

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