

Silvio O. Conte National Fish and Wildlife Refuge

Turners Falls, Massachusetts
2001 Annual Narrative



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Introduction

The Conte Refuge purposes are to conserve, protect and enhance the diversity and abundance of native species and the health of the ecosystems on which they depend throughout the Connecticut River watershed. The watershed is a 7.2 million acre area in the states of Connecticut, Massachusetts, Vermont and New Hampshire. There are 38 major tributaries to the Connecticut River, 16 mainstem dams, almost 1,000 smaller dams, 390 towns, and 2.2 million inhabitants. The northern third of the watershed is part of the Great Northern Forest - an area of mostly privately-owned industrial forest stretching from the Adirondacks to the coast of Maine. The mouth of the river contains internationally significant fresh, brackish and saltwater tidal wetlands. The Conte Refuge emphasizes protecting federal trust species - migratory birds, migratory fish and federally endangered or threatened species. It also strives to protect rare species and rare and exemplary natural communities.

The Refuge cannot fulfill this ambitious mission acting alone. Such an effort requires a multi-faceted approach, using all the conservation tools and partnerships available. The Refuge encourages and supports mutually beneficial work with agencies, non-profit organizations, landowners and citizens. The Refuge acts through partnerships in three areas: environmental education; research, inventory and habitat management assistance; and land acquisition.

In addition to the wide variety of local education projects throughout the watershed, the Refuge has three cooperative visitors centers in development - one in historic mill buildings owned by the Commonwealth of Massachusetts in Turners Falls, Massachusetts (near the headquarters), one in a science museum in Norwich, Vermont, and one in a state Department of Transportation building in Colebrook, New Hampshire.

The Refuge provides financial and technical support to improve stewardship and habitat management on lands throughout the watershed. Research, inventory and management projects assist a variety of landowners (state agencies, municipalities, water supply districts, land trusts, other non-profit agencies, and private landowners) and help accomplish Refuge purposes. Notable projects in 2001 included augmentation of a Puritan tiger beetle population in Massachusetts, an invasive plant control initiative, researching dispersal patterns of marbled salamander metapopulations, and providing fish passage facilities at small mill dams on tributaries of the Connecticut River. A wide variety of other projects also were supported.

The Refuge works cooperatively with land trusts and agencies on a variety of land acquisition projects in the Special Focus Areas (SFA) identified in the Final Environmental Impact Statement and on small scattered sites of particular importance to a rare species or hosting a rare or exemplary community. The Refuge currently owns six parcels: in Massachusetts, a 3.8 acre island in Deerfield, an 18-acre upland and wetland parcel in Westfield, 21 acres in Greenfield, Massachusetts which forms the Great Falls Discovery Center watershed and contains extensive relicts from a long period of Native American occupation; in Vermont, 278 acres which host a

federally endangered plant in Putney, and 26,000 acres of the Nulhegan Basin in Essex County; and in New Hampshire, 670 acres of floodplain forest and bogs in northern New Hampshire. The Refuge continues to pursue opportunities to protect land in the Tidelands and other SFAs in Connecticut, and in the Mount Tom and Mount Toby SFAs in Massachusetts.

The staff currently consists of a Project Leader, an Assistant Manager, a Nulhegan Basin Division Refuge Manager, two Wildlife Biologists, two Outdoor Recreation Planners, a grant-funded Invasive Plant Control Coordinator, and an Office Manager. Additional staff will be needed as new lands and interpretive centers are added.

Highlights

Land Acquisition

1) Pondicherry Unit - The Service purchased 670 acres of floodplain black spruce-larch wetlands, fens and bogs from Hancock Timber Resources Group in December 2000. This Special Focus Area, together with abutting land and two ponds owned by the Audubon Society of New Hampshire, protects a significant wildlife resource in northern New Hampshire. This acquisition was many years in the making and the resolve of the local citizenry was a key to its success. During the summer of 2001 the Refuge established a monitoring system for land and marsh birds. Previous inventories by Audubon documented over 120 bird species, including rare spruce grouse, black-backed woodpeckers and palm warblers. Also in the first year, volunteer Audubon members and a Youth Conservation Corps team constructed a bog bridge on the Refuge to eliminate unacceptable resource damage along a trail connecting the two Audubon ponds.



2) Wissatinnewag Unit - This 21-acre property, located in Greenfield, was purchased because it is part of a larger Special Focus Area and is the primary viewshed from the Great Falls Discovery Center. The site also has significant cultural resources. Native Americans occupied terraces on the slope above the Connecticut River to exploit the concentrations of migratory fish below the Great Falls. The Refuge is working with the adjacent landowners, Friends of the Wissatinnewag, to better understand the area's cultural history.

Personnel Changes

Holly Toadvine was hired to be the Wildlife Biologist for the Nulhegan Basin Division.

Michelle Babione moved from the Connecticut River Coordinator's Office into the Wildlife Biologist position at the Conte Refuge.

Barry Parrish transferred from the USDA Forest Service to become the Assistant Manager at the Conte Refuge.

John Megan was hired as a seasonal Park Ranger for the Nulhegan Basin Division in October to provide law enforcement and visitor outreach. He transferred to the National Park Service on December 16 to assume a permanent full-time position.

1) Monitoring and Studies

1a. Surveys & Censuses

The Conte Refuge, with technical and financial assistance of the Regional Biology Program, supported nine surveys that will be the foundation for future wildlife resource monitoring. Land bird point count systems were established at Honey Pot Wetlands, Putney Mountain and Pondicherry. The survey system previously established on the Nulhegan Basin Division (Nulhegan) was expanded in 2001 to include a more complete set of habitats. Marsh bird surveys were conducted at Pondicherry and the Nulhegan. Calling anuran inventories were completed at the Nulhegan and Putney Mountain units. Rare plant and natural community surveys were performed on the Nulhegan. Annual spruce budworm monitoring by the Vermont Agency of Natural Resources was continued this year on the Nulhegan.

Challenge Cost-Share Agreements

Conte Refuge contributed approximately \$40,000 for habitat management projects in 2001 (Appendix A). This program awards small grants on a competitive basis to partners engaged in projects that address refuge priorities. Examples of projects funded this year include:

- ▶ a survey of unique invertebrate communities on ancient sand dunes and sandy shores of the Connecticut River watershed in the state of Connecticut. This data will provide managers and landowners with information for this often overlooked suite of species.
- ▶ a landscape analysis and ecological inventory of the Bunnel Tract in New Hampshire. The inventory information will provide baseline ecological information for consideration in future resource management.
- ▶ a natural heritage-based inventory of two islands owned by the Student Conservation Society. The Society intends to use these islands in their conservation education program, but also wants to ensure that rare species and vulnerable habitats are sufficiently protected.
- ▶ a vernal pool survey in Woodstock, Vermont to help the town with conservation planning.

1b. Studies & Investigations

The Conte Refuge Challenge Cost Share program supported a study of marbled salamander movements and metapopulation dispersal. This information is needed by biologists and community planners to determine functional upland buffers around breeding ponds. The marbled salamander is an indicator species for a host of other amphibians that will benefit from adequate upland buffers.

The University of Connecticut, with funding from the Conte Refuge, is in the process of producing packets of loosestrife beetles for landowners with purple loosestrife infestations. Making these insects widely available should result in an effective control strategy for this aggressive, broad-ranging invasive plant.

2) Habitat Restoration

2a. Wetland Restoration

No activity this year

2b. Upland Restoration

No activity this year

2c. Riverine Restoration

The Conte Refuge continues to provide leadership and support for fish passage planning at dams in the Connecticut River watershed. There are more than 1,000 dams in the watershed that block movements and fragment habitat. We concentrated our resources in Connecticut and Massachusetts by supporting a river steward position working for Connecticut River Watershed Council (CRWC).

With Refuge financial support, the CRWC published the handbook, "Providing Fish Passage Around Dams in the Northeast: A Fishway for Your Stream." This publication explains the importance of fish passage and provides guidance for the planning, construction and maintenance phases of a new by-pass structure. It has been widely distributed to landowners and local officials.

3) Habitat Management

3a. Water Level Management

No activity this year

3b. Moist Soil Management

No activity this year

3c. Graze/Mow/Hay

Numerous log-landing and skid trail sites on the Nulhegan Basin Division were mowed to retard woody succession and maintain open, herbaceous cover by a local contractor during late summer and early fall 2001. Mowing will benefit many early succession wildlife including ruffed grouse, wild turkey, and American woodcock.

3d. Farming

No activity this year

3e. Forest Management

No activity this year

3f. Fire Management

No activity this year

3g. Pest Plant Control

Conte Refuge staff continued a multi-year effort to eradicate invasive exotics from the Third Island Unit. This small island has several aggressive weeds, including Japanese knotweed and black swallow-wort, that require monthly attention during the growing season. The goal is to eliminate all invasive plants, and use the island as a showplace for native floodplain forest habitat.

4) Fish and Wildlife Management

4a. Bird Banding

No activity this year

4b. Disease Monitoring and Treatment

No activity this year

4c. Reintroductions

Support was provided for a second year of Puritan tiger beetle translocations from a Connecticut core population to a small satellite colony in Massachusetts. Initial results indicate the work has been successful with a substantial increase in the number of larvae. The goal of this work is to establish enough secure populations to alleviate viability concerns of this federally endangered insect.

4d. Nest Structures

Materials for artificial nest platforms were purchased by the Refuge for a common loon conservation partnership with the Vermont Institute of Natural Science. These platforms, set out in northern Vermont, were used by loons the first year and conservationists intend to expand the program to further enhance nest success.

The Refuge worked cooperatively with Northeast Utilities and the Massachusetts Department of Fisheries, Wildlife and Environmental Law Enforcement to maintain and improve an alternate nest site for the bald eagle pair made famous by the "Eagle Cam" project. This nest may be important in the future because the nest tree currently used is a soft snag in jeopardy of falling.

4e. Predator and Exotic Control

No activity this year

5) Coordination Activities

5a. Interagency Coordination

Conte Refuge staff worked cooperatively with the Vermont Agency of Natural Resources, Vermont Housing and Conservation Board, Vermont Land Trust, The Nature Conservancy,

consulting scientists, and the public to develop a broad habitat management plan for a state wildlife management area adjacent to the Nulhegan Basin Division. The Refuge also collaborated with partners on a Visitor Services Plan for the Division and a public access plan for the surrounding private timberlands.

The Nulhegan Basin Division staff worked closely with the Federal Highway Administration, Eastern Federal Lands Highway Division to implement a Public Lands Highway project for providing public access to the Refuge. An initial project proposal to install a bridge, emergency spillway and road improvements on the Marquis tract on the south end of Lewis Pond Road was abandoned because public access could not be secured. An alternate project will be to improve public access route on Henshaw Road and Four Mile Road on adjacent Essex Timber Company lands and on the Four Mile Road on the Refuge.

5b. Tribal Coordination

The draft Environmental Assessment for the construction of the Headquarters/Visitor Contact Station at the Nulhegan Basin Division in Brunswick, Vermont was submitted to the Abenaki Nation for comment; none was received

5c. Private Lands Activities

Conte Refuge worked with 20 organizations to control the invasive aquatic plant, water chestnut in the Connecticut River watershed. In addition to Service funds, the refuge secured \$22,000 of private funds for the mechanical harvesting of two large populations, and organized 11 hand-harvesting events involving 79 volunteers, to control 240 acres of satellite populations. Populations subjected to annual treatments during the past 2-3 years appear to be in decline, but control must be repeated for several years because this annual invasive drops seeds that remain viable for up to 12 years.



6) Resource Protection

6a. Law Enforcement

Refuge Officer Tom Laskowski from the E.B. Forsythe NWR in New Jersey assisted the Nulhegan Basin Division with law enforcement through a 29-day detail during the snowmobile season. Officer Laskowski educated people who violated snowmobile laws or regulations (e.g., improper registration, off-trail trespass, excessive speed, reckless operation) through verbal warnings, explained the mission of the National Wildlife Refuge System and Refuge purposes, provided information on trail directions and land ownerships, monitored patterns of snowmobile use, and conducted snowmobile counts on trails. Officer Laskowski provided a synopsis of his activities, an analysis of his observations, and recommendations for managing the snowmobile

access on the Refuge. Overall, public response to a Refuge Officer was quite positive; in fact, the majority of people encourage us to provide more extensive law enforcement coverage.

6b. Permits & Economic Use Management

Following completion of a compatibility determination for occupancy and use of privately-owned cabins, 56 Special Use Permits for existing privately-owned cabins on the Refuge were issued. This was a tremendous workload for the staff because of the number of permit holders (several per permit) and the conversion of leases from the former landowner (Champion International Corporation) to Service SUPs that met law and policy. The process is now in place to manage these permits efficiently and effectively.

6c. Contaminant Investigation

A Level 1 Environmental Site Assessment was conducted by Wildlife Biologist Holly Toadvine and Manager Keith Weaver on eleven privately owned camps on the Nulhegan Basin Division in fall 2001. These assessments were conducted at camps with owners willing to sell to the Service or have the buildings relocated. There were no environmental contaminant concerns found at any of the camps. Necessary forms were completed and extensive forms were taken.

6d. Contaminant Cleanup

No activity this year

6e. Water Rights Management

No activity this year

6f. Cultural Resource Management

No activity this year

6g. Land Ownership Support

Conte Refuge added the northern New Hampshire, Pondicherry Unit (a boreal forest floodplain important to many migratory songbirds) in December 2000. Staff also worked on several other acquisitions including Mount Tom (key habitat for the state listed timber rattlesnake), Mount Toby (part of a larger landscape protection effort by multiple partners), and Mitch's Island (a newly accreted island in the Connecticut River). These additions will help the Refuge meet it's legislated purpose of protecting biological diversity in the Connecticut River watershed.

Nulhegan Basin Division Manager Keith Weaver worked closely with the Regional Realty personnel and the DOI, Regional Solicitor in an attempt to purchase an all-purpose right-of-way across the Marquis tract (Lot 46, Ferdinand Vermont) to secure public access to the refuge on the south end of Lewis Pond Road. Draft terms and conditions for the ROW and an offer for purchase of same (based on an contracted appraisal) were presented to the landowner. Unfortunately, the offer was rejected and no further progress was made.

7) Public Education and Recreation

7a. Provide Visitor Services

Education Centers

Great Falls Discovery Center

The Great Falls Discovery Center (GFDC) is scheduled to open fall of 2002. Reconstruction is nearly complete and habitat dioramas are under construction.

The Friends of the Great Falls Discovery Center have organized into an energetic group that completed the 501C3 application for nonprofit status, been awarded a small grant for a canoe and created a beautiful butterfly garden. They will soon offer programs at their monthly meetings to reach out to the community for support while GFDC is under construction. The seven board member have a good understanding of their purpose and have maintained their interest in spite of delays in the GFDC opening.

The Conte Refuge received a small grant from the Pilot Fee Demo program to purchase chairs, tables, a projector and screen for the multipurpose room at the Great Falls Discovery Center.

Montshire Museum of Science

On March 19, 2001, ground was broken at the Montshire Museum of Science in Norwich, Vermont for a 10,000 square foot expansion that will include exhibits for a new Conte Refuge Education Center. The addition will be open to the public in June 2002. The Museum sees more than 100,000 visitors annually for programs, special events and changing exhibits. Refuge exhibit themes will include biodiversity, anadromous fish, invasive plants, and neotropical migratory birds.



Colebrook Interpretive Center

Plans were finalized in preparation for winter 2002 remodeling of the Colebrook Interpretive Center, located on State Route 3 at the Gateway to the Connecticut Lakes Region of New Hampshire. This is a major transportation route between Canada and the New England states. This region is also a growing year-round recreational destination for tourists. An estimated 20,000 visitors annually (May through October) stopped at the original rest stop building for information and a rest from traveling. The Service provided \$250,000 in funding support to the state for this facility which is scheduled to open to the public in spring 2002.

Nulhegan Basin Division

Regional realty personnel continued to make progress in the purchase of a 19-acre tract in Brunswick, Vermont from The Nature Conservancy that will be the site for construction of a Headquarters/Visitor Contact Station, Refuge Quarters, and a maintenance facility. The purchase is expected to be complete in January 2002.

Other Visitor Services Activities

A Visitor Services Plan (VSP), five compatibility determinations, and an environmental assessment for a new headquarters/visitor contact station for the Nulhegan Basin Division were prepared and released for public review in October 2001. These documents will guide visitor services until completion of the Comprehensive Conservation Plan (2008). This was part of a larger partnership with the Vermont Agency of Natural Resources (habitat and access plans) and Essex Timber Company (access plan) to simultaneously plan for the 133,000 acres formerly owned by Champion International Corporation in Essex County, Vermont. Refuge staff participated in 6 public meetings that were held across the state to seek public comment.

Cameras mounted on an eagle nest on the Connecticut River provided a live view of the eagle's activities for the public visiting the Conte Refuge office. Three eggs were laid and incubated, however no young survived probably due to unseasonably heavy snow and cold temperatures. A web page (150,000 visits) provided through a partnership with Northeast Utilities Service Company offered images of the bird's activities until they left the nest in April.



7b. Outreach and Education

The Refuge sponsored an invasive plant outreach conference at the University of Massachusetts. This "Share Fair," organized by the Refuge's Invasive Plant Coordinator, marks the first time New England professionals working in invasive plant control were brought together. The goal was to provide participants a forum to share experiences, management practices, and educational materials with each other. People had the opportunity to listen to guest speakers, review brochures, fact sheets and other materials at the fair booths, and network with other professionals. Based on participant responses, the Share Fair was an unqualified success and will likely be repeated in the future.

The Nulhegan Basin Division staff participated in the first annual "Forestry Fair" sponsored by the Essex County Conservation District and hosted by the Vermont Leadership Center. The 2.5-day event included presentations about forestry management and logging history in the local area, tours highlighting deer winter habitat management (previously performed by Champion International) on the Refuge, resource management on the adjacent West Mountain Wildlife Management Area and lands owned by Essex Timber Company, the Ethan Allen manufacturing plant in Beecher Falls, and local craftsman demonstrating woodworking skill.

The Conte Refuge supported a Northeast Kingdom Youth Conservation Corps crew that worked for four weeks on the Nulhegan Basin Division and a week on the Bill Sladyk Wildlife Management Area. Projects completed on the Refuge by the 6-member crew included installation of thermographs in streams to record water temperature, road maintenance, removal of downed trees in roadside ditches, installation of water bars on the Lewis Pond boat access lane, and litter pick-up.

Challenge Cost Share Program

The Conte Refuge supported 11 education challenge cost share partnerships with about \$40,000 (Appendix A). This program is vital to the Refuge because it allows us to fulfill the legislated purposes in the four-state watershed with limited funding and staff. By combining our funds with

partner matches we take advantage of their interest and expertise to educate other citizens about important conservation issues.

Examples of this year's Environmental Education, Challenge Cost Share recipients include:

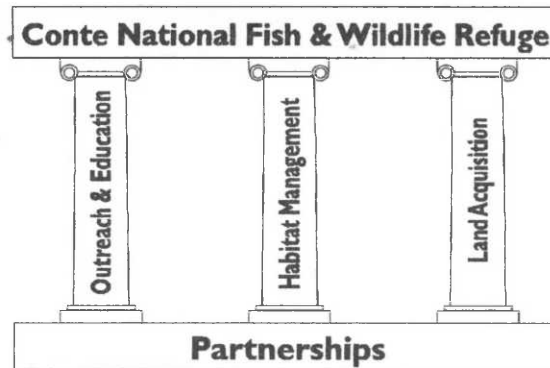
- ▶ Published guides about small-head dam removal, invasive ornamental plants (CT), and riverine habitat conservation (MA).
- ▶ Conservation education programs on invasive plant control (CT), Atlantic salmon restoration (MA, VT), issues and solutions to watershed pollution and habitat degradation (VT, NH), and a radio series designed to increase public awareness about important ecological concepts (MA).

Conte Refuge and the University of Connecticut were awarded a \$1.1 million USDA grant for a novel program to lead a coordinated effort to control invasive plants in New England. A newly formed consortium, the New England Invasive Plant Group (NIPGro), with representation from groups working on invasive plants will oversee this multi-year project. Cynthia Boettner, Refuge Invasive Plant Coordinator, and Dr. Les Merhoff of UCONN will lead the effort. The project goals include a web-based invasive plant atlas to serve as an early warning system for infestations and guide control work, and an extensive outreach program throughout the region.

8) Planning

8a. Comprehensive Conservation Planning

No activity this year



2001 CHALLENGE COST SHARE PROGRAM

The challenge cost share program is a vital tool for the Conte Refuge to fulfill its legislated purposes of protecting biological diversity and important habitats in the Connecticut River watershed. The size of the watershed, funding, and staff limitations restrict our ability to respond to the multitude of conservation concerns. By combining our funds and expertise with those of citizen partners, we can more effectively address important research, management, and environmental education issues. This year 23 projects were funded by the Conte Refuge with grants ranging from \$1,000 to \$5,000, for a total of \$79,862. The grants are described below.

Education Grants 2001

A Guide of Alternatives to Invasive Ornamental Plants

CT Agricultural Expt. Station, Windsor, CT

This publication on plant alternatives, supported by the plant propagation industry is a proactive step toward education of both the public and industry professionals. This project will address the need for increased consumer awareness of invasive species issues in New England and habitat protection from invasive/potentially invasive species.

Watersheds, Stonewall Farm and You

Stonewall Farm, Keene, NH

An outdoor interpretive exhibit with several related messages will be developed on approx. 20 sq. ft. of permanent outdoor exhibit. The exhibit will include text and graphics to explain the concept of a watershed, as well as Stonewall's location in the CT River watershed. The best management practices to protect water quality and aquatic habitats downstream, as well as practical information that visitors can use at home to protect water quality, will be described.

Invasive Plant Control and Outreach at Holcomb Farm

Holcomb Farm Environmental Learning Center, W. Granby, CT

This center will educate high school students, master gardener students, and local landowners about non-native, invasive species identification and removal techniques. They will involve visitors in five invasive species control projects on Holcomb Farm property, which will aid the Holcomb Farm in becoming a model of stewardship for the Granby Community. They will also offer programs about the problem of invasive species and disseminate information both in their Learning Center and the Granby Public Library.

Migratory Fisheries Restoration Initiative:

Building Public Understanding and Involvement

CT River Watershed Council, Inc., Easthampton, MA

The Council will produce a handbook about dam removal, a companion piece to their "A Fishway for Your Stream" guidebook, a powerpoint presentation, and a web page about migratory fish. These products will highlight the importance of restoring habitat and the damaging effects of dams on river ecology.

Rediscovering Western New England: WFCR Radio Series

A Natural Focus, Westhampton, MA

A Natural Focus will produce a 3 - 5 minute radio series for WFCR 88.5 FM that highlights important natural areas, special organisms, and timely natural events in the Connecticut River watershed. The purpose is to rekindle (or awaken) listeners' appreciation of the natural world, familiarize them with basic biological concepts, and inspire them to go outdoors and explore the beauty of New England's natural areas.

**An Informational Brochure to Property Owners Along the Wild and Scenic Reaches of the Westfield River
Westfield River Wild/Scenic Advisory Committee, Williamsburg, MA**

The Westfield River Wild and Scenic Advisory Committee will develop an informational brochure and distribute it to each landowner along the federally-designated Wild and Scenic stretches of the Westfield River. The brochure will provide information in river stewardship, land protection strategies and organizations, and explain the federal Wild and Scenic designation and its benefits.

Watershed Stewardship Education Program

Southern Vermont Natural History Museum, Jacksonville, VT

The Adopt-A-Salmon Family Program & Curriculum will introduce watershed stewardship and salmon restoration to two schools in Vermont. The goal is to instill a long-term sense of stewardship to the area's youth. The program will serve as a pilot project to assess its viability in small, rural schools. The museum will use a highly successful model currently used by the Connecticut River Salmon Association, and will work with their guidance.

**Facilitated Teacher Training to Support the Ongoing Atlantic Salmon Egg Rearing Program
(ASERP)**

Trout Unlimited, Greenfield, MA

An all-day workshop for teachers (grade 5-6) will provide training necessary to raise salmon eggs in the classroom. Teachers will share classroom experiences with other teachers. Educational materials will be provided.

Habitats and Watersheds - Landowner Awareness Project

Vermont Association of Conservation Districts, Poultney, VT

An outreach campaign targeting landowners in the Essex, Caledonia, Ottauquechee, White River and Windham County Natural Resource Conservation Districts is planned to raise awareness about the impact of land management on watershed pollution and habitat degradation. The campaign will include the use of a video, information kit, website, fact sheets, presentations, interviews, tours and media events.

An Outdoor Classroom: The Native Butterfly Habitat

Roaring Brook Nature Center, Canton, CT

The Center plans to expand an Outdoor Classroom Butterfly Habitat to include native plantings for adults and caterpillars, a screened caterpillar house, walking trails, interpretive signs and educational brochures. In addition, they will incorporate the Butterfly Habitat into their year-round schedule of educational programs for all ages.

Annual Connecticut River Eagle Festival (CREF)

The Connecticut Audubon Society, Inc., Hartford, CT

The Annual Connecticut River Eagle Festival, to be held February 17 - 18, remains the only major event of its kind in the Northeast, and drew more than 5,000 participants in February of 2000. Presented by the Connecticut Audubon Society, the event emphasizes education about the wintering population of bald eagles in the lower CT River.

Research / Management Grants 2001

The Sand Dune Communities of the Connecticut River valley

University of Connecticut, Storrs, CT

Open sand communities, because they lack appreciable plant cover and are largely devoid of birds and other popular taxa, have been woefully neglected in conservation planning in the Northeast. Sand blowouts, plains, dunes, and other open sand communities are home to more than 200 species of invertebrates in the Northeast, many of which (e.g., the Dune Ghost Tiger beetle, *Cicindela lepida*) sit at the brink of extinction in the region. This research will help fill a data gap for these communities, providing information on the geological history, geographic distribution and unique biota.

Landscape Analysis and Ecological Inventory of the Bunnell Tract

TNC New Hampshire, Concord, NH

The Nature Conservancy of NH will conduct a landscape analysis and baseline ecological inventory of the 18,680 acre Bunnell Tract in the upper CT River watershed. This tract features 13 peaks above 3,000 feet and 28 miles of stream frontage. TNC purchased the property in June 2000, marking the largest private land conservation acquisition in New Hampshire history. TNC is launching an initiative to identify and document the status of rare species, exemplary natural communities, and other significant natural features within this remarkable landscape and develop adaptive management conservation plans.

Conservation and Management of Endangered Loons in N. E. Vermont

Vermont Institute of Natural Science, Craftsbury, VT

The common loon, a sensitive indicator of water quality and ecological integrity, is threatened by a variety of human impacts, including shoreline habitat loss, nest site disturbance, and heavy metal poisoning. VINS will maintain its efforts to protect this endangered bird and its habitat in north eastern VT during 2001. The VINS loon biologist and volunteers will continue the critical monitoring of breeding loons and loon activity, protect and enhance loon nesting sites, conduct an educational outreach campaign, and conduct other management and research projects.

Landscape-scale Analysis of Population Viability in Marbled Salamanders

University of Massachusetts, Amherst MA

This research will begin to address the issue of population viability in vernal pool breeding amphibians, focusing on the Massachusetts threatened marbled salamander. More specifically, at what scale, e.g., single ponds, multiple ponds, do we need to direct conservation efforts to ensure the long-term persistence of these animals? A long-term, landscape-scale field study will address this and related questions. Close monitoring of amphibian populations in a mosaic of vernal pools over several years will document local demographics and frequency of dispersal among ponds.

Eugene M. Zuckert Conservation Project

Student Conservation Association (SCA) Charlestown, NH

SCA, in partnership with the Upper Valley Land Trust, will develop and implement strategic programming to foster cooperative stewardship education and management efforts in the Upper Valley of the CT watershed. First efforts of the committee will be to conduct a natural heritage inventory of Hubbard and Wolcott Islands in the CT River, document and communicate significant findings to the NH Natural Heritage Inventory, and draft a management plan for the islands that will protect biological diversity and identify appropriate uses of the islands for SCA's stewardship education programming.

Production of Biological Control Agents for an Invasive species

Univ. of Connecticut, Storrs, CT

A research and management project will rear and release biological control agents for purple loosestrife, and invasive non-native plant. Leaf-feeding beetles will be reared locally at the University of Connecticut and introduced into purple loosestrife infestations in wetlands that include Special Focus Areas of the CT

River Watershed. The biological control agents will be included in starter kits for volunteer citizens, schools and other groups to initiate new release and monitoring sites for wetland habitat enhancement. They will also be used for supplemental releases at established sites.

Inventory and Control of *Microstegium vimineum* (Japanese Stiltgrass)

New England Wild Flower Society, Framingham, MA

This project will survey and control the invasive Japanese Stiltgrass in a three-town area in south central Massachusetts, primarily Mittineague Park in W. Springfield, MA. Volunteers will be organized to hand-pull this species from within the park. Volunteers will also survey likely areas of infestation in the three-town area. Public outreach will raise the level of public involvement and awareness of this species in the local area.

Wetland Identification, Functional Assessment and Digital Mapping

Woodstock Conservation Commission, Woodstock, VT

Woodstock's tightly convoluted landscape results in multiple small wetlands, which due to their size and nature are not correctly identified in current NWI maps. Wetlands not accurately identified on these maps are left unprotected and vulnerable to the growing pressure for development. The Woodstock Conservation Commission wants to enhance both understanding and protection of our wetlands which are unique to mountainous regions identifying and mapping vernal pools and by conducting a natural community analysis of the area.

Bear Swamp: Documentation and Long Term Protection of Rare Plants and Natural Community Types

The Trustees of Reservations, Windsor, MA

The 284 -acre Bear Swamp in Ashfield, MA supports a diversity of community types and rare species important to the CT River watershed including at least 2 state-listed species of special concern and 5 state watch-listed species. This grant will fund a professional botanist to conduct a floristic inventory and analysis of the area. Special emphasis will be given to mapping rare species, natural community types, and exotic invasive species that threaten the ecological integrity of Bear Swamp.

Ascutney Resort Bank & Buffer Project

Mill Brook Watershed Association, Ascutney, VT

The Mill Brook Watershed Association will work with Ascutney Mountain Resort and other partners to complete a bank stabilization project in W. Windsor on the property of Ascutney Mtn. Resort. This project will be a demonstration project revegetating a buffer area at the top of the bank. The partnership with the resort will make this a unique opportunity for outreach and education to the community.

Management of Purple Loosestrife at a Toothcup Site

New England Wild Flower Society, Framingham, MA

This project will control the invasive exotic plant purple loosestrife at a site of the regionally rare and state endangered plant, toothcup. Volunteers will remove purple loosestrife by hand and plants will be monitored over a three-year period. In addition, a management plan to maintain the toothcup at this site and control the loosestrife will be produced at the end of this project year.

Controlling and Studying Invasive Exotic Plants in an Exemplary Floodplain Forest

Arcadia Wildlife Sanctuary, Easthampton, MA

Massachusetts Audubon Society's Arcadia Wildlife Sanctuary will remove invasive oriental bittersweet from a rare floodplain forest adjacent to the Mill River. The project will benefit from the involvement of a Smith College biology intern and ten local high school volunteers who will receive education on native and non-native plants, followed by experience with hand-pulling bittersweet. General visitors to the highly-visible site will learn about this work through handouts and laminated signs at the site.