

# Annual Report 2009



## MASSACHUSETTS DIVISION OF FISHERIES & WILDLIFE

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## About The Cover:

A Northern Copperhead, *Agkistrodon contortrix*, is one of only two venomous snake species found in the Commonwealth. Many harmless snakes are mistaken for this rare species, but it has a very restricted range and can be easily distinguished from our 12 non-venomous, native species by its cat-like, vertical pupils. Like some of our other snakes, local populations of this species are closely tied to den sites — usually located on the southern sides of rocky mountain slopes and hillsides — where entire local populations must gather annually to spend the winter. Unlike the Timber Rattlesnake, the Northern Copperhead was never widespread in the Commonwealth.

All photos by Bill Byrne unless otherwise credited.



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# THE BOARD REPORTS

George Darey  
*Chairman*

The Massachusetts Fisheries and Wildlife Board is a group of seven persons, each selected for a demonstrated interest in wildlife. By law, the persons appointed to the Board are volunteers, receiving no remuneration or expenses for their service to the Commonwealth. Five of the seven are selected on a regional basis, with one member, by statute, representing agricultural interests. The two remaining seats are held by a professional wildlife biologist or manager, and a representative with a specific interest in the management and restoration of those wildlife populations not classified as game species. Each member is appointed by the Governor to a 5-year term. The Board oversees operations of the Division of Fisheries and Wildlife (DFW), reviews the agency's programs, and sets policy and regulations pertinent to wildlife in the Commonwealth.

The Board is very concerned about the operating budget proposed for the agency for the next fiscal year. As we complete this report, the current budget sent to the Governor is 18% less than was available this year, representing a cut of \$1.7 million. At this level, the DFW will be able to operate at a base level. Any further reductions in funding may require the Division to reduce staff. The Board will closely watch further developments during this period of economic recession.

The Board has continued its tradition this year of holding monthly meetings at locations around the state, holding public hearings on proposed regulatory changes, and addressing many issues of specific concern. While many different matters and issues were brought before the Board this year, most of its time was spent in scrutiny and review of agency programs and proposals for regulatory changes. Among the items examined were:

## Lead Sinker Review

Assistant Director of Fisheries Dr. Mark Tisa provided the Board with a presentation on "Loons and Lead." He noted that Tufts scientists have necropsied 483 Common Loons from freshwaters in New England since 1987, and found that lead ingestion was the major cause of adult loon mortality. Sinkers and jigs account for 79% of lead objects found in dead loons. Two of these cases occurred at Quabbin Reservoir, where current regulations prohibit the use of lead sinkers, but not lead jigs. This current regulation also applies to Wachusett Reservoir, but not to any other bodies of water, including the 12 other bodies of water in the Commonwealth that support breeding loons. Staff proposed new regulations that would prohibit the use of lead sinkers and jigs less than 1 ounce in weight in all inland waters. If passed,

the regulations would go into effect in 2012. A public hearing was scheduled for June, and the Board will vote on adopting the new regulations following consideration of comments received as a result of that hearing.

## Muzzleloader Regulations

The Board heard a presentation from Wildlife Biologist Jim Cardoza on the current muzzleloader regulations. The current muzzleloader season began in 1973 with regulations restricting arms choices to genuinely primitive firearms or their reproductions. By the end of that decade the Board was receiving many requests to liberalize the regulations to include modern muzzle loading firearms, and, in 1981, revised statutory regulations allowed the Board to approve rifled barrel flintlocks (1983), and later caplocks (1989), for use during the season. The regulations regarding what firearms and accessories would be allowed were further liberalized in 2001, when the Board voted to allow scopes, sabot rounds, and in-line and closed ignition systems. The break-action breech was not addressed at that time and is currently prohibited, although this design is being



manufactured in large numbers and is legal in most states (as well as during the Massachusetts shotgun deer hunting season). After considerable discussion, the Board voted to table this issue and revisit it again at a later date.

### **DFW Forest Management Outreach**

The Board heard a report from Forest Project Leader John Scanlon. Some public concern has been expressed over forest cutting practices on public lands in Massachusetts (particularly DCR properties, but also some DFW-owned lands), over the past few years, to the point where some are now advocating for a complete closure of all state lands to timber harvesting and cutting. Partial information and photos of some of the DFW's habitat management and harvesting operations projects have been posted on a private website that equate such work to environmental degradation and claim it is harmful to wildlife. In response to the general lack of accurate information, Mr. Scanlon initiated a public outreach effort and scheduled and conducted a series of site visits to the areas targeted for criticism. Detailed information and press releases were sent out to members of the public and the media, and arrangements were made with biologists, foresters, and an ecologist to be on site to meet with the public and answer any questions. Mr. Scanlon felt that this approach was successful, and the Board concurs. We hope this outreach will continue, as it is imperative that the public understand that the DFW's forestry work is not only sustainable, science-based, and environmentally sound, but is monitored and well documented, and has clearly increased biodiversity significantly wherever it has been initiated.

### **Deer Review**

The Board heard presentations from Assistant Director of Wildlife Tom O'Shea and Deer Project leader Sonja Christensen concerning the state of the Massachusetts deer herd. The Board was provided with an excellent summary of the herd's current status, management highlights, deer density goals, and the final harvest numbers for the 2008 seasons. It was also reported that 2,610 samples of neural tissue from individual deer have been taken by DFW biologists in recent years for Chronic Wasting Disease (CWD) testing, and no evidence of CWD has been found. The Board was presented with the staff's recommended antlerless permit allocations for 2009, and following some discussion, the Board voted unanimously to accept those recommendations.

Ms. Christensen provided the Board with a review of current deer archery regulations and addressed the issue of changing the season regulations from opening "on the third Monday prior to the first Monday in November and ending the sixth Saturday thereafter." The Board and staff have received numerous complaints about this scheduling because in certain years the season ends before Thanksgiving week, and many hunters want to hunt that week because the holiday provides additional hunting opportunities for most working people. Staff proposed changing the wording of the regulation to

"end on the Saturday after Thanksgiving and begin on the Monday 6 weeks prior." Staff also recommended, based on requests from constituents and no significant biological concerns, that Wildlife Management Zone 12 be opened for the same 2-week shotgun season as the rest of the state.

The Board voted unanimously to hold a public hearing in May on the proposed changes to the deer hunting regulations. Following review of comments received, the Board voted unanimously to make the Zone 12 (Cape Cod) shotgun season 2 weeks in length consistent with the rest of the state. Following that vote, there was much discussion among Board members and staff concerning the proposed change to the deer archery regulations. Following this discussion, the Board voted to approve the regulation that ends the archery deer season on the Saturday following Thanksgiving.

### **Waterfowl Regulations**

The Board heard the annual presentation from Waterfowl Project Leader H Heusmann on the status of waterfowl, federal hunting frameworks, and staff proposed season dates, bag and possession limits for the 2008-2009 waterfowl seasons. Following a public hearing in Newburyport on these proposals, the Board voted unanimously to accept them.

### **Wild Turkey Review**

The Board heard a presentation from Wildlife Biologist Jim Cardoza on a proposal to increase the length of the turkey season in Wildlife Management Zones 11 and 12 by 2 weeks, to create a 4-week season, a change that would make the regulations for these zones, in place since 1994, consistent with regulations in the remainder of the state. The Board voted unanimously to hold a public hearing on this proposal in July of the coming fiscal year.

### **Abstract Advertising Policy**

Board member Dr. Joseph Larson reported on the efforts of the Board's working committee to draft policy guidelines for advertising in the DFW's Abstracts publication of the fish and wildlife laws and regulations. This committee was appointed last year after staff reported that there were no legal obstacles to selling advertising in the Abstracts, but that the Board would have to frame a policy that would govern what is put out in the Request for Proposals (RFP) when a vendor must be selected through a competitive bidding process. The committee presented the Board with a policy on advertising in DFW publications, and following some review and discussion, the Board voted unanimously to adopt the policy as presented. It is hoped that this will expedite production of new Abstracts this coming year, resulting in a considerable reduction in printing costs while providing a more attractive and user-friendly publication.

## Vernal Pool Certification Guidelines

The Board viewed a presentation by DFW Regulatory Review Manager Jon Regosin on a proposed revision of the *Guidelines for the Certification of Vernal Pool Habitat*. After providing background information and reviewing current criteria, he noted that existing criteria using the dry pool method has resulted in some erroneous certifications, and he proposed eliminating the dry pool method. He stated that biological criteria should be revised to ensure that certifications meet the regulatory definition of “vernal pool habitat.” According to regulations, such a habitat must be in a confined basin depression; hold water for 2 consecutive months in most years; and provide essential breeding habitat for amphibians. The Board initially voted to endorse the proposal for revisions, but withheld a decision on dropping the dry pool method until more information could be provided. Following an additional presentation and answers to several detailed scientific questions provided by Assistant Director of the Natural Heritage and Endangered Species Program (NHESP) Dr. Tom French and other NHESP staff, the Board voted unanimously to change the guidelines as they relate to the dry pool method.

## Youth Turkey Hunt Program

Last year the Board heard a presentation by Assistant Director of Fisheries Dr. Mark Tisa on a proposal to create a Massachusetts Young Adult Turkey Hunting Program. A human dimensions study conducted for the DFW by Lyndon State College in Vermont in 2004 clearly indicated that young hunters and their parents are looking for a complete program, not just a day in the field. It was based on these findings that the Board established the Young Adult Pheasant Hunt Program in 2005 (a program in which more than 300 young hunters have already participated). Dr. Tisa proposed a similar three-part comprehensive program for turkey, offered by the DFW in conjunction with participating clubs and the National Wild Turkey Federation, that would require setting aside a special Youth Hunt day.



*Successful Youth Turkey Hunt participants.*

The Board unanimously voted to endorse such a program and move forward with a public hearing, which was held in August of this fiscal year. After considering public comments, the Board voted unanimously to adopt the regulations with the expectation that this program will encourage the introduction of more youth to this and other traditional outdoor sports.

The Board was very pleased to get an update on the success of the Youth Hunt program in May. Ten clubs throughout the state participated in this initial year of the program. Nearly 100 youngsters signed up, and collectively harvested approximately 50 wild turkeys.

## Notice of Environmental Restriction

The Board heard a presentation from Rich Lehan, the Department's General Council, on the EPA's request that the DFW execute a Notice of Environmental Restriction on property owned by the agency within the 1.5-mile reach of the Housatonic River in Pittsfield. This action is related to General Electric's remediation of PCB contamination in the river. The company has already conducted restoration activities on the property, and a Board-appointed working committee is monitoring the situation and keeping the Board apprised of developments. The concern with signing the Notice was that an agreement to allow certain remediation/restoration measures on the 1.5-mile stretch of the river would be construed as permission to use the same measures on property the agency owns further downriver. Following further communication with the EPA and a written agreement that such an assumption will not be made, the Board voted unanimously to authorize the Director to execute the Notice.

## Francis Sargent Award

The Board was very pleased to present the 2008 Governor Francis W. Sargent Conservation Award to Mike Yacino, former Executive Director of the Gun Owner's Action League (GOAL), in July. He is the seventh recipient of this prestigious award, presented annually by the Fisheries and Wildlife Board to honor an individual or organization for their contribution to the conservation of natural resources in the Commonwealth. Although Mr. Yacino was chosen for this award during the last fiscal year, due to scheduling problems it could not be presented until this year.

The Board also voted unanimously to present the 2009 Francis W. Sargent Conservation Award to Dr. Gwilym Jones, former chair of the Natural Heritage and Endangered Species Advisory Committee and a former member of the Fisheries and Wildlife Board. The presentation ceremony was scheduled for early in the next fiscal year.

## Presentations

The Board heard a large number of informative presentations from staff and members of the public this year that are not listed under the previous headings. One of the most alarming was a presentation by Assistant Director



*Mike D. Yacino (left), receives the Francis W. Sargent award from Board Chairman George Darey.*

of the NHESP Dr. Tom French on White Nose Bat Syndrome. This mysterious fungal disease, or combination of health factors that allow the fungus to infect bats, has resulted in a sudden and unexpected decline of many bat species. This is disturbing not only from the perspective of the intrinsic value of bats as native members of our biodiversity, but also because bats consume tons of insects each year and fill a crucial ecological role. The DFW has placed a high priority on monitoring winter bat colonies in Massachusetts and is working collaboratively with other northeastern states, the USFWS, and researchers at Boston University to address this very significant threat to our bat populations.

The Board was very pleased to hear a detailed update from Rick Kennedy, Department Systems Analyst, on the Department's automated licensing project. While electronic (Internet-based) licensing is already available through the DFW, the technology is aging, costly to upgrade, and expensive to maintain. The goal is to fully expand, maintain, and support a statewide system (in conjunction with the Division of Marine Fisheries and the Department) to attain 100% automation, eliminate paper licenses and the costs associated with their processing and distribution, continue to provide the public with multiple buying options (Internet, town clerks, retail outlets, etc.), streamline revenue collection, and integrate permit issuance and reporting (deer, bear, turkey). The Board is very much in favor of these developments, and hopes that the Department can achieve its goal of full deployment by March 2010.

Another presentation was given by Ms. Eleanor Tillinghast, of Mount Washington, who provided an overview of the nomination of the upper Housatonic River as an Area of Critical Environmental Concern (ACEC). The area nominated includes a 13-mile stretch of the river extending from the confluence of the East and West branches in south Pittsfield southward to north Lee. It covers approximately 12,280 acres and is comprised of a number of rich wetland and upland habitats. She expressed her thanks to DFW staff, the Commissioner of the DFG, the Massachusetts Audubon Society, and other organizations and individuals who have made the ACEC designation attempt possible. The Board is in complete support of the delineation of the ACEC as proposed.

One of the most informative and pertinent staff presentations the Board heard this year was given by Deputy Director of Administration Jack Buckley and State Wildlife Action Plan Coordinator John O'Leary. The Board is very proud that the agency has taken the initiative to become a leader and one of the most active state fish and wildlife agencies in the country in addressing climate change issues as they relate to wildlife management. The agency has included climate change in its State Wildlife Action Plan, cosponsored a conference on the subject at Bentley College, and is part of a group called "The Climate Change in Wildlife Alliance in Massachusetts." The DFW is now working on a collaborative project with the Manomet Center for Conservation Sciences and The Nature Conservancy to conduct "Vulnerability Assessments" of important habitat types under climate change conditions. Results of the assessments will be used to develop "Adaptation Strategies" designed to retain as much of our native biodiversity as possible in the face of climate change. Some of the findings and recommendations will undoubtedly help guide the DFW's land acquisition strategies. The Board is in full support of this initiative and anxiously awaits developments in this rapidly emerging field of research and knowledge.

The Board also heard an excellent presentation by staff on the very complicated matter of the DFW's Habitat Management Database, which compiles information on all agency programs that engage in active habitat management for wildlife purposes. These include the agency's Landowner Incentive Program, Upland Program, Ecological Restoration Program, Woodcock Initiative, and Forestry Program. The Board was pleased to hear that coordination between these diverse programs has been improved, that the database is now accessible to managers and administrators, and that future plans call for expanding the database to include habitat management information provided by the DFW's many partners.

Another presentation, given by Southeast District Supervisor Jason Zimmer, detailed the habitat restoration projects underway at the Frances Crane WMA in Falmouth. At least one member of the Board had received complaints about the one of the projects

when it was initiated, but received nothing but calls praising the work as it neared completion. The Board was pleased to hear reports from most of the agency's District Managers throughout the year, which the Board greatly appreciates because it keeps the body apprised of regional issues and successes.

The Board was also pleased to hear a presentation from Massachusetts Water Resource Authority Executive Director Fred Laskey and his staff on the water systems and water supply serving the greater Boston area and other select communities. The Board is pleased that the water supply lands are protected from development and serve as important wildlife habitats, and is hopeful that the MWRA will allow a direct link to surplus Quabbin water to supply the DFW's McLaughlin Trout Hatchery in Belchertown. The Board is also hopeful that the MWRA will dismantle and/or breach the dam on the Quinnepoet River to allow landlocked salmon access to the river's breeding habitat, and that it will provide additional water releases from Wachusett Reservoir into the Nashua River.

Among the more interesting and informative presentations heard by the Board this year was one by Gildo Torre and Tom Duffy of Ducks Unlimited (DU), who provided a program that outlined DU's Atlantic Canada projects, waterfowl trends, and accomplishments. The DFW contributes the major portion of the proceeds from sales of the Massachusetts State Waterfowl Stamp to DU for its waterfowl programs. The Board was reassured to hear that DU will continue to match Massachusetts contributions, dollar for dollar, and see that the combined monies are matched with funds from the North American Wetlands Conservation Act and our Canadian partners.

The Board also heard a very informative presentation from Sarah Haggerty, Information Manager of the NHESP, on MESA Priority Mapping. She provided the Board with a detailed overview of how the "Natural Heritage Atlas" of MESA-listed species is produced and the criteria that must be met before rare species observation data are accepted for mapping. She also supplied information on biological research, delineation of species, aerial photos, and why the maps tend to change each time a new "Atlas" is issued.

### **Miscellaneous**

A Board-appointed working committee and the Director met with the Ludlow Water and Sewer Commission and two Ludlow selectmen to address concerns regarding public recreational access to the Ludlow Reservoir where the Department now holds a Conservation Easement. The Commission would like environmental police officers assigned to the reservoir. They were advised that the DFW is not responsible for enforcement, and that the Commission would have to contact the Office of Law Enforcement and the Secretary's office to address that issue. The agency is committed to making our partnership work, however, and will do what it can to facilitate public recreational access and address the Commission's concerns.

Another Board working committee investigated and addressed the concerns of Mr. Edward Gray, one of the agency's contractual suppliers of pheasants, who was uneasy with current procedures that he believed had the potential to introduce disease to his game farm operation.

### **Massachusetts Fisheries and Wildlife Board**

George L. Darey, Lenox, *Chairman*

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Michael P. Roche, Orange, *Secretary*

Brandi Van Roo, Douglas

Ernest W. Foster, Jr., Worcester

Joseph S. Larson, Pelham

Frederic Winthrop, Ipswich



# FISHERIES

Mark S. Tisa, Ph.D.  
*Assistant Director, Fisheries*

## Introduction

Fishing, hunting, and wildlife related recreation are important recreational activities for both residents and nonresidents of Massachusetts. According to the U.S. Fish and Wildlife's (USFWS) *2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, more than 292,000 Massachusetts residents age 16 and older went freshwater fishing. Additionally, more than 99,000 nonresidents fished the state's lakes, ponds, rivers, and streams in 2006. Freshwater anglers alone contributed more than \$270 million in retail sales to the Massachusetts economy. Further, there are over 3,500 jobs in the Commonwealth that are directly attributable to freshwater angling, with salaries, wages, and business earnings amounting to more than \$140 million annually. This generates more than \$32 million and \$38 million in state and federal tax revenues, respectively. In all, the total economic multiplier effect for freshwater angling in Massachusetts is approximately a half billion dollars annually (USFWS *2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*).

The Commonwealth's aquatic resource inventory includes a variety of both stream/river and pond/lake fisheries habitats. These habitats include both coldwater and warmwater resources. There are approximately 2,675 lakes and ponds, totaling about 142,681 surface acres. Ponded waters are mostly less than 500 acres in size. The two largest bodies of water, both man-made drinking water supplies, are the Quabbin (25,000 acres) and Wachusett (5,000 acres) reservoirs.

The largest river in Massachusetts is the Connecticut River, with 72 miles (7,284 acres) transecting the Commonwealth. The 2,027 named streams flow about 10,704 miles and comprise approximately 14,900 acres. The protection, management, and enhancement of these inland fisheries resources and their associated habitats involve several ongoing fisheries projects.

## Anadromous Fish Investigations

### Overview

In FY 09, the Division of Fisheries & Wildlife (DFW) hired three 6-month seasonal workers to stock Atlantic salmon fry, conduct Atlantic salmon smolt production assessment work in Connecticut River tributaries, and staff the West Springfield fishway on the Westfield River. An additional three 3-month seasonal workers were hired to staff the Essex fishway on the Merrimack River. Holyoke Gas and Electric, as directed by the

conditions of their Federal Energy Regulatory Commission (FERC) hydroelectric license, hired seasonal employees to staff the Holyoke fish way, and Firstlight Power and U.S. Geological Survey (USGS) employees from the S.O. Conte Anadromous Fish Research Center (the Conte Lab) monitored fish passage at the Turners Falls fishways. The DFW supervised these activities. A total of 1,544,951 unfed Atlantic salmon fry from the Roger Reed State Fish Hatchery and the White River National Fish Hatchery were scatter-planted into tributaries of the Connecticut River in Massachusetts in spring 2009.

Because 2009 fish passage operations are ongoing at this time, this report will summarize 2008 fish passage activities. No major malfunctions were experienced at any of the fishways on the Connecticut or Merrimack rivers during 2008. During FY 09, Dr. Caleb Slater, Anadromous Fish Project Leader, was actively involved in the relicensing of the Woronoco Hydroelectric Project on the Westfield River in Russell and the relicensing of the Glendale Hydroelectric and Willow Mill Hydroelectric Projects on the Housatonic River; in the continuing consultation with Holyoke Gas and Electric as it prepares to install downstream fish passage protection at the Holyoke Hydroelectric Project; with applications for FERC exemptions at the Westfield Paper Dam in Russell, the Ice House Dam in Ayer, and the Alternatives project on the Mumford River in Northbridge; and with an application for exemption amendment at Riverdale Mills on the Blackstone River. The Project Leader also worked with the Executive Office of Energy and Environmental Affairs (EEA) and the Department of Energy Resources (DOER) to formulate regulations that provide hydroelectric projects the opportunity to qualify for "green energy" credits.

### Connecticut River

The Project Leader actively participated in the Connecticut River Atlantic Salmon Commission (CRASC), and continued as chair of the CRASC Technical Committee and the CRASC Shad Studies Group. The Project Leader also participated in the Connecticut River/Long Island Sound Eco-team (CTR/LIS ET) and as a member of the CTR/LIS ET fish passage sub-committee. He oversaw the ongoing Atlantic salmon egg rearing program (ASERP), which continued in 30 schools in the Connecticut River watershed. He also responded to many telephone, electronic, and written requests for information.

## Holyoke

The City of Holyoke, (Holyoke Gas and Electric Co. aka HG&E) bought the Holyoke Hydroelectric project from Northeast Utilities in 2002. The project leader has been involved in ongoing negotiations with the new owner to settle the outstanding issues and finalize the FERC license for the project. Holyoke Gas and Electric Co., as directed by the conditions of their new FERC hydroelectric license, hired seasonal employees for the Holyoke fishway in spring 2008. The Project Leader supervised their activities. The Holyoke fishway was rebuilt between the 2004 and 2005 fish passage seasons. Improvements included:

- New tailrace lift tower, bucket, and hoist
- New spillway lift tower, bucket, and hoist
- Redesigned spillway entrance gallery and crowder
- Wider exit flume
- New salmon traps
- New shad trap and truck facility
- New counting room and second counting window

The new fish lift was operated for upriver fish passage from April 28 through July 11; September 15 through 19; and September 28 through November 15, 2008, except during periods of high water. Seven species of anadromous fish were identified and enumerated during the spring/summer fish passage season. The number of Atlantic salmon trapped at the fish lift decreased from 101 in 2007 to 80 in 2008. Ten Atlantic salmon were radio-tagged and released at Holyoke as per agreement with HG&E.

The total number of shad lifted in 2008 (153,149) was 21% of the record high passage of 1992.

A total of 432 American shad were sampled for biological data on 27 days from May 8 through June 12. Fork length, weight, sex, and scale samples were collected from all individuals. The weighted percentage of the run sampled (the total number of fish passed on days of sampling expressed as a percentage of the entire run) was 89%. The weighted sex ratio of American shad lifted at the Holyoke facility in 2008 was 60% males and 40% females.

Fish lift personnel trapped a total of 2,712 shad for restoration efforts; 1,112 were transferred to the Vernon pool on the CT River, and the balance were transferred out of basin.

Total blueback herring passage in 2008 was 84, sea lamprey passage was 57,049, gizzard shad passage was 1,270, and Atlantic salmon passage was 80.

## Turners Falls

The Project Leader reviewed a new Gatehouse fishway entrance that was installed in 2008, and has been involved in negotiations with the project owner that will lead to replacement of the Cabot fish ladder with a fish lift similar to the one at Holyoke.

The Spillway, Cabot, and Gatehouse facilities were operated during the anadromous fish passage season in 2008 (May 14 – July 3). Due to staff limitations, passage was recorded on videotape, to be reviewed later by representatives of the Conte Lab and/or Firstlight Power. All ladders were monitored from 6:00 A.M. until the loss of daylight made video-monitoring impossible at around 8:00 P.M. All fish ladders remained open for passage 24 hours each day.

Ten adult Atlantic salmon were allowed to pass through the Holyoke fish passage facility. All of these fish were subsequently observed passing the fish ladders at Turners Falls.

The number of shad passing the Gatehouse fish ladder in 2008 was 3,995; the number passing the Spillway fish ladder was 627; and 15,809 shad passed the Cabot fish ladder in 2008.

Of the shad lifted at Holyoke (153,149), only 2.6% passed the Gatehouse observation window. This is well below the restoration goal of 50%.

## Westfield River

The West Springfield fishway was operated for upriver passage from April 17–July 13, 2008. Five species of anadromous fish and six species of resident fish were identified and counted during the spring/summer fish passage season.

An eelway, for upstream passage of juvenile American eel (elver), was constructed in the lower section of the fishway in August 2001. In FY 09, the eelway was operated from June through September.

During the spring/summer season, biologists trapped 30 Atlantic salmon. All of the salmon were transported to the Richard Cronin National Salmon Station, Sunderland, Massachusetts, by personnel of the USFWS.

A total of 3,212 American shad; 1,220 sea lamprey; and 208 American eel were passed upstream in spring/summer 2008. There were no striped bass, blueback herring, or gizzard shad.

## Atlantic Salmon Fry Stocking, Survival, and Habitat Assessment

Between April 8 and May 2, 2009, 1,544,951 unfed Atlantic salmon fry from the Roger Reed State Fish Hatchery and the White River National Fish Hatchery were scatter-planted from shore into the Deerfield River Basin (16 tributaries), the Westfield River (3 main branches and 23 tributaries), the Fall River (the mainstem and one tributary), Four Mile Brook, the Manhan River (one branch and one tributary), Mill Brook (Northfield), the Mill River in Williamsburg (two branches and two tributaries), and the Sawmill River.

The Westfield Watershed Association (a private group) organized 2 fry stocking days and released 113,000 fry. Index sites on streams stocked in 2007 were sampled by electro-fishing to evaluate Atlantic salmon fry growth and survival. Sixty-two sites on 42 streams were sampled.

A single-pass technique using a battery-powered, backpack shocker was employed on all streams sampled. All fish seen were captured. Fish were held in live cars after capture, identified to species, and measured for total length. Upon completion of the subsequent “work up,” all fish were released back to the index site. Index sites were selected to be proportionately representative of the habitat types in each stream. To prevent over or under estimation due to disproportionate stocking, index sites were selected, whenever possible, near the middle of a stocking section. Population estimates for each age class were obtained by expanding the number of salmon captured by the historical sample efficiency at each site. Survival was calculated by dividing the population estimate for that year class by the number of units surveyed multiplied by the stocking density of that year class. An estimate of spring 2009 smolt production was generated by multiplying the population estimate of 2+ salmon by the estimated over-winter survival (.65).

A survey of the total amount of Atlantic salmon habitat in the tributary waters of the Connecticut River in Massachusetts is now largely complete. An estimated 49,281 units (one unit equals 100 square meters of river area) of Atlantic salmon habitat have been assessed through this effort.

#### **Merrimack River**

In 2008, the Project Leader actively participated in Merrimack River Policy and Technical Committee meetings as well as several working group meetings. The two mainstem fish lifts on the Merrimack River in Massachusetts were operated and monitored for anadromous fish passage during spring/summer 2008.

#### **Essex Dam**

During spring 2008, the Essex fish lift was operated for 64 days between May 13 and July 15. For the fall season, the fishway was operated from September 15 through November 1. Anadromous fish were identified and counted at the counting station. Atlantic salmon were trapped and transported to the USFWS Nashua National Fish Hatchery in New Hampshire (Nashua), to serve as broodstock.

One hundred twenty-three adult Atlantic salmon were captured at the Essex fish lift during spring 2008. One salmon was captured in the fall. Captured salmon were transported to Nashua to be spawned.

The total number of American shad lifted over the Essex Dam in 2008 (24,936) was 33% of the record high passage of 2001. Shad passage in 2008 was 103% of the previous 5-year mean and 62% of the previous 10-year mean. Six hundred sixty-nine shad were trapped and taken to Nashua for spawning, where 583,642 fry were produced and stocked into the Charles River. An additional 638 shad were trapped and taken to a shad hatchery in Maine. Biological information was collected from 227 shad.

From 1996 through 2000, the number of river herring passing through the Essex fishway increased steadily from 51 to 23,585. In 2001, however, herring passage declined to only 1,550 fish. This decline continued in 2002, with only 526 herring seen. Herring rebounded in 2003 (10,866) and 2004 (14,945). Passage in 2005 was 98; in 2006 it was 1,105; in 2007 it was 1,169; and in 2008, passage was 108. Total number of sea lamprey, striped bass, and gizzard shad passing through the Lawrence fish lift were 4,873; 42; and 12, respectively.

#### **Pawtucket Dam**

Operation of the Pawtucket Dam fish elevator began on May 17, a week after shad began to move through the Lawrence fishway some 12 miles downstream, and concluded on July 27. The system was operated 7 days per week, generally from 7:00 A.M. to 6:00 P.M. Frequency of lifts varied between every ½ hr. to every 2 hours, based on the density of fish in the hopper bucket. Estimates of fish passage were made by CHI Energy employees, who observed the hopper bucket during each lift.

The estimated total number of American shad passed through the Lowell facility in 2008 was 4,152. No sea-run Atlantic salmon were seen at the Lowell fish lift because all sea-run Atlantic salmon that enter the Lawrence fish lift, which is downstream of this facility, are captured and removed to serve as broodstock. However, a large number of domestic broodstock from the sport fishery in the mainstem Merrimack River in New Hampshire were seen in the vicinity of the Lowell fish lift. These can legally be harvested in the Massachusetts portion of the Merrimack and its tributaries upstream of the Essex Dam in Lawrence.

#### **Fisheries Survey and Inventory Project** **Statewide Fisheries Survey and Inventory**

Watersheds were sampled as part of the 5-year basin cycle using a standard sampling protocol. Of 329 sites sampled in FY 09, the majority of the samples were in the Westfield (45), Deerfield (36), Connecticut (34), Millers (28), Blackstone (21), and Housatonic (21) watersheds. Sampling was also conducted in 21 other watersheds (Table 1, following page). The sampling resulted in the collection of 28,851 fish of 42 different species. Requests for potential stream survey and inventory sampling locations in the above watersheds were solicited from agencies and stakeholders and were used to prioritize sampling locations. For a complete description of stream survey methods, see the FY 05 annual report.

#### **Target Fish Community Development**

The final report, entitled *Development of Target Fish Community Models for Massachusetts Mainstem Rivers*, was completed, printed, and distributed to interested parties. Additional copies were printed at the end of FY 09 and are available for distribution.

#### **Coldwater Fisheries Resource Designation**

A project to identify waters that the DFW considers to be Coldwater Fishery Resources (CFRs), initiated in FY

**Table 1. Watersheds and number of samples in each watershed sampled in FY 09.**

Westfield	45
Deerfield	36
Connecticut	34
Millers	28
Blackstone	21
Housatonic	21
Chicopee	17
Merrimack	17
Nashua	16
Concord	14
Shawsheen	13
Hoosic	9
South Coastal	8
Charles	7
Neponset	6
Farmington	5
Taunton	5
Cape Cod	4
Ipswich	4
North Coastal	4
Parker	4
Islands	3
Ten Mile	3
Weymouth and Weir	2
Buzzards Bay	1
French	1
Kinderhook	1
<b>Grand Total</b>	<b>329</b>

01, was continued and updated based on the fish samples collected in FY 08. The current list of waters contains 840 streams (an addition of 65 streams since FY 08) statewide. Future efforts are being planned to create GIS coverage that includes all coldwater resources. This list of CFRs is useful as a screening tool to highlight sensitive environmental areas. It is not a definitive list of waters that are CFRs. Each year, as subsequent sampling results are recorded, the list of CFRs is updated to reflect the most current information.

#### Stream Temperature Investigations

A temperature study, funded by the Environmental Protection Agency (EPA), was conducted to examine longitudinal changes in water temperature through streams that possess at least some individuals of coldwater species. A final report was provided to the EPA. The data was transmitted to Jennifer Jacobs at the University of New Hampshire for detailed examination under a separate EPA-funded grant.

#### Stream Habitat Restoration Project – Hamant Brook, Sturbridge

The DFW is investigating the potential for stream habitat restoration activities on Hamant Brook, a stream flowing through the Leadmine Mountain WCE in the town of Sturbridge. Stream survey and inventory procedures revealed a coldwater population of fish upstream of three impoundments on the property and a population of river fish, primarily those in the shiner and sucker families below the three impoundments.

Removal of the three dams and replacement of a perched box culvert at the confluence of Hamant Brook and the Quinebaug River would help to restore stream form and function, improve the stream temperature regime, restore coldwater habitat downstream to the Hamant Brook confluence with the Quinebaug, and improve fish passage from the Quinebaug upstream into Hamant Brook, to benefit native river and stream fish species in the Quinebaug River.

As a first step in this stream habitat improvement process, a pre-feasibility study was funded jointly by the DFW and the Massachusetts Riverways Program. In FY 09, several public informational meetings were held in Sturbridge, including a walk through the property and a presentation at the annual Town Meeting. The benefits and drawbacks of the proposed project were fully vetted with all stakeholders during this process. The purpose of the process was to determine if the town, in general, would endorse the project and provide a letter of support. Their letter of support would be required for any proposal for funding through the Millennium Management Team, which is the multi-agency partnership charged with disbursing the Millennium Power Plant mitigation funds for habitat restoration in the Quinebaug River watershed. The concept of a letter of support appeared on the warrant at the Town Meeting and the vote was tied at 62 in favor, 62 opposed. An additional informational meeting was held and, largely due to the estimated cost of repairing the dam (for which no funding is available), the conservation commission voted to provide a letter of support.

#### Instream Flow Council Activities

The agency contributed significantly to a 2008 publication on instream flow, entitled *Integrated Approaches to Riverine Resource Management: Case Studies, Science, Law, People, and Policy*. Agency staff wrote Chapter 5 of this text and provided input and editing on other sections. The full citation for this report is: Locke, A, C. Stalnaker, S. Zellmer, K. Williams, H. Beecher, T. Richards, C. Robertson, A. Wald, A. Paul and T. Annear. 2008. *Integrated Approaches to Riverine Resource Management: Case Studies, Science, Law, People, and Policy*. Instream Flow Council, Cheyenne, WY. 430 p.

#### Hatchery and Stocking Program

##### Trout

The DFW met its annual production goal of 400,000 - 450,000 pounds of trout in FY 09. This goal is based on the rearing capacity of each hatchery (determined by a combination of the quantity and quality of the water supply and rearing space) and the limits imposed by the National Pollution Discharge Elimination System (NPDES) permit that each hatchery is issued by the Massachusetts Department of Environmental Protection (DEP) and the federal Environmental Protection Agency (EPA). The Division's four trout hatcheries produced a total of 423,325 pounds of trout, comprising a total of 560,433 brook, brown, rainbow, and tiger trout, in FY

09, which includes both the fall 2008 and spring 2009 stocking seasons (Tables 1, below, and 2, pg. 14).

A total of 57,461 pounds of trout, comprising 67,630 fish, were stocked during fall 2008. The fall-stocked fish included 61,630 rainbow and 6,000 brown trout that averaged more than 12 inches apiece. In spring 2009, a total of 365,864 pounds of trout were stocked, which included 281,545 rainbow trout that ranged between 12 and 14+ inches long. Nearly 189,000 of these rainbow trout averaged 14 inches or longer. The spring stocking also included 84,947 brook trout that ranged between 6 and 18+ inches long; 122,938 brown trout that ranged between 6 and 18+ inches long; and 3,373 tiger trout that were more than 14 inches long (Tables 1 and 2). The tiger trout averaged 1.1 pounds apiece. Tiger trout are a cross between a brook trout male and a brown trout female. They are called tiger trout because of their beautiful tiger-like stripes.

### Salmon

The Roger Reed Hatchery in Palmer continued its important role in both the Atlantic Salmon Restoration Program and the landlocked salmon program for Quabbin Reservoir in FY 09. A total of 11,600 landlocked salmon smolts were produced, of which 10,100 were stocked into Quabbin Reservoir in May 2009 and the balance provided to the state of New Jersey in exchange

for 300,000 brown trout eggs for the DFW's trout program. A total of 1.43 million Atlantic salmon eggs were collected from the broodstock held at the station and distributed among cooperating hatcheries in New England. A total of 1,138,500 Atlantic salmon fry were also produced and stocked into rivers and streams in the Connecticut River drainage basin. In addition, 175 adult broodstock salmon produced at Roger Reed Hatchery were stocked in selected waters across the Commonwealth. A summary of the numbers of each of the fish species produced by the Roger Reed Hatchery is in Table 3 (pg. 14).

## Warmwater Fisheries Investigations

### Esocid Stocking Program

The DFW relies entirely on fish obtained from other states for stocking esocids (northern pike and tiger muskellunge). In recent years, the DFW's historical sources of esocids have begun to scale back their production of northern pike. Some of the DFW's historical sources of surplus tiger muskellunge have also scaled back production or completely discontinued their programs. As a result, for the first time in nearly 40 years, no northern pike were stocked in Massachusetts waters. No surplus tiger muskellunge have been available to the DFW since 2006.

# 2009 Fish Production

Table 1. Summary of the number trout produced and stocked from each of the Division's four trout hatcheries in FY 09.  
(Fall stocking 2008 and Spring stocking 2009)

Species	Size Cat. (inches)	Number of fish				Total No. of Fish
		Bitzer	McLaughlin	Sunderland	Sandwich	
Rainbow Trout	9+	0	0	0	0	0
	12+	15,000	20,750	50,203	10,880	96,833
	14+	30,000	188,942	0	27,400	246,342
	<b>Sub-total</b>	<b>45,000</b>	<b>209,692</b>	<b>50,203</b>	<b>38,280</b>	<b>343,175</b>
Brook Trout	6 - 9	27,100	0	0	0	27,100
	9+	0	0	49,597	0	49,597
	12+	0	0	0	7,412	7,412
	18+	0	0	0	838	838
	<b>Sub-total</b>	<b>27,100</b>	<b>0</b>	<b>49,597</b>	<b>8,250</b>	<b>84,947</b>
Brown Trout	6 - 9	20,300	0	0	0	20,300
	9+	0	36,670	18,900	0	55,570
	12+	25,780	0	23,468	3,290	52,538
	18+	0	0	0	530	530
	<b>Sub-total</b>	<b>46,080</b>	<b>36,670</b>	<b>42,368</b>	<b>3,820</b>	<b>128,938</b>
Tiger Trout	14+	0	0	0	3,373	3,373
	<b>Sub-total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,373</b>	<b>3,373</b>
<b>Total</b>		<b>118,180</b>	<b>246,362</b>	<b>142,168</b>	<b>53,723</b>	<b>560,433</b>

Table 2. Summary of the weight of trout produced and stocked from each of the Division's four trout hatcheries in FY 09.

(Fall tocking 2008 and Spring stocking 2009)

Species	Size Cat. (inches)	Weight of fish (lbs)				Total Wgt. of Fish (lbs)
		Bitzer	McLaughlin	Sunderland	Sandwich	
Rainbow Trout	9+	0	0	0	0	0
	12+	9,311	19,926	31,052	7,120	67,409
	14+	26,139	196,672	0	26,146	248,957
	<b>Sub-total</b>	<b>35,450</b>	<b>216,598</b>	<b>31,052</b>	<b>33,266</b>	<b>316,366</b>
Brook Trout	6 - 9	6,788	0	0	0	6,788
	9+	0	0	15,329	0	15,329
	12+	0	0	0	6,431	6,431
	18+	0	0	0	1,729	1,729
	<b>Sub-total</b>	<b>6,788</b>	<b>0</b>	<b>15,329</b>	<b>8,160</b>	<b>30,277</b>
Brown Trout	6 - 9	5,342	0	6,101	0	11,443
	9+	0	12,522	19,521	0	32,043
	12+	24,751	0	0	3,346	28,097
	18+	0	0	0	1,491	1,491
	<b>Sub-total</b>	<b>30,093</b>	<b>12,522</b>	<b>25,622</b>	<b>4,837</b>	<b>73,074</b>
Tiger Trout	14+	0	0	0	3,608	3,608
	<b>Sub-total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3,608</b>	<b>3,608</b>
<b>Total</b>		<b>72,331</b>	<b>229,120</b>	<b>72,003</b>	<b>49,871</b>	<b>423,325</b>

Table 3. Summary of Landlocked salmon and Atlantic salmon produced at the Roger Reed Hatchery in FY 09.

Species	Size Category (inches)	Number	Weight (lbs)
Landlocked salmon	smolts (8+)	11,600	1,715
	<b>Sub-total</b>	<b>11,600</b>	<b>1,715</b>
Atlantic salmon	green eggs	1,430,000	
	unfed fry (1+)	1,138,500	415
	adults (15+)	175	2,100
	<b>Sub-total</b>	<b>2,568,675</b>	<b>2,515</b>

### Freshwater Sport Fishing Awards Program

For over 45 years, the Freshwater Sport Fishing Awards Program has been awarding pins to anglers who catch trophy size fish from the waters of the Commonwealth. Minimum qualifying weights are currently in place for 22 different species of fish. Beginning in 2005, lower minimum weights were established for Youth Anglers (age 17 and under). This modification has resulted in a near doubling of the number of pins awarded annually. Upon weighing a fish on a state certified scale, the angler receives a bronze pin depicting the species of fish with the weight and year of the catch stamped on the back. In addition to the bronze pin, the lucky adult and youth anglers who weigh in the largest fish of the year for each of the categories receive a plaque and a gold pin at an awards ceremony held at the Eastern Fishing and

Outdoor Exposition at the DCU Center in Worcester in February. Affidavits are still being received for 2009, so results from 2008 are presented here. A record setting 1,012 pins were awarded in 43 of the 44 categories (476 for youth anglers and 536 for adult) for calendar year 2008. For 2009, we are currently on a pace to award even more pins than the record set in 2008. As in 2007, the only category that had no entries was the state's most elusive: Youth tiger muskellunge.

The seventh annual Angler of the Year Award (presented to the angler who submits the highest number of eligible species) was presented for the second time (the first time in 2002) to Roger Pyzocha, of Ludlow, who weighed in 16 different species.

## Bass Tournament Creel Analysis

For the past 13 years, the Fisheries Section has monitored the results of black bass (largemouth and smallmouth bass) tournaments and maintains a database of variables, such as catch rates and average fish size, to detect long terms trends in the bass populations in some of the Commonwealth's most heavily fished waters. Any organization that requests the use of a facility governed by the Office of Fishing and Boating Access (OFBA) to hold a fishing event must receive a Special Use Permit. As part of the permit, the OFBA includes a creel sheet to be completed by the fishing club at the close of the event. Additionally, individual bass clubs as well as the Massachusetts Chapter of B.A.S.S. (Bass Anglers Sportsman Society) have been given creel sheets in an attempt to collect information on tournaments held at non-OFBA facilities. The creel sheets are also available for download on the DFW website. The completed creel sheets are mailed to the Warm/Coolwater Project Leader at the Field Headquarters. The creel survey seeks the following information: club name, date of event, location of event, start and end time, number of anglers, number of anglers weighing bass, number of anglers with limits of bass, total number of bass weighed in by species, total bass over 5 pounds, number of bass returned alive by species, total weight, winning weight, and the weight of the biggest bass of the event. There is also a space for the club to include comments. All this

information is entered into the database mentioned above each year. Creel sheets are still being received for the 2009 tournament season, so results from the 2008 season are presented here.

In 2008, a total of 208 creel sheets were submitted to the Field Headquarters. This represents a voluntary reporting rate of approximately 32% based on the number of Special Use Permits issued by the OFBA. These 208 tournaments represented 56 different bass clubs fishing on 44 different waters. A total of 6,653 largemouth bass and 1,399 smallmouth bass were weighed in for a catch rate of approximately one bass per 3 1/2 angler hours. The average weight of a bass weighed in was 1 lb., 13 oz. Eight-three percent of all anglers weighed at least one bass, while 27% caught a limit (five bass total of either species). Ninety-nine percent of all bass were returned to the waterbody alive at the close of the tournaments. These indices have not changed significantly since tracking began in 1996. Among waters being used for more than four tournaments per year, Southwick's Congamond Lake yielded the highest number of bass over 5 pounds at 14 over 22 tournaments, while Onota Lake, in Pittsfield, had the highest catch rate for bass 5 pounds and over. Whitehall Reservoir, in Hopkinton, produced the highest percent of anglers weighing bass (97%), as well as the highest percent of anglers who had taken their limit (68%). A breakdown of the number of tournaments by waterbody reveals that

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## Freshwater Sportfishing Gold Pin Awards for 2008

Species	Number of Adult Pins	Number of Youth Pins	Weight of Gold Pin Adult	Weight of Gold Pin Youth
Broodstock salmon	13	3	18 lb. 13 oz.	9 lb. 9 oz
Brook trout	22	15	10 lb. 0 oz.*	2 lb. 5 oz.
Brown trout	7	6	8 lb. 8 oz.	4 lb. 4 oz.
Bullhead	17	22	6 lb. 4 oz.*	2 lb. 0 oz.
Carp	32	10	28 lb. 4 oz.	25 lb. 0 oz.
Chain pickerel	16	40	6 lb. 4 oz.	4 lb. 15 oz.
Channel catfish	30	8	16 lb. 2 oz.	9 lb. 0 oz.
Crappie	73	45	2 lb. 8 oz.	2 lb. 2 oz.
Lake trout	16	4	17 lb. 11 oz.	14 lb. 7 oz.
Landlocked salmon	131	32	8 lb. 6 oz.	5 lb. 15 oz.
Largemouth bass	22	67	9 lb. 6 oz.	7 lb. 7 oz.
Northern pike	15	6	29 lb. 7 oz.	21 lb.11 oz.
Rainbow trout	6	17	8 lb. 12 oz.	5 lb. 2 oz.
Shad	13	28	7 lb. 0 oz.	5 lb. 4 oz.
Smallmouth bass	28	35	6 lb. 8 oz.	5 lb. 2 oz.
Sunfish	30	54	1 lb. 9 oz.	1 lb. 2 oz.
Tiger muskie	4	0	20 lb. 12 oz.	NA
Tiger trout	13	14	4 lb. 6 oz.	2 lb. 10 oz.
Walleye	3	3	6 lb. 0 oz.	7 lb. 0 oz.
White catfish	10	5	6 lb. 10 oz.	4 lb. 4 oz.
White perch	23	19	2 lb. 13 oz.	2 lb. 7 oz.
Yellow perch	12	43	1 lb. 15 oz.	1 lb. 12 oz.

\*new state record

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the highest frequency of occurrence continues to take place on Congamond Lake and the Connecticut River, which hosted 22 and 17 tournaments, respectively. The Nashua River, Groton; Quaboag/Quacumquasit Ponds, Brookfield; and Webster Lake, Webster, each hosted 10 or more tournaments in 2008. Over time, this data will aid in detecting possible trends in the fishery.

## Fish Kill Investigations and Environmental Review

### Fish Kill Investigations

Pursuant to the 1999 Fish Kill Memorandum of Understanding between the Department of Environmental Protection (DEP), the DFW, the Division of Environmental Law Enforcement (DELE), and the Department of Agricultural Resources (DAR). Fish kills are reviewed on a calendar year basis. Analysis of the 2009 fish kills is still in progress at this time and will be reported in the FY 2010 Annual Report. A review of Fish kills in calendar year 2008 indicates that in 2008, DFW, as the coordinating agency, received 24 calls reporting incidents that involved dead fish. Of these 24 reports, nine required field investigations by DFW or DEP personnel to determine the cause of the kill. The final disposition of the 24 calls was 18 natural kills, 2 chemical kills, 1 low flow conditions, 1 no fish were found, and 2 fish kills were of unknown origin.

### Environmental Review

In 2008, DFW biologists reviewed and provided comments on, all major projects affecting fisheries resources published in the *Environmental Monitor*. DFW also provided technical information to a wide variety of consultants and town and state officials on local projects. There were 177 requests to review project proposals that would potentially affect 189 different waters (140 rivers, streams, and unnamed tributaries and 49 lakes and ponds) statewide. Seventy-two percent of the requests were received from environmental consulting contractors to fulfill DEP and MEPA filing requirements. The remainder of the requests were from state agencies such as DEP, the Massachusetts Highway Department, the Riverways Program, the Massachusetts Water Resources Authority (MWRA), and the DAR (18%); federal agencies such as the Department of the Army and the FERC (2%); local entities such as departments of public works, boards of health, and watershed associations (7%); and private entities such as individual property owners and rod and gun clubs (1%). Fisheries resources were partitioned as follows: warm water (27%), coldwater (19%), trout stocked waters (23%), anadromous (12%), rare, threatened or endangered (6%), unknown (11%), and no fisheries resources (2%). The majority of the projects were bridge replacements/rehabilitations over rivers and streams and road reconstruction, including culvert replacements (41%). The remaining reviews involved



*Each year Massachusetts' most successful anglers – both adults and youth – gather at the Eastern Fishing and Outdoor Exposition for an awards ceremony.*



new construction (12%); lake management issues such as drawdowns for aquatic vegetation management, dredging, phosphorus inactivation, and mechanical harvesting (8%); instream work such as dam repairs and maintenance, bank stabilization, and habitat resto-

ration (20%); proposed new well sites and/or increased production of existing wells (7%); and utility projects such as waste water treatment plant upgrades, hydro projects, and utility right of way projects (12%).

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# WILDLIFE

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## Introduction

The Wildlife Section oversees research and management of all avian and mammalian species within the Commonwealth of Massachusetts that are primarily utilized in any way for meat, fur, or sporting purposes. It is responsible for the DFW's Forestry Program and for the Upland Habitat Program on DFW's Wildlife Management Areas (WMA). The overall program goal is to promote biodiversity, to conserve the Commonwealth's game species, and, more specifically, to maintain wildlife populations at levels that are in balance with the biological carrying capacity of their habitat and the cultural carrying capacity of the public.

While the Wildlife Section is devoted primarily to research and management of populations of species that are hunted or trapped as well as active habitat management, it is also responsible for the DFW's pheasant stocking program, the testing and registration of Problem Animal Control (PAC) agents and falconers, and the licensing and inspection of commercial deer farms and certain other propagators' facilities.

The Wildlife Section has a staff of wildlife biologists and foresters who conduct research and management projects throughout the state, with assistance from District personnel and in cooperation with the U.S. Fish & Wildlife Service (USFWS) and the Massachusetts Cooperative Fish and Wildlife Research Unit of the U.S. Geological Survey (USGS). Biologists and foresters within the Wildlife Section engage in wildlife management programs under the following general classifications:

- Monitoring and research of wildlife populations and habitat
- Population analysis
- Harvest management
- Community-based human-wildlife conflict management
- Restoration of wildlife
- Ecological research
- Public use and methodology surveys
- Sustainable forest management
- Early-successional habitat management
- Habitat protection

## Upland Game Birds

### Northern Bobwhite Quail

Quail are resident, native birds to Massachusetts most commonly found in the southeastern portions of the state (Plymouth, Bristol, and Barnstable counties, including the Islands). Bobwhite quail have experienced substantial population declines in Massachusetts and across most of their range and thus are identified as a Species in Greatest Need of Conservation in the Massachusetts Comprehensive Wildlife Conservation Plan, now known as the State Wildlife Action Plan. Quail populations are indexed through a biennial whistling cock count survey coordinated by the DFW that is conducted during the first 2 weeks of July. This survey will be conducted during July of 2009.

### Mourning Dove

The mourning dove is a short-distance migratory bird and one of the most popular game birds across the United States. However, hunting of mourning doves is prohibited in Massachusetts. Mourning dove populations are monitored annually as part the USFWS's Call Count Survey (CCS), a standardized effort conducted nationwide to index and evaluate mourning dove populations. Eight CCS routes are surveyed in Massachusetts annually.

On Massachusetts routes, the number of doves heard increased on four routes, decreased on three routes, and was unchanged for the fourth consecutive year on the one remaining route. Overall, the average number of doves heard per route has declined slowly over the past 13 years. Across New England, dove populations have declined slightly over the past 10 years, whereas dove populations across the eastern region (states east of the Appalachian Mountains) have increased slightly in the same time period.

### American Woodcock

Woodcock populations are indexed through the annual Singing Ground Survey, a standardized regional survey coordinated by the USFWS that uses the unique, conspicuous courtship behavior of male woodcock each spring. Woodcock are a migratory species and typically inhabit Massachusetts only from early spring through autumn. Woodcock survey routes are conducted in early spring. Woodcock populations have declined substantially over the past 40 years, largely as a consequence of reduced habitat availability. As such they are identified as a Species in Greatest Need of Conservation in the State Wildlife Action Plan.



*Ruffed Grouse on a limb.*

The average number of woodcock heard peenting on survey routes in 2009 (3.4 woodcock heard per active route) was slightly greater than in 2008 (2.9) and 2007 (2.4). The total number of woodcock heard on all routes in 2009 (34 birds) increased slightly compared to 2008 (32 woodcock heard). Half of all active survey routes recorded more than one singing male woodcock; 10 woodcock were heard singing on 2 routes. The relatively good breeding season can be attributed to suitable spring breeding conditions in 2009 prior to heavy rains later in the spring and early summer.

Across the eastern region (states east of the Appalachian Mountains), woodcock populations have been relatively stable over the past 6-7 years. The 10-year trend for that time period does not indicate a significant decline. The 10-year trend in Massachusetts indicates that woodcock populations have declined 2.9% per year over that period. More recently, it appears that woodcock populations have stabilized in the past 4-5 years.

Each year, the USFWS surveys woodcock hunters through the Harvest Information Program (HIP). This data provides estimates of harvest and of hunter effort across the state. In 2008, HIP data indicated that 1,200 Massachusetts hunters bagged approximately 2,300 woodcock, or approximately 2.0 birds per hunter over the entire season.

In addition to providing information on hunter effort and on harvest, a subset of HIP registrants participate in a wing collection survey. These hunters submit wings of harvested birds to the USFWS; the wings are then aged and sexed based on plumage replacement. Using this information, a recruitment index is then calculated as the ratio of immature woodcock per adult female. In Massachusetts, 62 hunters submitted 398 wings (188 immature, 122 adult female) for examination. The overall recruitment index for 2008 in Massachusetts was 1.6, equal to the long term average (1963-2008 = 1.6).

To address habitat declines responsible for woodcock declines, the DFW has continued to partner with the Wildlife Management Institute (WMI) as part of the Northern Forest Woodcock Initiative (NFWI). The NFWI links state and federal natural resource agencies with various private landowners and other non-governmental organizations to spur early successional habitat management through public education and outreach, and through the development of habitat management demonstration areas. To date, the DFW has completed two projects in association with the WMI and the NFWI and other private stakeholders, including Cows Sawmill and Land Company and the National Wild Turkey Federation. These projects are an outstanding example of how private/public partnerships are working to enhance habitats for numerous species in need of conservation.

### Ruffed Grouse

Ruffed grouse breeding activity is monitored annually through roadside drumming surveys that monitor male courtship behavior in late April and early May. Each roadside survey consists of 10 stops, each 1 mile apart, at which an observer records the number of drumming grouse heard.

In 2009, 29 random located surveys and seven subjective survey routes were completed between April 15 and May 5. Overall, the average number of drums heard per stop (ANDS) per route across all random routes statewide in 2009 was 0.18; slightly higher than in 2008 (0.16) (Fig. 1). Increases in the ANDS per route were noted in the Western and Connecticut Valley Districts; however, a slight decrease occurred in the Central District.

The ANDS per route for subjective routes completed in 2009 was 0.51, similar to that recorded in 2007-2008 and approximately two to two and a half times greater than the ANDS per route on random routes (Fig. 1). Because only seven subjective routes exist, all are pooled across DFW Districts. Subjective routes are placed in areas thought to hold good grouse habitat, and represent the potential abundance of grouse statewide.

In general, grouse breeding activity on random routes as indexed by the drumming survey was slightly higher

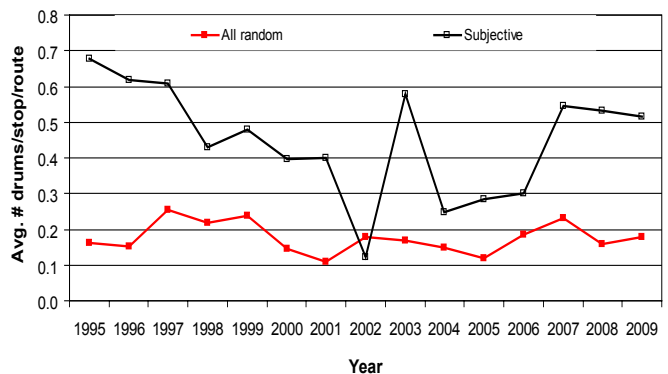


Figure 1. Average number of drums heard per stop per route statewide on subjective (top) and random (bottom) routes surveyed from 1995-2009.

in 2009 than in 2008, and comparable to recent years. No drumming grouse were detected on random routes in the Northeast or Southeast districts. However, three grouse were heard drumming on a subjective route in the Southeast and anecdotal observation of grouse indicates that they exist in the Northeast District, thus confirming that grouse populations exist but are somewhat disjunct across those districts. In areas with ample amounts of good habitat, strongly reproducing populations do exist.

To provide additional information to assess grouse populations, fall flush surveys were conducted in September and early October 2008 (preceding the gamebird hunting season) throughout the Central, Connecticut Valley, and Western Districts. Flush surveys are useful to assess populations outside the breeding season after young have hatched.

Although grouse occur statewide, good quality habitat has become fragmented and populations have declined substantially over the past several decades. Consequently, ruffed grouse have been identified as a Species in Greatest Need of Conservation as defined in the State Wildlife Action Plan.

## **Waterfowl**

### **Wood Duck Habitat and Population**

Waterfowl Project Leader H Heusmann and other DFW staff continued to conduct nest box checks on 52 sites used to monitor wood duck populations statewide. After two successive years of spring flooding and resultant box flooding, 2008 was normal. There were 335 wood duck nest starts in 559 available boxes with 262 successful hatches, three more than last year but well below the peak of 352 in 1995. In addition, there were 100 hooded merganser hatches from 139 starts, similar to last year and well above the 36 hatches recorded in 1995.

### **Goose Banding**

Massachusetts participates in the Atlantic Flyway Resident Goose Banding Program. Our goal is to band 1,000 geese each year, to provide data for the federal database. Geese are captured through round-ups during the summer molt. A total of 1,008 Canada geese were banded at 64 sites in 55 cities and towns in Massachusetts. The total included 429 goslings and 579 adults. Crews also captured an additional 231 previously banded geese. In addition, 140 of the captured geese were sampled as part of a nationwide Avian Influenza surveillance program.

### **Airboat Research**

FY 09 was the third year of use for our new airboat and, as in the first year, mechanical problems significantly hampered airboating, with two minor problems and two major breakdowns due to overheating or blown gaskets, the second of which ended the banding season prematurely. Unlike our previous boats, which used aircraft engines and were air-cooled, the new boat uses an automotive engine and is water cooled, which requires

a radiator. On the third night of airboating, a malfunctioning temperature gauge and clogged radiator led to overheating, curtailing operations. Then, at the end of August, a burst radiator resulted in overheating, and significant engine damage, which required an engine overhaul. The repairs disrupted the planned boating schedule and DFW staff were not able to resume airboating until after the September full moon period in the second half of the month. Several areas normally boated as brood sites were not productive because, by then, broods were capable of flight and had left the areas.

A faulty voltmeter gauge caused DFW staff to curtail a promising night of boating at Longmeadow, and the following night the boat blew a head gasket at the Ipswich River Sanctuary, requiring DFW staff to drag the boat out of the marsh on foot and ending the airboating season. As a result, only 14 trips were made in 2008. In total, DFW staff banded 540 birds with catches ranging from 0 to 98. Among the birds banded were 351 wood ducks, 121 mallards, 5 American black ducks, 1 mallard x black hybrid, 58 green winged teal, 11 blue wing teal, 1 hooded merganser, 1 Canada goose, and 1 Virginia rail. These totals included 2 wood ducks and 8 mallards bait-trapped by DFW cooperators. Thirty-three green winged teal captured were sampled for Avian Influenza during September.

### **Harvest and Population**

During September 2-25, Massachusetts conducted a resident Canada goose season, prompting an increase of the daily bag limit from five to seven. The Migratory Bird Hunter Harvest Information Program (HIP) of the USFWS estimated a September season harvest of 4,600 geese. This compares to a harvest estimate of 2,600 in September 2007 and 3,800 in 2006.

Duck hunting seasons in the Atlantic Flyway continued with the liberal option of 60-day seasons and a six-bird bag limit. The Canada goose season was 60 days with a two-bird daily bag limit in the Central and Coastal waterfowl hunting zones, and 45 days with a three-bird bag limit beginning October 20 in the Berkshire zone. During the sea duck season, the DFW contracted with a guide to collect samples for Avian Influenza surveillance from common eiders and longtailed ducks.

The annual Midwinter Waterfowl Survey was flown in January, 2009. For the first time the survey was flown entirely with USFWS personnel. December 2008 was colder than normal with above average snowfall, conditions which continued into January. American black duck numbers were unchanged from 2008 and 7% above the 10-year average, with 19,367 counted. The mallard count of 3,476 was 32% below 2008's record-high count (5,133) and 15% below the long term average. Both Canada geese (11,933) and Atlantic brant (2,162) were 5% above the 10-year average. Seaduck numbers were also above average.

Between January 19 and February 14, 2009, Massachusetts held a late, resident Canada goose season in the



*Turkey flock in early spring.*

Central waterfowl zone while the season in the portion of the Coastal zone north of Cape Cod ran January 26 to February 14, with a five-bird daily bag in each zone. The USFWS estimated a harvest of 1,200 geese, compared to 2,300 geese in 2008 and 3,100 birds in 2007.

During April and May the DFW participated in the northeastern states waterfowl breeding survey, which is based on sampling randomly selected 1-kilometer-square plots. Massachusetts checked 92 of the 1,485 plots used in the survey. The population estimate for mallards was 301,700 pairs ( $\pm 13\%$ ). The estimate for black ducks was 24,204 pairs ( $\pm 36\%$ ); wood ducks, 185,867 pairs ( $\pm 18\%$ ); and Canada geese, 377,762 pairs ( $\pm 14\%$ ). Data from this survey is used to set hunting season regulations tailored to the Atlantic Flyway.

The DFW entered its 11th year as a participating agency in the federal Migratory Bird Hunter Harvest Information Program (HIP). Waterfowl and woodcock hunters are required to register for this program by calling a toll-free number each time they buy a new license. This year hunters were also able to register online through the state's Internet registration system.

The Project Leader attended the technical section and Council meetings of the Atlantic Flyway Council in New Jersey and Maryland. He also directed the Avian Influenza surveillance program, collecting samples from both resident waterfowl during Canada goose and preseason duck banding and from migratory ducks during September airboating actions and via hunter-collected waterfowl.

Massachusetts began issuing individual egg addling permits for resident Canada goose control under a new federal program begun in March 2007. In 2008 the DFW issued 41 such permits, of which 31 reports were returned. The permittees reported addling 934 eggs in 217 nests. Permittees who did not return their annual reports were ineligible to receive a permit in calendar year 2009.

## Wild Turkey

### Wild Turkey Range and Harvest Evaluation

The 19th modern-day fall either-sex turkey season was held from October 27 to November 1, 2008. The open zone included Wildlife Management Zones (WMZ) 1-9 and 13. There were 16,286 eligible permittees. A total of 158 turkeys were taken, including 17 (10.8%) in Berkshire County, 25 (15.8%) in Franklin County, 13 (8.2%) in Hampden County, 35 (22.2%) in Hampshire County, 12 (7.6%) in Middlesex County, 56 (35.4%) in Worcester County, and none in Dukes and Norfolk counties. There were 56 adult males (35.4%), 36 immature males (22.8%), and 66 females (41.8%) harvested.

The 30th Massachusetts spring gobbler hunt was held in April and May 2009. The 4-week open zone included WMZs 1-10 and 13. The 2-week zone consisted of Zones 11 and 12. A record 16,440 applications were received, and a record harvest of 3,027 turkeys was attained (the 18th consecutive year over 1,000 and the 11th over 2,000). The estimated overall success rate for taking one bird was 15.4%, as compared to 14.3% in 2008. The Worcester County harvest was 779 (25.8%), followed by Berkshire (489, 16.2%), Franklin (434, 14.3%), Plymouth (304, 10.0%), Hampshire (284, 9.4%), Hampden (215, 7.1%), Middlesex (164, 5.4%), Bristol (140, 4.6%), Essex (107, 3.6%), Norfolk (83, 2.7%), Barnstable (25, 0.8%), and Dukes (3, 0.1%). There were 1,969 (65.0%) adult males, 1,034 immature males, 10 bearded hens, and 4 unaged males taken.

### Youth Turkey Hunt

A 1-day mentored Youth Turkey Hunt was held on the Saturday preceding the opening of the spring season. A total of 96 youths (sponsored by 10 clubs) completed the pre-hunt training and field exercise. Most (90) participated in the hunt and 45 of them succeeded in harvesting a turkey.

### Research Bulletin

Turkey Project Leader James Cardoza completed and published Research Bulletin #20 (*The Wild Turkey in Massachusetts*) in June 2009.

## Black Bear

### Black Bear Distribution and Harvest Investigations

A record 6,468 bear hunting permits were issued for the 2008 hunting season (6,387 in 2007). A total of 100 bear were taken during the 35-day season, including 78 during the 17-day September segment and 22 during the 18-day November segment. Fifty-nine males and 41 females were taken, in Berkshire (41), Franklin (24), Hampden (9), Hampshire (23), and Worcester (3) counties. There were 15 non-hunting mortalities in FY 09, including 11 road kills and 4 depredation or public safety kills. A total of 89 problem bear complaints was received in FY 09 (84 in FY 08), primarily including 30 depredations on bird feeders, 16 residential complaints, 13 trash and garbage complaints, and 13 depredations or attempted depredations on poultry or livestock. Ad-



ditional untallied complaints were received by the Office of Law Enforcement and local officials.

### **Black Bear Cub Production and Survival**

Nineteen radio-collared females were active on July 1, 2008. One collared bear was killed in the September hunting season, one was killed as a nuisance in October, and one slipped its collar sometime in the fall. In 2009, one radio-collared female was shot as a nuisance in April and one was killed on the road in June. The reproductive status of one bear (primarily inhabiting Connecticut) was uncertain. Two bears had a total of six yearlings (two males and four females). Eight bears had a total of 21 cubs (seven males, 11 females, three unknown). Five bears were non-reproductive. Two male yearlings were captured in the winter den and ear-tagged, and one adult female was captured by Environmental Police, ear-tagged, and translocated. Two previously ear-tagged males were killed during the September hunting season. Fourteen radio-collared females were being monitored as of July 1, 2009.

### **Furbearer Program**

#### **Overview**

The furbearer program is responsible for the management and research of 14 species of wildlife in the Commonwealth. This group of species called furbearers includes beaver, muskrat, bobcat, eastern coyote, red and gray fox, river otter, fisher, striped skunk, mink, long-tailed and short-tailed weasel, raccoon, and opossum.

Massachusetts' furbearers are abundant and widely distributed throughout the state. The populations of these species are scientifically managed and are secure. None are threatened or endangered. The value of the Commonwealth's furbearer resource is very diverse and includes economic, ecological, cultural, biological, aesthetic and, educational opportunities for individuals in the state.

The furbearer management program presents many challenges to wildlife managers in the state and uses various options, including habitat manipulation, public education, and regulated hunting and trapping, as tools in the management of these renewable resources. A combination of techniques is used to:

- Control problem animals;
- Regulate wildlife populations;
- Reduce habitat degradation;
- Reduce crop and property damage;
- Allow a sustainable harvest of renewable furbearer resources.

#### **Harvest and Population**

These activities provide recreational and economic opportunity for citizens and households in the state. A total of 2,997 furbearers were harvested in the 2008-2009 season. The harvest (a combination of hunted, trapped, and/or salvaged) by species was: 702 beaver, 63 bobcat, 513 coyote, 521 fisher, 64 river otter, 31 red fox,

45 gray fox, 239 raccoon, 49 mink, 0 weasel, 23 skunk, 38 opossum, and 709 muskrat.

Regulated trapping is an important component of wildlife management programs. It is the most feasible and effective method to control furbearer population growth. Regulated trapping conducted by a trained and licensed public is used by wildlife professionals to regulate wildlife populations, which can reduce negative aspects associated with high wildlife populations and allow for a sustainable use of a valuable natural resource. Regulated trapping allows residents of the state to derive financial savings due to decreased amounts of the property damage furbearers cause, which can in turn reduce the need to pay PAC agents.

The Massachusetts DFW carefully regulates the harvest of furbearing animals. The Commonwealth has complex laws and regulations that govern the activity of trapping. These include:

- Mandatory licensing of trappers;
- Mandatory trapper training;
- Restrictions on the size of traps;
- Restrictions on types of traps;
- Restricted seasons for trapping;
- Restricted areas for trapping;
- Mandatory regular checking of traps;
- Mandatory tagging of traps to identify the owner.

#### **Management Efforts**

In 2007, coyotes were added to the list of species that can be controlled by licensed PAC agents. Licensed PAC agents are required to take additional training to receive certification to remove problem coyotes. Two classes were offered during the year. The first class was offered in November 2008, and had 30 PAC agents in attendance; the second class offered in May 2009 had 15 PAC agents in attendance. As of June 2009 there were 36 PAC agents who hold active coyote control certificates.

The coyote trapping season ran from November 1 to November 30. During this season, one coyote was trapped. The 2008-2009 coyote hunting season ran from October 18 to March 7, and 489 coyotes were harvested during this season. Of the 489 coyotes that were harvested by hunting, 60 were taken during the shotgun deer season, compared to 58 during the 2008 shotgun deer season. During the 2008-2009 coyote hunting and trapping season, 13 coyotes were salvaged and 10 were taken by unknown means (i.e., this information was absent from the data sheet).

The bobcat harvest quota of 50 animals was reached for the first time since establishment of the quota in 1977. By February 13, 2009, a total of 50 bobcats had been taken through a combination of hunting and trapping, and the Director closed the bobcat hunting season approximately three weeks early. Hunters who had taken a bobcat up to and including the closure date of February 13, 2009, had 4 working days to have these

bobcats tagged at a DFW check station. A total of 52 bobcats were taken by hunting and trapping.

### Research Efforts

Analyses of human-wildlife conflict issues were initiated this year with a study of coyote-human conflicts and deer-vehicle collisions conducted by looking at data collected between 2001 and 2007 at each of our six field offices through unsolicited phone calls and emails. The results of these analyses were summarized and presented at the Urban Wildlife Ecology and Management Conference at UMass Amherst in June 2009.

In conjunction with the USGS, DFW biologists conducted a multiple regression analysis to determine what variables explained the variation in the number of coyote complaints reported from each town in Massachusetts from 2001-2007.

Variables that were included in the coyote analysis were human population density, the year in which coyotes were first reported in a town, available coyote habitat, and coyote harvest. The results showed that there was a significant relationship between available habitat and number of complaints and a strong, but not significant, relationship between harvest and the number of complaints. Surprisingly, the relationship between human population density and coyote complaints was not significant, nor was the year in which coyotes were first reported in each town.

These analyses made it clear that there are likely many variables (both social and biological), aside from those chosen for this study, affecting human-wildlife interactions. The need for this type of research has been increasing year after year as some species become more successful in urban areas and the public becomes less connected. The intention is to move forward and conduct more extensive, in-depth research that can uncover a relationship with other important social and biological variables which will allow the DFW to put together effective management plans and thus better serve wildlife and the public.

### Pelt Sealing

All beaver, bobcat, coyote, fisher, fox, wild mink, and river otter that are taken or salvaged must be brought to a designated representative of the DFW and sealed with an official seal by said representative. Pelt sealing is used to gain harvest information and information on the distribution of beaver, otter, red fox, gray fox, bobcat, coyote, mink, and fisher statewide. During the 2008-2009 harvest season, the DFW sealed 1,988 pelts.

### Wetland/Beaver Management

Between 1996 and 2000, the beaver population tripled as a result of a ban on certain types of traps enacted through a referendum in 1996. Complaints about flooding increased. Typical complaints included: flooded septic systems, wells, roads, driveways, and railroad tracks. In July 2000, the Massachusetts Legislature passed, and the Governor signed, a new law that modified the

restrictions on beaver and muskrat traps to provide relief for people suffering from flooding impacts caused by beaver or muskrat. An emergency permitting system was created at the town level with certain non-emergency permits for specific traps available from the DFW.

Towns are not required to report beaver-related activities that occur under the emergency permitting process, therefore the DFW attempts to obtain this information from annual reports submitted by PAC agents and from voluntary surveys of licensed trappers. Based on pelt sealing, PAC annual reports, and trapper surveys, PAC agents and licensed trappers removed a minimum of 988 beaver from April 16, 2008 through April 15, 2009. This estimate does not include the number of beaver removed by PAC agents during 2009 because their permits operate on the calendar year and 2009 reports will not be available until January 2010.

Public education, regulated harvest, and the installation of flow devices are major components of beaver management in Massachusetts. DFW management goals for beaver include managing beaver for their wetland values, regulating beaver populations within available habitat, and minimizing economic damage to public and private property by beaver.

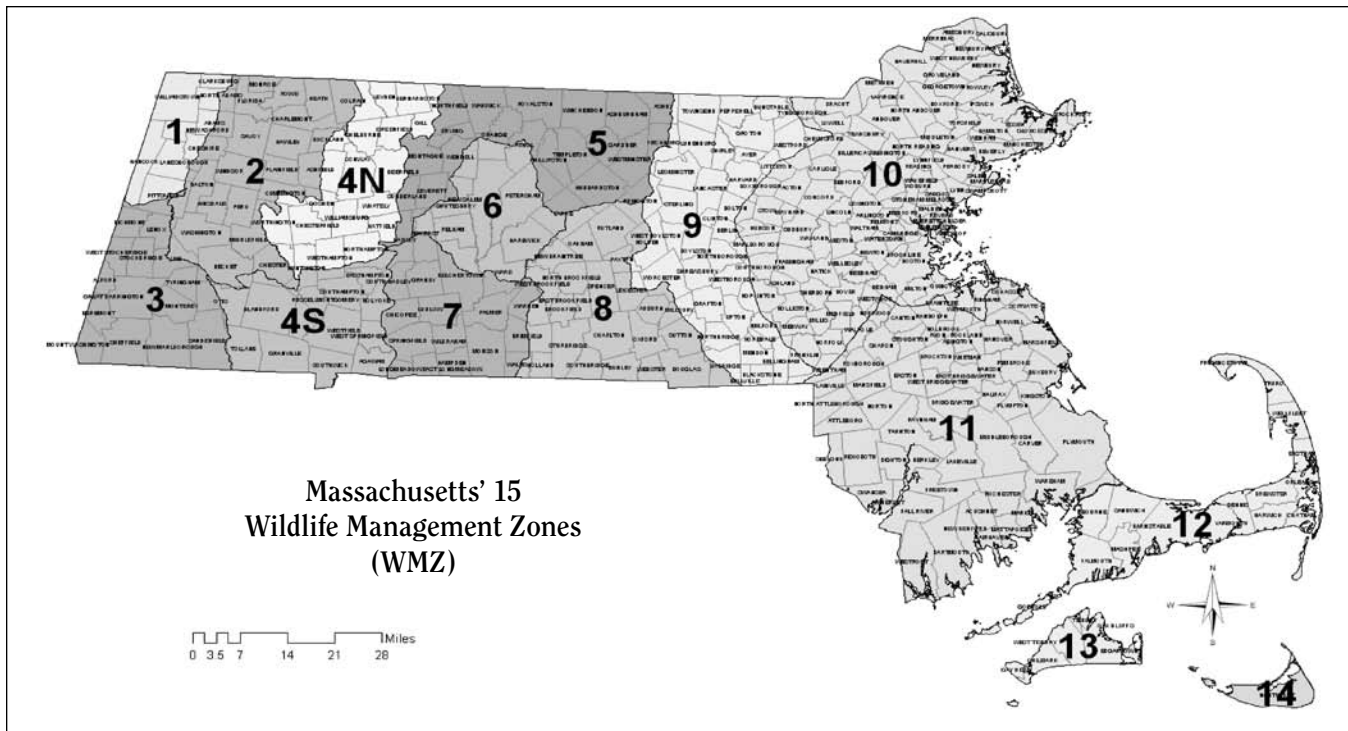
### Wildlife Depredation and Damage

DFW personnel responded to complaints about furbearer species causing the loss of domestic livestock and pets. Specific furbearer species causing concern are eastern coyotes, red foxes, gray foxes, fishers, raccoons, and skunks. Coyote calls significantly outnumber those about other furbearer species. Currently, the DFW has developed *Living with Wildlife* sheets for eight of the 14 furbearer species that describe the natural history of these animals and suggest methods to prevent conflicts. A *Living with Wildlife* sheet on raccoons was the most recent addition to this list.

### Wildlife Welfare and Disease Program

Federal and state furbearer program personnel along the eastern seaboard began monitoring rabies in raccoon populations in 1977. This epizootic was documented in Massachusetts on September 16, 1992. When the outbreak peaked in the Commonwealth during the 1990s, the die-off of raccoons from this epizootic was tremendous. Since the initial die-off, it appears that raccoon populations have recovered and, depending on population dynamics, vary on a 3-5-year cycle. Bat rabies is also present in Massachusetts.

As of June 2009, rabies has been confirmed in 12 of 14 counties in Massachusetts. In 1994, the Wildlife Rabies Vaccine Program was established to prevent the spread of rabies in wildlife, and vaccination efforts were focused along the Cape Cod Canal in order to create a barrier between the mainland and Cape Cod. Raccoon rabies broke through the rabies vaccine barrier and was detected for the first time on Cape Cod in March 2004.



From 1985 to June 2009, 5,413 animals tested positive for rabies including: 2,897 raccoons, 1,577 skunks, 480 bats, 160 domestic cats, 152 foxes, 87 woodchucks, 15 cattle, 10 domestic dog, 10 coyote, 4 otter, 4 bobcat, 2 fisher, 1 muskrat, 1 deer, and 13 others. The DFW has informational brochures and a presentation on zoonotic diseases that is incorporated into trapper education training each year. The DFW also attended regular meetings of the statewide Rabies Advisory Committee in order to advise on wildlife-related rabies concerns and questions.

## Deer Project

### Harvest and Population

The statewide 2008 harvest of 11,217 deer represents the sixth-highest harvest reported in Massachusetts since 1966 (Table 1). The 2008 white-tailed deer harvest by sex/age and the number of antlerless deer permits allocated and issued by wildlife management zone (WMZ) for Massachusetts are in Table 2. Overall, there was a 3% decrease in harvest from the 2007 hunting season, despite a record high archery season harvest. Poor hunting conditions resulting from the December 2008 ice storm likely reduced hunter effort during mid-December. The 2008 deer harvest by season and wildlife management zone is shown in Table 3.

As in previous years, the antlerless deer permit system requires a hunter to have an antlerless deer permit to harvest an antlerless deer in any deer season. This permit system increases hunter opportunity statewide while regulating deer harvest across all WMZs. Overall, we have achieved our deer density goals in 10 of the 15 WMZ (1, 2, 3, 4N, 4S, 5, 6, 7, 8, and 12), mainly in western and central Massachusetts. Challenges relative to hunter access and high deer densities still persist in the eastern zones.

Currently, the deer population statewide is estimated to be between 90,000 and 95,000 animals. Densities range from 10-12 deer per square mile in western and central Massachusetts to over 50 deer per square mile on the islands of Martha's Vineyard and Nantucket in eastern Massachusetts.

The antlerless deer permit (ADP) allocation for 2008 was 41,450 permits, a 3% decrease from 2006, while 36,987 permits (78%) were actually issued. Of these permits, 22% were sold over the counter at DFW offices and on the Islands, and 13% were issued over the counter through the *MassOutdoors* website. The over-the-counter permits are remaining ADPs in those zones where allocation exceeded demand.

### Research

Deer and Moose Project Leader Sonja Christensen and DFW staff continue to determine cause-specific mortality for deer in three study areas in eastern, western, and north-central Massachusetts by monitoring radio-collared deer. Concurrently, survival rates have been calculated throughout the study. Annual survival rates of male deer have been relatively high (~70% annual survival) and annual survival rates of female deer have been relatively higher (~80% annual survival), regardless of variation in permit numbers by year. Some of the deer in this study were collared as adults in 2000 and 2001 and are still alive. This research is ongoing.

As part of a larger cooperative research project investigating human-wildlife conflict issues, deer-vehicle collisions were analyzed using data collected between 2001 and 2007 at each of our six field offices through unsolicited phone calls and emails. Variables including the density of all roads in the state, the density of major roads, available forested habitat, and harvest were



Table 1. The 2008 White-tailed Deer harvest by season and sex/age class.

Season	Adult Male	Female	Male Fawn	Unknown sex	Total	% Harvest
Unknown	0	0	0	0	0	0.00%
Paraplegic	1	7	0	0	8	0.07%
Archery	2,105	1,172	242	2	3521	31.17%
Shotgun	2,773	2,458	552	10	5793	51.28%
Muzzleloader	703	1,009	180	3	1895	16.77%
Sub-Total	5,582	4,646	974	15	11,217	99.29%
Quabbin*	37	35	8	0	80	0.71%
State	5,619	4,681	982	15	11,297	100.00%*

Controlled hunt in cooperation with DCR; limited access

Table 2. The 2008 White-tailed Deer harvest by deer sex/age and the number of antlerless deer permits allocated and issued by Wildlife Management Zone for Massachusetts.

WMZ	Adult Male	Female	Male Fawn	Sex Unknown	Total Harvest	Goal	ADP Allocation	ADP Issued
1	171	67	10	0	248	Stabilize	700	671
2	273	38	4	0	315	Increase	200	189
3	366	265	57	1	689	Stabilize	2,800	2,697
4N	268	74	10	0	352	Increase	450	428
4S	183	26	4	0	213	Increase	250	232
5	357	205	36	0	598	Stabilize	1,650	1,588
6	109	63	9	1	182	Stabilize	550	528
7	393	361	65	3	822	Stabilize	2,700	2,590
8	551	450	70	1	1,072	Stabilize	3,550	3,396
9	557	358	88	0	1,003	Reduce	4,400	4,203
10	824	1,035	186	8	2,053	Reduce	8,750	8,511
11	1,013	972	229	1	2,215	Reduce	9,200	8,805
12	107	95	17	0	219	Stabilize	850	788
13	222	371	103	0	696	Reduce	2,700	1,332
14	188	266	86	0	540	Reduce	2,700	1,026
Statewide	5582	4646	974	15	11,217		41,450	36,987

Table 3. The 2008 deer harvest by wildlife management zone and season.

WMZ	Paraplegic	Archery	Shotgun	Muzzleloader	Total
1	1	49	148	50	248
2	0	87	171	57	315
3	3	165	408	113	689
4N	0	92	192	68	352
4S	0	69	107	37	213
5	0	146	328	124	598
6	2	23	108	49	182
7	0	213	482	127	822
8	0	208	656	208	1,072
9	2	321	489	191	1,003
10	0	890	771	392	2,053
11	0	883	1,014	318	2,215
12	0	46	134	39	219
13	0	197	418	81	696
14	0	132	367	41	540
Statewide	8	3,521	5,793	1,895	11,217

investigated. All of these variables were found to have a significant relationship with deer-vehicle collisions. The results of these analyses were summarized and presented at the Urban Wildlife Conference at UMASS Amherst in June of 2009.

### Chronic Wasting Disease (CWD) Monitoring and Surveillance

In accordance with the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) guidelines for Chronic Wasting Disease (CWD) Surveillance, the DFW continued its surveillance program in FY 09. The USDA-APHIS CWD monitoring and surveillance program is nationwide, and this was the seventh year of sampling in Massachusetts as part of that effort. CWD Project Coordinator Nicki Hamilton-Smith and other DFW staff collected deer heads from each deer management zone to obtain the required samples for a statistically valid stratified sample for Massachusetts. During 2008, Massachusetts collected 398 samples from hunter-harvested, road-killed, and targeted deer from across the state for CWD monitoring and testing. CWD was not detected. Surveillance efforts will continue in the 2009 deer harvest season with funding provided by the USDA-APHIS, especially in the WMZs that border New York state and/or have captive deer facilities.

### Moose Project

#### Population and Mortality

Traditionally, the DFW has collected data about moose sightings from the public, from moose found dead, and from moose-vehicle accidents (MVA). These indices are used to determine population trends and to estimate the moose population in Massachusetts. There have been 1,331 reports submitted to DFW concerning moose since 1924. In FY 09, there were 31 reports made to DFW concerning moose, which included 12 MVA, 10 sightings, 2 moose found dead, 1 illegal kill report, 4 Large Animal Response Team (LART) responses, and 2 relocations of problem moose. The trend in moose sightings reported to DFW continues to decline and there was a decrease in reported MVA from 2006.

Figure 2 shows the number of MVA from January 1980 through 2008. MVAs are all moose that were struck and killed on Massachusetts highways, plus all moose that were struck by vehicles but walked away from the accident. There have been 319 MVAs in Massachusetts from 1980 to 2008 (Table 4) reported to DFW. Figure 3 presents the number of MVAs by town from 1980 to 2008. We feel that this is a minimum number, since not all the MVAs are reported to the DFW or to the Environmental Police and we are learning about some incidents indirectly through newspaper reports.

The current moose population in Massachusetts is estimated to be between 850 and 950 animals. Deer and Moose Project Leader Sonja Christensen and DFW staff use a basic population model that incorporates sighting rates from the deer hunter survey and available moose habitats in the 12 Wildlife Management Zones (WMZ)

**Table 4. The moose mortality reported in Massachusetts from 1980 to 2008.**

Total MVA is the sum of roadkill and non-lethal collisions, while total mortality is the sum of total MVA and other mortality.

Year	Roadkill	Collisions	Total MVA	Other Mortality	Total Mortality
1980	1	0	1	0	1
1981	0	0	0	0	0
1982	0	0	0	0	0
1983	1	0	1	0	1
1984	0	0	0	0	0
1985	2	0	2	0	2
1986	0	0	0	3	3
1987	0	0	0	0	0
1988	1	0	1	1	2
1989	2	0	2	2	4
1990	0	0	0	0	0
1991	2	0	2	4	6
1992	5	0	5	5	10
1993	8	0	8	4	12
1994	5	0	5	3	8
1995	8	0	8	5	13
1996	12	1	13	5	18
1997	11	0	11	4	15
1998	6	4	10	8	18
1999	8	0	8	9	17
2000	9	0	9	6	15
2001	18	2	20	10	30
2002	22	5	27	13	40
2003	28	5	33	6	39
2004	43	9	52	15	67
2005	25	5	30	20	50
2006	27	12	39	16	55
2007	11	9	20	10	30
2008	10	2	12	7	19
<b>Total</b>	<b>265</b>	<b>54</b>	<b>319</b>	<b>156</b>	<b>475</b>

that have potential for moose (Figure 1). We do not include Cape Cod and the islands in our estimate, as they do not offer potential moose habitat.

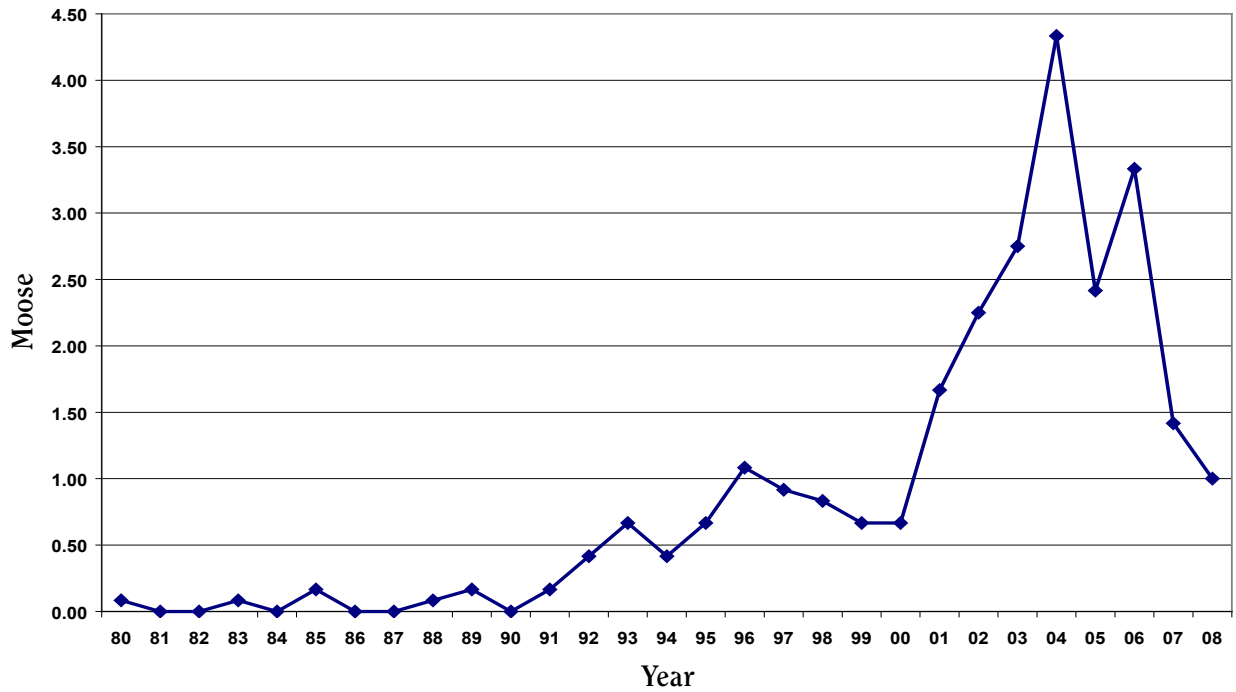
#### CWD Monitoring and Surveillance

DFW staff included moose in the CWD surveillance and monitoring for 2008. CWD Project Coordinator Nicki Hamilton-Smith collected one sample from a young moose during the winter of 2008-2009; CWD was not detected.

#### Ongoing Geo-spatial Research

In 2008, the DFW continued work on a research project with USGS, wherein DFW staff use data from GPS collars to evaluate movement and habitat use in Massachusetts at a detailed level. Moose were captured during the fall and winter of 2008. A total of nine moose were captured during this time period, five males and four females. Five of the moose, which were free-ranging, were stalked and darted, then fitted with GPS tracking collars. One moose,

Figure 2. Moose vehicle accidents (MVA) reported in Massachusetts from 1980 to 2008.



### Moose Vehicle Accidents from 1980 to 2008

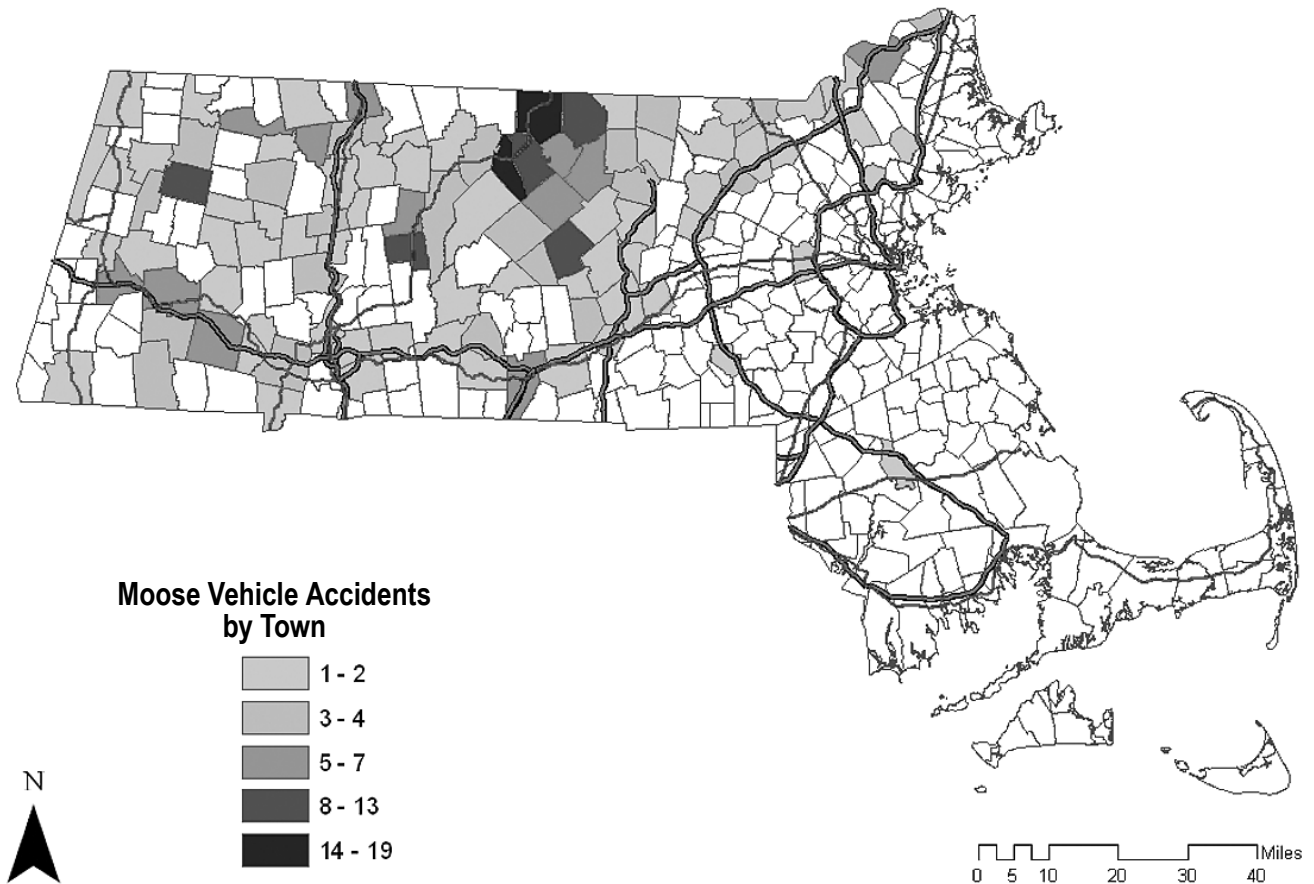


Figure 3. The number and location by town of the moose vehicle accidents reported from 1980 to 2008 in Massachusetts.



*DFW Biologists estimate that there are about 900 moose in the Commonwealth.*

located through a VHF radio emplaced on its GPS collar, was successfully approached, darted, and re-collared. Three problem moose were captured, transported from urban areas, and fitted with GPS collars before release.

Full or partial data sets were obtained from 12 GPS collars during the reporting period. One of the moose was recaptured, its collar was removed, and a new GPS collar was emplaced. One collar was removed from a moose that had died at the end of winter. Five collars were recovered after the release mechanisms on the collars were triggered either remotely or automatically due to low battery. The collars performed well and logged between 1,000 and 4,000 locations per animal. Additional data was downloaded remotely from five collars, each collar providing approximately 3,500 to 9,500 positions, depending on how long they were deployed. The number of successful captures of free-ranging moose during this segment and the results from the collars obtained from moose to date promise a good data set from this project. Continued capture efforts will be made in the fall and winter of 2009.

## Forestry Program

### Overview

The Forestry Program is a component of the DFW's Biodiversity Initiative, which seeks to maintain and restore the diversity of Massachusetts' native flora and fauna through active land management. The Forestry Program focuses on creating a distribution of successional stages from young forest habitat to biologically mature (late-seral) forest habitat in a landscape context that will conserve the biological diversity of species and communities within the forest ecosystem.

The Forestry Program's objectives are to:

- Build and maintain a forest inventory and property boundary geo-database with GIS landcover maps, and establish property boundary lines in the field for each Wildlife Management Area (WMA).
- Use inventory data to design and carry out both commercial forest harvesting operations and non-commercial management activities to meet landscape composition goals for successional forest habitats that maintain biological diversity, using ecological regions (ecoregions) as the fundamental planning units for management.
- Conduct pre- and post-treatment biological monitoring to determine the response of wildlife populations to forest cutting operations.

DFW Forestry Program landscape composition goals include 15-20% young forest habitat less than or equal to 30 years old, 10-15% biologically mature forest habitat greater than or equal to 150 years old, and 65-75% mid-successional forest habitat between 30-150 years old. Forestry Program Leader John Scanlon and two Management Foresters conduct commercial forest harvesting operations through a public, competitive bidding process in compliance with DFW forest management guidelines to create young forest habitat. The guidelines provide a sequential checklist of steps for each sale to insure that landscape conditions are assessed, and that management activities reflect landscape conditions. Prior to any cutting operation, DFW foresters consult with District staff to address local access and aesthetic issues, and with personnel from the DFW's Natural Heritage and Endangered Species Program to conserve state-listed species and priority natural communities on WMAs. All forest management activities receive permits from the Department of Conservation and Recreation under the Massachusetts Forest Cutting Practices Act (Ch. 132 MGL).

### Forest Certification

The DFW completed its initial 5-year land certification period in April 2009 under the international Forest Stewardship Council (FSC) criteria for sustainable forestry. DFW is participating in a re-certification audit and anticipates successful completion of the audit for state wildlife lands, with publicly reviewed forest management plans, by October 2009. FSC third-party certification assures the general public that all forest cutting practices employed by the DFW are sustainable on an ecological, economic, and social basis. Information on DFW forest management is available to the general public at: [http://www.mass.gov/dfw/dfwele/dfw/habitat/management/bdi/forest\\_mgt/forest\\_mgt\\_home.htm](http://www.mass.gov/dfw/dfwele/dfw/habitat/management/bdi/forest_mgt/forest_mgt_home.htm).

### Forest Inventory and Analysis

The DFW Forestry Program completed Allowable Harvest (AH) estimates in FY 08 (see the 2008 Annual Report for details) and therefore did not need to focus on additional inventory work in FY 09. Future work will

be done to inventory DFW lands acquired in the past few fiscal years.

### Boundary Marking

DFW Foresters marked 1.2 miles of boundary at the Powell Brook WMA and researched boundary lines to be marked at the Hiram Fox and Fox Den WMAs. DFW contractors conducted extensive research on boundary lines at the Wendell WMA and the Whately Swamp WMA, and flagged a total of 57 miles of boundary line at the Millers River, McKinstry Brook, Savage Hill, Oakham, Whately Swamp, High Ridge, and Wendell WMAs. Contractors signed, blazed, and painted 10.7 miles of the 57 miles. DFW staff is in the process of signing, blazing, and painting the remainder of the flagged lines.

### Forest Harvesting Operations and Management Activities

DFW completed a 22-acre treatment at the Stafford Hill WMA in Cheshire designed to regenerate young aspen forest habitat. Harvest volumes included 33 MBF (thousand board-feet) of northern hardwood saw timber and 200 cords of aspen pulpwood. DFW Foresters worked with loggers on this site throughout the harvesting operation to ensure that scattered wild apple trees, black cherry trees, and native shrubs were retained, and to ensure that an adequate amount of coarse woody material was retained on site, to replenish soil nutrients and secure habitat structure. A previous review of the forest cutting plan for this site by the Natural Heritage and Endangered Species Program determined that there were no rare species identified within the Stafford Hill aspen harvest area.

Timber sale preparation includes marking of trees to be cut, marking of trees to be retained (including mast-producing trees such as black cherry, American beech, and red oak, to enhance wildlife habitat after the cut), location of wetland resource areas, rare species habitat, and priority natural communities, lay-out of temporary access roads, placement of water bars and other erosion control structures, and preparation of Chapter



*A Fecon mowing head mounted on an ASV-100 loader was used to mow smaller trees and shrubs less than 4 inches dbh over the entire 47.5 acres, and was followed by a whole-tree chipping operation on 29.9 of these acres to cut and remove larger trees.*

132 Forest Cutting Plans. As previously mentioned, all sales are prepared in compliance with the DFW's Forest Management Guidelines, which seek to create a distribution of forest successional stages (from early-seral to late-seral forest) in a landscape context that will maintain biological diversity. Intensity of cutting varies from moderate (group shelterwoods) to high (Aggregate Retention Cuts: ARC), but groups of mature trees are retained on all sites. Planned harvests are typically designed to regenerate mixed stands of white pine, red and white oak, and high quality northern hardwoods, including black cherry and white ash.

Following sale preparation, DFW Foresters supervise logging activities (e.g., ensure that small-diameter, unmerchantable stems are cut to facilitate regeneration of high quality hardwoods; ensure that retained trees are protected from damage by logging machinery; ensure that logging slash is reduced throughout the cut to facilitate public access; and ensure that erosion control measures are maintained). A portion of the monetary value for all sales is realized in the form of 'in-kind' services on the WMAs. Services often include grading, liming, fertilizing and seeding of landing areas, improvement and subsequent stabilization of existing woods roads using Massachusetts' Best Management Practices (BMPs), and felling and slash reduction of non-merchantable trees to encourage regeneration of desired tree species and enhance early-successional wildlife habitat. All income from a timber sale is typically not received in the same fiscal year the sale is marked. When a sale is awarded through the public bid process, the qualified vendor submitting the highest bid is awarded the contract. Ten percent of the high bid is due at the time the contract is awarded, and the balance (90%) is due prior to the start of cutting, or within 1 year of the contract award, whichever comes first. Vendors are given up to two years to complete cutting, so that they can take advantage of variable market conditions.

### Biological Monitoring

DFW foresters continued a long-term survey of breeding birds on a 1,000-acre parcel of the Hiram Fox WMA in Chester, where they track species diversity and abundance over time in response to various forest cutting practices. They also began post-harvest vascular plant surveys at various DFW timber sale sites in FY 09, and plan to complete surveys by October 2009.

Vascular plant surveys determine the relative abundance of all vascular plants in the forest understory and overstory, with special attention being given to identifying invasive, exotic plant species for subsequent control efforts, and identifying any rare plants that were not previously known on the site in order to design mitigation strategies to be implemented during harvesting activities. Post-harvest surveys were initiated at the Herm Covey, Phillipston, Birch Hill, and Montague Plains sites in FY 09. Results for previous timber sale sites are available at: [http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest\\_mgt/plant\\_surveys.htm](http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/plant_surveys.htm).

## The Upland Habitat Management Program

### Overview

The Upland Habitat Management Program (Upland Program) is a component of the Biodiversity Initiative established under the 1996 Open Space Bond Act to maintain and restore native diversity of flora and fauna through active land management. The Upland Program focuses on reclaiming abandoned-field and other early-successional habitats, which have become increasingly scarce over the past 75 years.

The goals of the Upland Program are to:

- Foster and apply the best available science to identify appropriate sites for management of declining early-successional habitats (e.g., abandoned agricultural fields, aspen forest stands, abandoned orchards) while maintaining extensive, unfragmented forest lands.
- Implement strategies and techniques to manage and restore declining early-successional habitats, to ensure that they continue to support native flora and fauna.
- Systematically monitor the effects of habitat management on plant and animal communities, to ensure that managed habitats continue to support the native biodiversity of Massachusetts.
- Identify habitats where Upland Program objectives are complementary with Ecological Restoration Program objectives and pursue joint endeavors with that program.

### Abandoned Field Reclamation and Maintenance

The Upland Program reclaimed or maintained over 200 acres of abandoned fields, abandoned orchards, savannah, and/or aspen forest across the state in FY 09, using a number of different private machinery operators. Work occurred at the following locations:

WMA	Town	Habitat Type	Objective	Acres
Martin Burns	Newburyport	Shrubland	Reclaim	11.6
Francis Crane, So.	Falmouth	Savannah	Reclaim	47.5
Francis Crane, So.	Falmouth	Savannah	Maintain	29.9
Francis Crane, No.	Falmouth	Shrubland	Reclaim	6.0
Muddy Brook	Hardwick	Shrubland	Reclaim	25.5
Leyden, North	Leyden	Shrubland	Reclaim	46.3
Montague Plains	Montague	Savannah	Maintain	37.3
Stafford Hill	Cheshire	Shrubland	Reclaim	14.1
Total				219.2

**Martin Burns WMA:** During January-April 2009, 11.6 acres of 40-80-year-old forest growing on abandoned pastureland was cleared of most standing trees to expand and connect to the adjacent 93.4 acres of existing shrubland habitat that had been treated in FY 08. The total shrubland area now totals 105 acres. Most of the original 93.4 acres of shrubland habitat occurred in relatively long, narrow rectangles, and the 11.6 acres of shrubland expansion accomplished in FY 09 substantially broadened the outline of the shrubland area and enhanced the area-to-perimeter ratio for this site. A whole-tree harvesting machine was used to fell

and bunch trees, and grapple skidders were used to transport felled trees to a landing area for processing (primarily chipping). Scattered mast-producing trees, den/cavity trees, wild apple trees, and native shrubs were retained within these 11.6 acres. A substantial amount of woody debris was also retained throughout these 11.6 acres, and some of the debris was put into brush piles using a combination of mechanical (ASV grapple) and manual labor. Within the adjacent 98.4 acres of existing shrubland habitat, a treatment to remove and chip occasional trees greater than 4 inches in diameter at breast height (dbh) is planned for FY 10.

**Frances Crane WMA, South:** During December 2008-March 2009, 47.5 acres of pitch pine/oak savannah were created adjacent to 89.5 acres of savannah habitat treated in FY 08. In coordination with the DFW Ecological Restoration Program, future maintenance of this savannah habitat will be done using a combination of prescribed burning and mechanical mowing.

**Frances Crane WMA, North:** In March 2009, 6.0 acres of former hedgerow within the adjacent 172-acre grassland were cleared of trees and down woody debris to facilitate future mowing and/or prescribed burning for grassland-dependent bird, butterfly, and plant species.

**Muddy Brook WMA:** During January-February 2009, invading trees were cleared from 25.5 acres of abandoned pastureland adjacent to 53 acres of abandoned field that had been treated in FY 08. Scattered mast-producing trees, den/cavity trees, wild apple trees, and native shrubs were retained within these 25.5 acres. A substantial amount of woody debris was also retained throughout these 25.5 acres, and some of the debris was put into brush piles.

**Leyden WMA, North:** A total of 46.3 acres of abandoned blueberry fields were reclaimed. Native fruit-producing shrubs were retained, along with occasional mast-producing trees (e.g., black cherry and red oak). All woody material was mulched in place.

**Montague Plains WMA:** A total of 37.3 acres of existing pitch pine/scrub oak savannah habitat was mowed to facilitate future maintenance by prescribed burning.

**Stafford Hill WMA:** A total of 14.1 acres of abandoned pastureland was reclaimed in FY 09 adjacent to 55.5 acres that had been reclaimed in FY 08. Native shrubs and young cherry trees were retained during this work.

### Invasive Plant Control

A combination of private applicators and DFW field staff used selective herbicide and mechanical treatments to control invasive plants on 246 acres of project sites at the following locations (see table above right):

**Frances Crane WMA, North:** Contracted licensed pesticide applicators selectively applied herbicide to control invasive Japanese knapweed and other invasive exotic plants over 87 acres of existing grassland habitat.

**Invasive Plant Control Treatments FY 2009**

Site Name	Town	Habitat Type	Treatment Type	Acres
Crane WMA, North	Falmouth	Grassland	Initial foliar herbicide treatment	87.0
Crane WMA, South	Falmouth	Shrubland	Foliar herbicide follow-up	38.4
Noquochoke WMA	Dartmouth	Shrubland	Initial foliar herbicide treatment	38.0
Hiram Fox WMA	Chesterfield	Shrubland	Foliar herbicide follow-up	44.8
Hiram Fox WMA	Chesterfield	Shrubland	Initial foliar herbicide treatment	7.0
Poland Brook WMA	Conway	Shrubland	Initial foliar herbicide treatment	3.3
Eugene Moran WMA	Windsor	Shrubland	Foliar herbicide follow-up	27.5
<b>Total</b>				<b>246.0</b>

**Frances Crane WMA, South:** Contracted licensed pesticide applicators selectively applied herbicide to control exotic honeysuckles, autumn olive, and other invasive woody plants over 38.4 acres of abandoned field area.

**Noquochoke WMA:** Contracted licensed pesticide applicators selectively applied herbicide to control exotic honeysuckles, autumn olive, and other invasive woody plants over 38 acres of abandoned field area.

**Hiram Fox WMA:** Contracted licensed pesticide applicators made selective spot-treatments of herbicide to control exotic honeysuckles, autumn olive, and other invasive woody plants over 44.8 acres of abandoned pasture land that had not been controlled during a previous treatment in FY 08. An adjacent, additional 7 acres of reclaimed hedgerow received an initial application of herbicide to control invasive, exotic woody plants.

**Poland Brook WMA:** A total of 3.3 acres of abandoned field habitat received cut-stem treatment to control invasive woody shrubs, including exotic honeysuckles, autumn olive, and other invasive woody plants, adjacent to 46.1 acres of abandoned field area that had been treated for invasive plants in FY 08.

**Eugene Moran WMA:** A total of 27.5 acres were treated to control invasive plants by contracted licensed pesticide applicators. Herbicide was selectively applied to control exotic honeysuckles, autumn olive, and other invasive woody plants.

**Biological Monitoring:** To determine the success of habitat treatments over time, a long-term monitoring program of birds, butterflies, and vegetation was implemented during the summer of 1999 on Upland Program sites across the state. During summer 2009, breeding bird surveys were conducted on 335 acres across seven different sites.

Site	District	Survey Type*	Acres
Dunstable Brook WMA	Northeast	B	30
Cass Meadows, Millers R. WMA	Central	B	40
Poland Brook WMA	CT Valley	B	50
Leyden WMA	CT Valley	B	40
Herm Covey WMA	CT Valley	B	80
Hiram Fox WMA	Western	B	75
Peru WMA	Western	B	20
<b>Total</b>			<b>335</b>

\*B = Breeding bird survey

The results of the various monitoring efforts indicate that target species of greatest conservation need benefit from Upland Program management activities. Data further indicate that, following initial reclamation work, target species abundance peaks at 5-6 years following treatment, and therefore maintenance mowing should be conducted every 8-10 years.

**Keystone Program**

The Upland Program provided \$2,500 to partially fund the Keystone (formerly Coverts) Program, a 3-day forestry and wildlife habitat conservation workshop for individuals who are in a position to impact conservation in their communities (keystone individuals), in spring 2009. Dr. David Kittredge, the UMass Cooperative Extension Forester, and Mr. Paul Catanzaro, Extension Forestry Specialist, organize the workshop, and invite knowledgeable speakers to discuss topics including Massachusetts land use history, the Forest Cutting Practices Act, elements of wildlife habitat, habitat management techniques, and habitat types, including early-successional habitats. The participating individuals may serve on local conservation commissions and/or land trusts, or may own undeveloped property that serves as wildlife habitat. The 25 community leaders who participated in the spring Keystone workshop are collectively responsible for the stewardship and management of more than 19,000 acres of private, land trust, or municipal lands.

**Wildlife Section Staff**

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*Assistant Director*

James Cardoza, *Black Bear / Turkey Project Leader*  
Sonja Christensen, *Deer and Moose Project Leader*

Lori Cookman, *Permit Specialist*  
Tom Gieder, *Wildlife Technician*

Laura Hajduk, *Furbearer Project Leader*  
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Colleen Hubbard, *Clerical*

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Ben Mazzei, *Upland Program Coordinator*

Jonathan McGrath, *Wildlife Forester*  
Trina Moruzzi, *Wildlife Biologist*  
John Scanlon, *Forestry Project Leader*  
David Scarpitti, *Upland Game Bird Biologist*



# HABITAT MANAGEMENT ON PRIVATE LANDS

John O'Leary, Supervisor

## Overview

Private lands management is essential to the conservation and restoration of important fish and wildlife habitats in Massachusetts. Eighty percent of the land base in Massachusetts is privately owned, and many threatened and endangered species occur on these lands. Two of the programs administered by the Division of Fisheries & Wildlife (DFW) that enhance species habitat on private lands are the Landowner Incentive Program (LIP) and the DFW Technical Assistance Program to the Natural Resources Conservation Service (NRCS). Where applicable, these programs work with other DFW staff when conducting site visits and providing technical assistance. These programs are designed to partner with private landowners, to provide financial and technical assistance to benefit Massachusetts's declining species, including Massachusetts List of Endangered, Threatened, and Special Concern Species as published by the Natural Heritage and Endangered Species Program; Species in Greatest Need of Conservation as defined by the State Wildlife Action Plan; and Massachusetts LIP At-risk Species as identified by the Landowner Incentive Program.

## Landowner Incentive Program

The Massachusetts Landowner Incentive Program (LIP) was established to create partnerships between state biologists and private landowners, to identify common habitat management goals and to provide financial and technical assistance to help landowners achieve those goals. Private landowners often have limited resources available for on-the-ground wildlife habitat management. LIP is a cost-sharing program to which private landowners may apply with specific projects that will manage wildlife habitat, conserve natural communities and declining species, and promote biological diversity on their lands. Projects that are chosen for LIP funding are reimbursed for up to 75% of the cost of the on-the-ground practices that are performed to complete the project; the landowner provides the remaining percentage either in funds or in in-kind labor or equipment.

In awarding grants, LIP staff focus on the management of private lands identified by the BioMap project as essential for the conservation of declining species. The LIP has played an integral role in restoring and conserving such wildlife habitat on a diverse array of private lands across the state since its implementation in 2005. The goals of the program are to:

- Enhance wildlife habitat for species-at-risk.
- Identify and reclaim appropriate sites for management of declining habitats (especially open land: old field and early-successional forest, wetlands, coastal habitat, and pine barrens).
- Control exotic and invasive plants within habitat being created or restored for species-at-risk.

Funding for this program was allocated by Congress through the U.S. Fish and Wildlife Service (USFWS) to support the habitat management efforts of state fish and wildlife agencies. The DFW received LIP grant funds in each year that funds were available, but federal funding for this program ceased in 2007. The remaining funds for on-the-ground management should be exhausted after FY 10 projects are complete; however, funds will still be available for technical assistance. LIP staff will continue to seek additional support for the program.

During FY 09, LIP received 51 applications for habitat improvement/restoration projects on about 4,100 acres of private lands. Of these applications, 35 were selected for funding in FY 09 (Figure 1). The DFW partnered with these private landowners on 2,639 acres, funding projects for over \$800,000.

- Of the 35 projects awarded, 10 went to land trusts, 12 to conservation organizations, one to a sportsmen's club, and 12 to other private landowners (Figure 2).
- Of the 2,639 acres involved in the projects awarded, 1,283 acres were in coastal habitats, 504 acres were in grasslands, 209 acres were in early successional wetlands, 190 acres were in upland forests, 174 acres were in young forests, 121 acres were in herbaceous/shrubland, 102 acres were in oak savanna or oak barrens, 40 acres were in riparian areas, and 16 acres were in rock outcroppings (Figure 3).
- Of the projects awarded, all had some form of protection: 86% had permanent protection and 14% were enrolled in Chapter 61.
- Of the projects awarded, 71% applied for manual restoration, 80% applied for invasive/exotic plant removal, 26% applied for seeding or planting in the project area, and none applied for a prescribed burn.

At least 174 species of statewide importance (35 invertebrates, 102 vascular plants, and 37 vertebrate animals) have been identified as benefiting from this year's projects (Table 1).



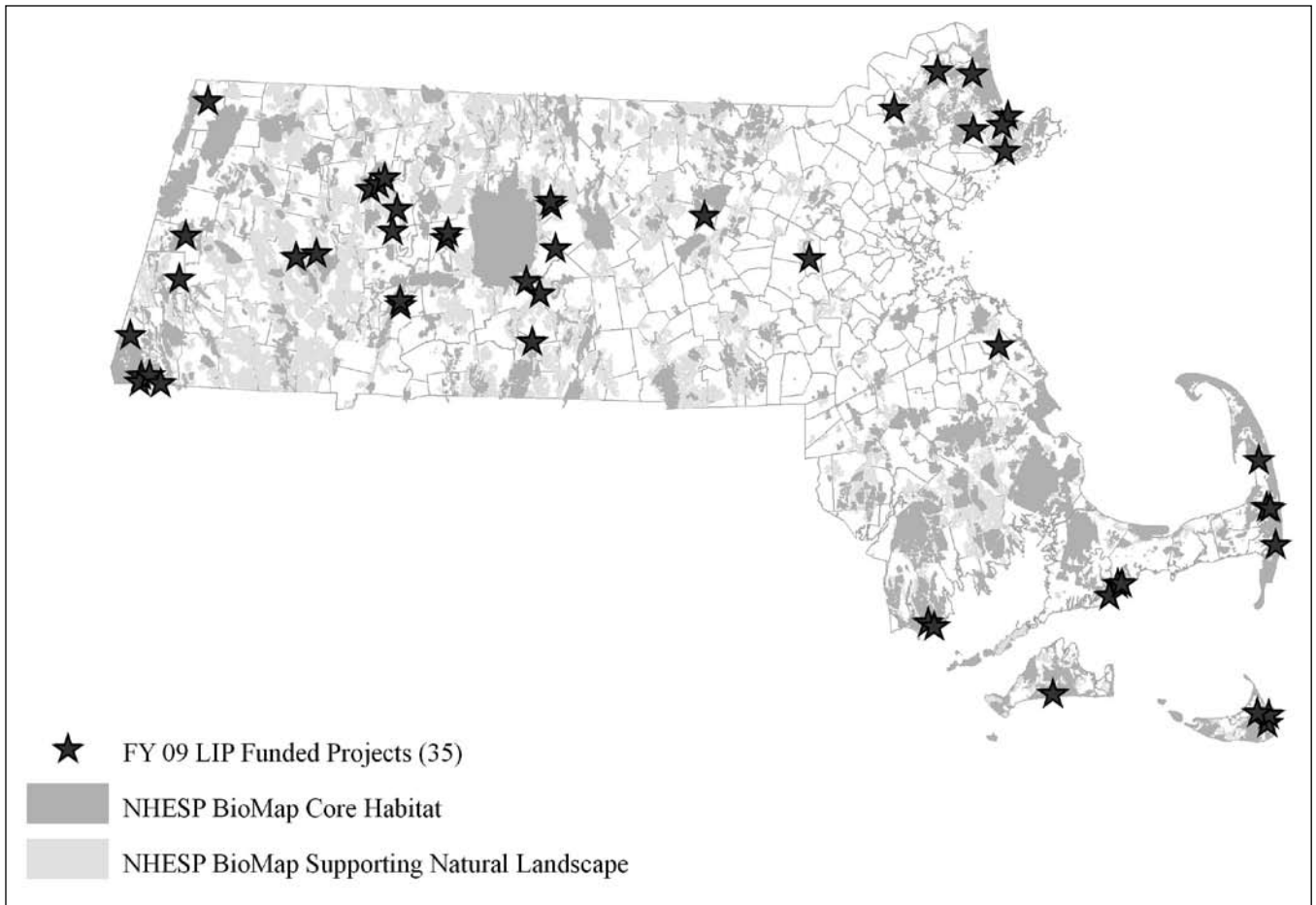


Figure 1. FY 09 LIP Projects

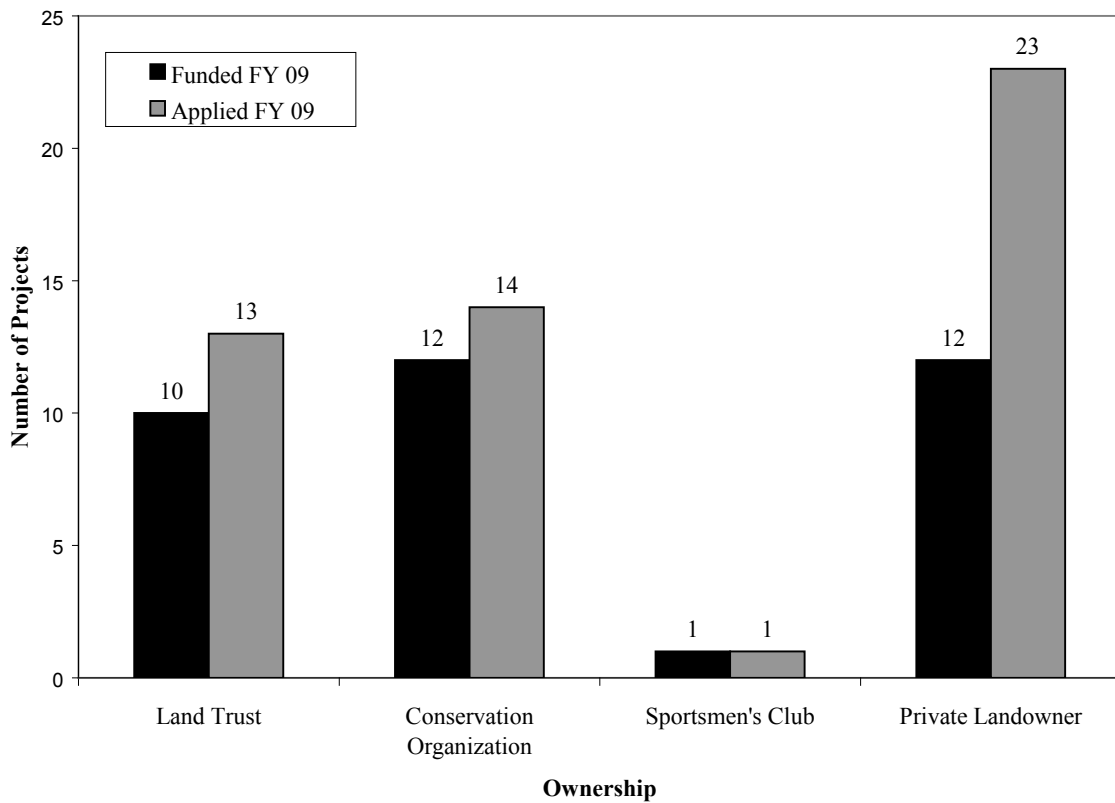


Figure 2. FY 09 LIP Projects by Ownership

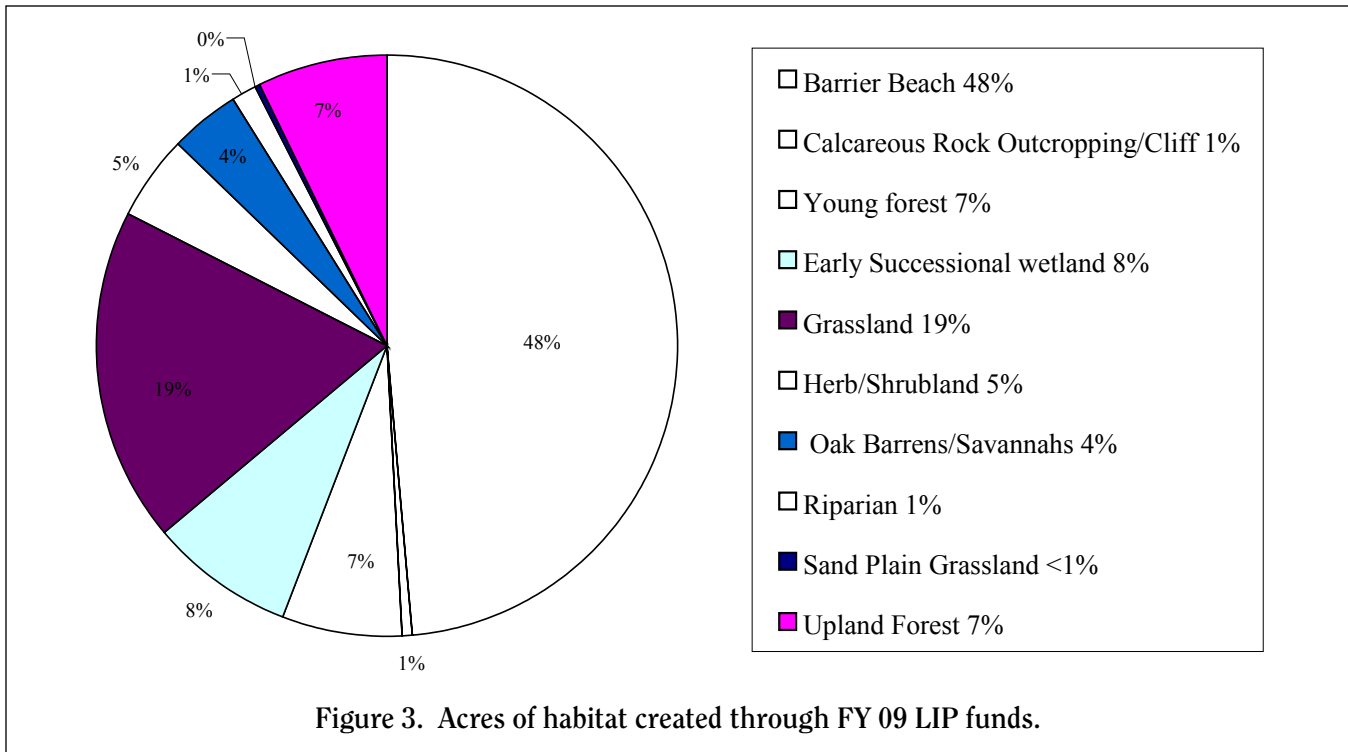


Figure 3. Acres of habitat created through FY 09 LIP funds.

Table 1. Species that benefited from LIP FY 09 funds.

Taxonomic Group	Species
Invertebrates	arrow clubtail, cobra clubtail, dion skipper, drunk apamea moth, skillet clubtail, spartina borer moth, spine-crowned clubtail, stygian shadowdragon, water-willow stem borer, zebra clubtail, chain dot geometer, coastal heathland cutworm, dune noctuid moth, sandplain euchaena, straight lined mallow moth, barrens daggermoth, frosted elfin, Gerhard's underwing moth, northern brocade moth, orange sallow moth, pink sallow, purple tiger beetle, waxed sallow moth
Reptiles	blandings turtle, wood turtle, eastern box turtle, diamondback terrapin, spotted turtle, and four sensitive species
Birds	American kestrel, Artic tern, barn owl, ruffed grouse, killdeer, American woodcock, whip-poor-will, gray catbird, brown thrasher, blue-winged warbler, chestnut-sided warbler, prairie warbler, eastern towhee, eastern meadowlark, bobolink, common tern, grasshopper sparrow, king rail, least tern, northern harrier, orchard oriole, piping plover, roseate tern, savannah sparrow, sharp-shinned hawk, short-eared owl, willet
Fish	bridle shiner
Plants	a filmy-fern, adder's-tongue fern, Andrew's bottle gentian, annual peanut-grass, autumn willow, back's sedge, balsam-poplar, Bicknell's hawthorn, black maple, bog willow, brook-lobelia, broom crowberry, Bush's sedge, bushy rockrose, butternut, chestnut-colored sedge, comb water-milfoil, common sneezeweed, creeping St. John's-wort, crooked-stem aster, Culver's root, Davis's sedge, dioecious sedge, dwarf scouring-rush, false pennyroyal, fen cuckoo flower, fen sedge, few-flowered spikesedge, Fogg's goosefoot, foxtail sedge, Frank's lovegrass, glade fern, Goldie's fern, Gray's sedge, great blue lobelia, green rock-cress, handsome sedge, hemlock parsley, Hill's pondweed, Hitchcock's sedge, hoary willow, intermediate spike-sedge, kidney-leaf violet, knotted rush, Labrador bedstraw, large-bracted tick-trefoil, lesser bladderwort, long-spurred violet, long-styled sanicle, maple-leaf goosefoot, Mattamuskeet panic-grass, moonseed, mossy-cup oak, mud sedge, Nantucket shadbush, narrow-leaved spring beauty, New England blazing star, northern bedstraw, one-flowered pyrola, oysterleaf, pale green orchis, paniced sedge, pendulous bulrush, pink pyrola, purple clematis, purple cliff-break, reticulate nutrush, rock knotweed, rock spikemoss, saltpond grass, sandplain blue-eyed grass, sandplain flax, seabeach knotweed, slender cottongrass, slender marshpink, small bur-reed, small dropseed, small-fruited beadgrass, smooth rock-cress, southern stalked sedge, spring-cress, St. Andrew's cross, stiff gentian, subulate bladderwort, swamp birch, swamp red currant, sweet coltsfoot, tiny cow-lily, Tuckerman's sedge, variegated scouring rush, vetchling, wapato, water sedge, wild black currant, winged loosestrife, winged monkeyflower, yellow oak, and five sensitive species

Taxonomic Group	Species
Invertebrates	New England bluet, oak hairstreak
Reptiles	wood turtle, box turtle
Birds	sharp-shinned hawk, broad-winged hawk, American kestrel, ruffed grouse, killdeer, American woodcock, whip-poor-will, wood thrush, gray catbird, brown thrasher, blue-winged warbler, chestnut-sided warbler, prairie warbler, eastern towhee, field sparrow, song sparrow, white-throated sparrow, indigo bunting, bobolink
Mammals	silver-haired bat, eastern red bat, hoary bat, New England cottontail

Table 2. Species to benefit from WHIP and EQIP contracts assisted by DFW in FY 09.

During FY 09, LIP staff continued to assist private landowners by providing technical assistance, fielding phone calls, and hosting and participating in informational outreach events. LIP staff conducted 25 site visits to landowners not receiving program funding and provided technical assistance to these landowners. During this fiscal year, six informational meetings were held throughout the state, to inform private landowners about the program and provide guidance with the LIP application process. The LIP Application Guidelines were written to aid private landowners with the FY 10 application process. These guidelines were made available on the DFW website and at the informational meetings. LIP information was also presented to the public at the Massachusetts Land Conservation Conference and at five outreach events throughout the state. Additionally,

program staff also created and distributed the annual LIP newsletter.

LIP has continued to promote the Active Habitat Management Database, which will allow the DFW program staff to share data about ongoing and previous management activities on private and state land throughout Massachusetts. A presentation on the database was given at a multi-state meeting on early successional habitat held in Franklin, Connecticut.

To date, the DFW has funded 135 LIP projects and has provided technical assistance to private landowners from Cape Cod to the Berkshires. Through this program the DFW has contributed close to \$2.8 million to the conservation of decreasing species on private land over the program's four year history.

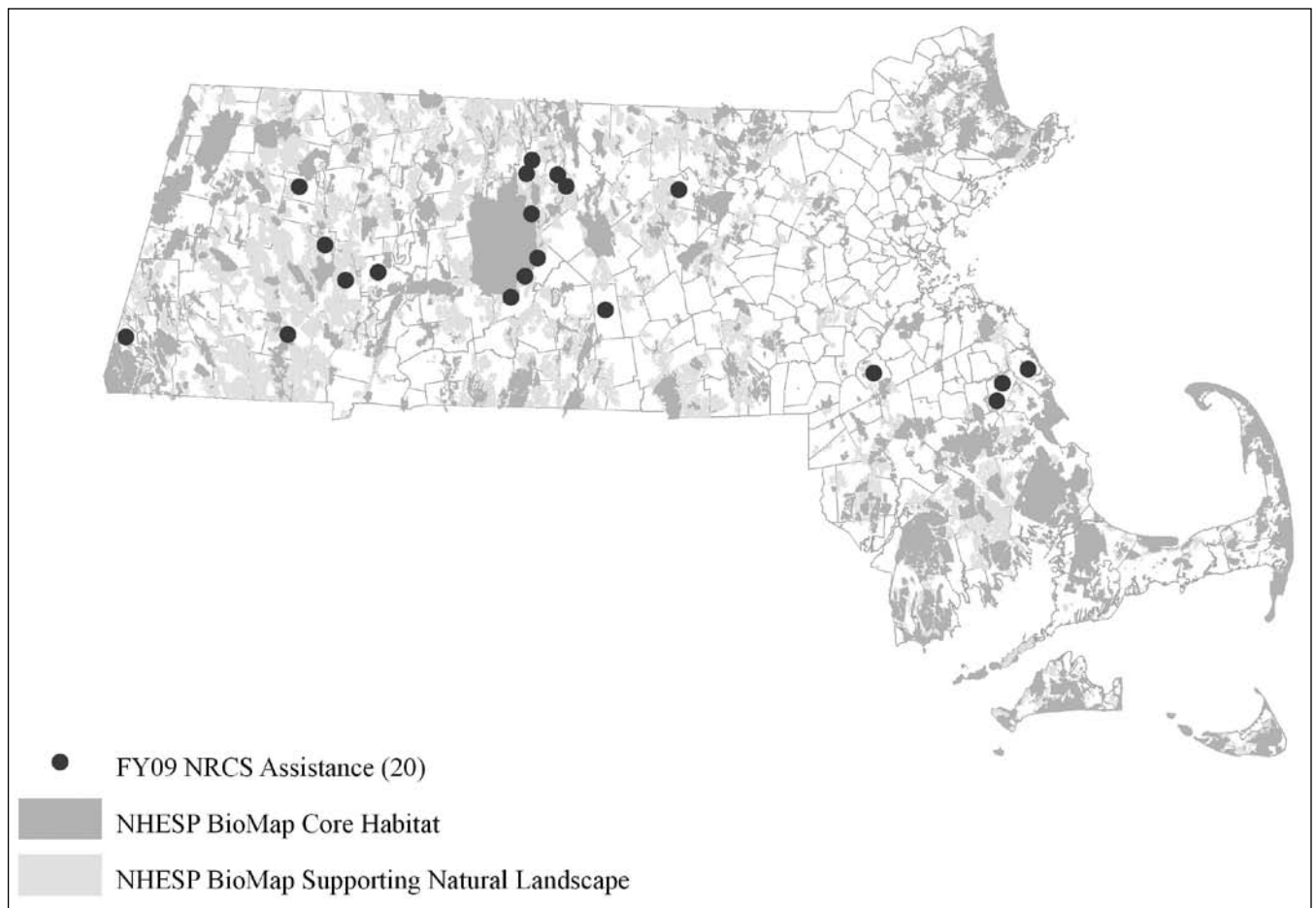


Figure 4. NRCS projects receiving assistance from DFW in FY 09.

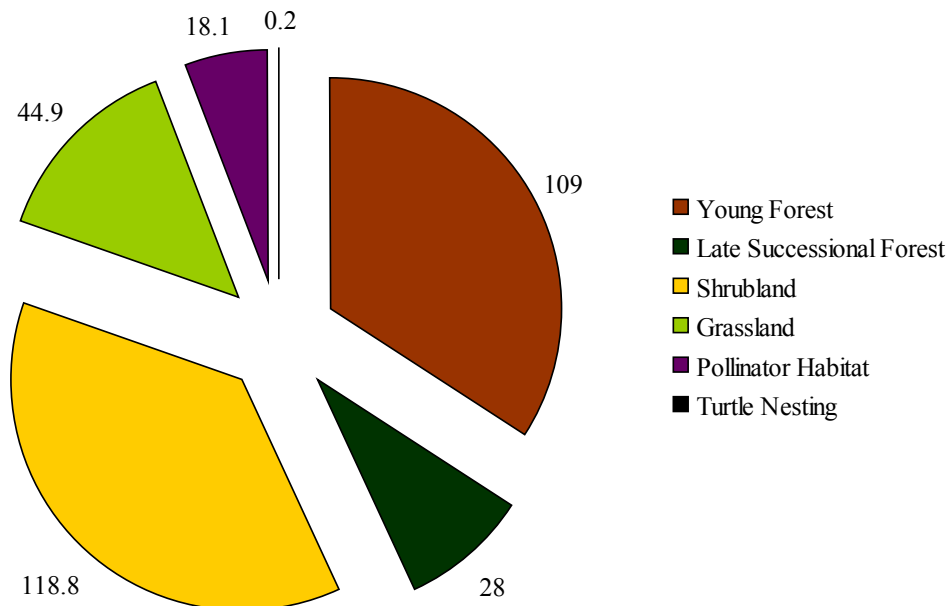


Figure 5. Acres of habitat to be created through NRCS funded projects assisted by DFW.

### Technical Assistance Program to the Natural Resources Conservation Service

The DFW and the Natural Resources Conservation Service (NRCS) have entered into a Memorandum of Understanding whereby a DFW staff person provides technical assistance about wildlife to three NRCS habitat-enhancement programs, the Wildlife Habitat Incentive Program (WHIP), the Environmental Quality Incentives Program (EQIP), and the Wetlands Reserve Program (WRP) all three operating on private lands or town lands being managed by private individuals. In its Massachusetts State Plan for the WHIP program, the NRCS set an objective to coordinate with the DFW to accomplish the goals of the Massachusetts Comprehensive Wildlife Conservation Strategy, now referred to as the State Wildlife Action Plan (SWAP). The NRCS Massachusetts State Plan includes primary strategies that can be employed through WHIP to further the goals of the SWAP in 10 of the 22 habitat types on which the Species in Greatest Need of Conservation depend. The 2008 Farm Bill includes private non-industrial forestland as eligible for funding under EQIP, providing additional opportunities for NRCS and DFW to manage habitat for Species in Greatest Need of Conservation.

During FY 09, DFW Assistant Habitat Management Biologist Marianne Piché made site visits and provided written recommendations to the NRCS for 22 WHIP and EQIP applications. Nineteen of the applicants were awarded contracts, one in Berkshire County, one in Franklin County, four in Hampshire County, one in Hampden County, nine in Worcester County, one in Norfolk County, and two in Plymouth County (Figure 4). In addition, wildlife technical assistance was provided for an existing 136-acre WRP cranberry bog restoration project in Plymouth County, bringing to 20 the total of contracted projects in FY 09. One Special Concern invertebrate species will benefit from

the WRP project, while the WHIP and EQIP projects will benefit 1 invertebrate, 2 reptile, 19 bird, and 4 mammal species-at-risk (Table 2).

The WHIP and EQIP contracts that were assisted by the DFW will result in \$591,994 of federal funding for wildlife habitat management activities on 370.3 acres of land in Massachusetts. Practices to be implemented will result in the creation or maintenance of important wildlife habitat, including 109 acres of young forest, 28 acres of late successional forest, 118.8 acres of shrubland, 44.9 acres of grassland, 18.1 acres of pollinator habitat, and 0.2 acres of turtle nesting sites (Figure 5). Practices implemented on additional acres include pest management (exotic invasive plant species treatment), soil preparation, and creation of grassed waterways.

In FY 09, the DFW-NRCS partnership has effectively ensured that the WHIP and EQIP projects will meet the goals of the SWAP. In particular, site visits and written wildlife habitat recommendations to the NRCS have enabled landowners to modify projects to better meet the habitat requirements of at-risk species. In addition, it allowed the DFW to identify and comment on proposed management practices that may have negative impacts on species, due to size, location, timing, or other factors. The DFW has also contributed to the development of new NRCS practices, including turtle nest site creation and the provision of foregone income for delayed mowing in priority habitat for turtles. In the upcoming fiscal year, the DFW will continue to make wildlife habitat recommendations and will focus attention on the development of practices to benefit the bald eagle and the New England cottontail.

### Landowner Incentive Program Staff

Tracy Grazia, *LIP Coordinator*  
 Marianne Piché, *Asst. Habitat Management Biologist*

# NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM

Dr. Thomas W. French

*Assistant Director, Natural Heritage & Endangered Species Program*

## Priority Habitat Mapping

In FY 09, the Natural Heritage & Endangered Species Program (NHESP) continued to delineate and revise the habitat “footprint” polygons of each new observation point for the 435 rare plant and animal species listed under the Massachusetts Endangered Species Act (ESA). The NHESP also revised and updated species habitat maps based on new information, including new aerial photography and new available research. These species-specific habitat areas were used in the creation of the *13<sup>th</sup> Edition of the Natural Heritage Atlas* (Natural Heritage Atlas), which was released on October 1, 2008. The Natural Heritage Atlas indicates both Priority and Estimated Habitat areas overlain on aerial photographs. The information was released in the form of wall-sized individual town maps, a CD viewer, and a hard-copy bound atlas. After the Natural Heritage Atlas was released, the species habitat mapping and the mapping process continued to be refined in preparation of the next edition of the atlas.

## DCR Biodiversity Stewardship Initiative

In FY 09, NHESP staff worked with the Office of Natural Resources in the Department of Conservation and Recreation (DCR) to continue developing ways that the NHESP can provide biodiversity data products and technical assistance for the management of Massachusetts’ forests, parks, and reservations.

Specifically, the NHESP developed comprehensive management recommendations for the maintenance of 13,797 recreational trail segments on 167 DCR properties in Priority Habitat of Rare Species, near vernal pools, or in exemplary natural communities. The NHESP also conducted field surveys in the spring of 2009 on four DCR properties – Pittsfield State Forest, J.A. Skinner State Park, Holyoke Range State Park, and Blue Hills State Reservation – searching for rare plants, reptiles, and amphibians, as well as certifying vernal pools.

## 2008 Field Season Summary

### Birds

#### Piping Plover

A coast-wide network of cooperators reported breeding pairs of Piping Plovers at 119 sites in Massachusetts during May and June 2008. An additional 91 potential nesting sites were surveyed, but no breeding pairs were

detected. The *Index Count* (statewide census, conducted June 1-9) was 551 pairs, and the *Adjusted Total Count* (total number of breeding pairs statewide estimated over the entire season) was 566 pairs. Two regions harbored 63% of the total breeding pairs in the state: the Lower Cape (38.5 %) and the Upper Cape (24.3 %). Individual sites with the largest numbers of pairs were South Beach, Chatham (48 pairs); Sandy Neck, Barnstable (35 pairs); South Monomoy Island, Chatham (26 pairs); Crane Beach, Ipswich (22 pairs); Nauset Spit, Orleans (22 pairs); Coast Guard Beach, Eastham (17 pairs); Sampson’s Island-Dead Neck, Barnstable (16 pairs); and Plymouth Long Beach, Plymouth (16 pairs). Although the 16 largest sites, i.e., those with greater than or equal to 10 pairs, supported 51% of all pairs in the state, the 73 smallest sites (1-3 pairs) were also important, collectively accounting for 19.6% of the total pairs. Overall productivity for the Massachusetts breeding population was 1.41 chicks fledged per pair, based on data reported for 556 of 566 (98%) pairs. By comparison, overall productivity in 2007 was 1.25 chicks fledged per pair.

#### American Oystercatcher

Massachusetts’ coast-wide census of American Oystercatchers, conducted during May and June 2008, resulted in a preliminary total of 200 breeding pairs at 70 sites. No oystercatchers were detected at approximately 155 additional sites that were surveyed. Compilation and reporting of final abundance and productivity data is expected to be completed during the winter of 2009-2010.

#### Terns, Laughing Gulls, Black Skimmers

Cooperators in Massachusetts surveyed 137 coastal sites in 2008 for the presence of breeding Roseate Terns (*Sterna dougallii*), Common Terns (*Sterna hirundo*), Arctic Terns (*Sterna paradisaea*), Least Terns (*Sterna antillarum*), Laughing Gulls (*Larus atricilla*), and Black Skimmers (*Rhynchops niger*). Eighty-five sites were occupied by nesting birds of one or more of these species. Roseate Terns decreased 18.4%, to 1,410 pairs. Common Terns increased 5.2%, to 15,842.5 pairs. Least Tern numbers climbed 21.4%, to 3,776 pairs, the highest recorded since careful record-keeping began. Laughing Gulls increased 4.6%, to 1,582 pairs, also the highest recorded since careful record-keeping began. Five pairs

of Black Skimmers nested during the peak of the season; one additional pair nested late. Four-and-a-half pairs of Arctic Terns nested during the peak (one was paired with a Common Tern, accounting for the half-pair); a possible additional pair nested late. Plymouth Beach is regaining its former status as one of Massachusetts' most important colonial waterbird nesting site after it was abandoned as a tern nest site in 1999. In 2008, about 4,000 pairs nested.

## Buzzards Bay Tern Restoration Project

**Overview:** Common Tern numbers were up slightly from last year, and productivity at all three sites was impressive, indicating a relatively abundant food supply. Roseate Tern numbers were down significantly, mirroring a region-wide decline of about 20%. Collectively, Bird, Ram, and Penikese islands supported 1,379 "peak season" pairs of Roseate Terns (versus 1,682 in 2007; -18.0%) and 5,060.5 "peak season" pairs of Common Terns (versus 4,966.5 in 2007; +1.9%)

**Bird Island:** Common Tern numbers dropped to 1,576 pairs (compared to 1,863 pairs in 2007; -15.4%). Areas around the ponds, which are filled by spring rains, dried out slowly this year, rendering those areas unsuitable for nesting through much of the season. This illustrates the pressing need for habitat restoration on the island. Productivity (1.44 fledglings per pair versus 0.81) was the best in at least the past decade. Roseate Tern numbers also declined – from 919 pairs last year to 747 pairs (-18.7%) this year. Roseate Tern productivity was again very good at 1.12 fledglings per pair. No major predation events were recorded this year.

**Ram Island:** Common Tern numbers were up 6%, to 2,354 pairs (compared to 2,214 pairs in 2007). As was the case on Bird Island, productivity on Ram Island (1.34 fledglings per pair compared to 0.66 in 2007) was better than seen in recent years. Roseate Tern numbers, however, were down (566 compared to 661 pairs; -14.4%). Great Horned Owl predation continued at a lower level than in the last few years – the owl began visiting the island later in the season than usual. This year, at least seven Common Tern adults were taken by the owl. Roseate Tern productivity was very good at 1.25 fledglings per pair.

**Penikese Island:** The Common Tern colony on Penikese grew substantially (+27.1%) this year – peak numbers were 1,130.5 pairs (compared to 889.5); one Common Tern (see note under Arctic Tern) was paired with an Arctic Tern, accounting for the half pair. The practice of distributing appropriate nesting substrate (dead eelgrass clumps) throughout the rocky nesting beach continued, creating about 700 new patches. Productivity was excellent, at 2.47 fledglings per pair. Roseate Tern numbers dropped to 66 pairs (compared to 102; -35.3%). Although numbers were disappointing, productivity was excellent (1.42 fledglings per pair), and for the first time since Roseate Terns began nesting on the island, desertion rates were normal. Two-and-a-half



*Roseate Tern numbers were down significantly mirroring a region wide decline of about 20%.*

pairs of Arctic Terns again nested. No "pure" Arctic Tern chicks survived, but two hybrid Arctic-Common Tern chicks fledged. Predation on chicks was moderate this year, and was mostly attributed to a Northern Harrier. Great Black-backed Gulls and Herring Gulls also took tern chicks.

**Habitat Restoration: Bird Island:** The DFW continues to partner with the U. S. Army Corps of Engineers – New England District (Corps), to restore the eroding tern nesting habitat on Bird Island under the federal Section 206 Aquatic Ecosystems Restoration Program. In August 2008, Executive Office of Energy and Environmental Affairs Secretary Ian Bowles sent a letter of support for the project to the Corps. Receipt of this letter allowed the Corps to begin the Plans and Specifications phase of the project. We recently completed site visits to Bird Island and to potential mitigation sites and also held a meeting with various regulators to update them on the project and discuss mitigation. Timing is tight, but construction in fall 2010 is theoretically possible; fall 2011 is more likely.

**Habitat Restoration: Ram Island:** The New Bedford Harbor Trustee Council funds the habitat restoration on Ram Island. This is a three-phased project: (1) controlling *Phragmites*, (2) filling low spots on the island, and (3) revegetating.

**Phase I:** In Fall 2006, *Phragmites* control began. Treatments were repeated last year and again this year, when *Phragmites* cover was much reduced.

**Phases II and III:** The Project Management Team selected a preferred restoration alternative, which involves filling two low areas of the island to the existing surrounding contour elevations, and revegetating. Upland fill of suitable grain size will be placed on a barge that will be stationed offshore of Ram Island. The material will then be hydraulically pumped onto the island and graded with hand tools, keeping environmental impacts to a minimum. The preliminary estimate for this work is \$260,000.

Working with a consultant, The Garrett Group, the Feasibility Study was finalized, all necessary permits were obtained, and the construction plans were completed. The New England Wild Flower Society was contracted to collect and grow seeds of native plants that generally are not commercially available.

## Public Outreach

New informational signs about the tern colonies on Bird and Ram islands were installed this year. Coastal Waterbird Biologist Carolyn Mostello and tern project staff again partnered with Burr Brothers Boatyard and the Town of Marion to have a live “tern cam” on Bird Island ([www.birdislandterns.org](http://www.birdislandterns.org)). For more information on this project visit ([http://www.mass.gov/dfwele/dfw/nhesp/conservation/birds/tern\\_restoration.htm](http://www.mass.gov/dfwele/dfw/nhesp/conservation/birds/tern_restoration.htm)).

## Marsh Birds

The first year of a comprehensive, 2-year marsh bird inventory began in the Housatonic River watershed of southern Berkshire County in 2008. The intention of this project is to determine the distribution and relative abundance of a targeted suite of marsh birds in this traditionally under-surveyed area, as well as to locate key marsh bird sites and assess the available habitat. Fifty-one sites were visited in 2008, using a standardized protocol of playback tapes in the crepuscular hours, with each site visited three times between May 1 and July 10. Virginia Rail (*Rallus limicola*) was the most frequently encountered target species on the survey, present at 64% of sites, which is consistent with frequencies generated by previous marsh bird projects elsewhere in the state. The Endangered (all listing designations are Massachusetts ESA listings) American Bittern (*Botaurus lentiginosus*) was well-represented in the area, with eight sites found supporting the species (16%). On the other hand, the remainder of the targeted marsh bird suite, with the exception of Marsh Wren (*Cistothorus palustris* [7 sites, 14%]) showed considerably lower numbers. Only three sites supported Sora (*Porzana carolina*), reflecting a dramatic statewide decline in the species, and just one site each supported the state-listed Least Bittern (*Ixobrychus exilis* [Endangered]), Common Moorhen (*Gallinula chloropus* [Special Concern]) and Sedge



Northern Red-bellied Cooters were assisted by a “headstart” program.

Wren (*Cistothorus platensis* [Endangered]). Finally, no sites were found to support either the endangered Pied-billed Grebe (*Podilymbus podiceps*) or the endangered King Rail (*Rallus elegans*). The NHESP thanks Jennifer Strules for her efforts in assisting NHESP staff in surveying this large area. Approximately 100 sites have been identified in the watershed as suitable to support breeding marsh birds: the outstanding sites will be surveyed in 2009.

## Common Loon

In the summer of 2008, a network of cooperators monitored Common Loons (*Gavia immer*) in central Massachusetts. The number of territorial pairs (32) was the highest recorded and the number of nesting pairs (18) was the second highest recorded. Chick productivity, however (0.44 fledglings per nesting pair and 0.25 fledglings per territorial pair), was the lowest number of fledglings per nesting pair since 1985. Eight chicks were presumed to have fledged in 2008 compared to five in 2007, 16 in 2005, and 13 in 2004. Territorial and nesting pairs were observed on 14 waterbodies over the summer, compared to eight in 2007. We recorded a new loon nesting site at Springfield Reservoir in Ludlow, where a breeding pair successfully reared one chick to fledgling status.

## Bald Eagle

During the summer of 2008, there were 26 known territorial pairs of Bald Eagles in Massachusetts. Of these, 24 pairs laid eggs and 22 pairs successfully fledged 33 chicks. In 2007, there had been 25 territorial pairs, and the same number of successful pairs that fledged one less chick. This is the 19<sup>th</sup> year that Bald Eagles have raised young in Massachusetts since their restoration. During these 19 years, 300 chicks are known to have fledged from wild nests.

## Peregrine Falcon

The number of pairs of Peregrine Falcons increased from 9 in 2003 to 11 in 2004, to 13 in 2005, remained at 13 again in 2006, increased to 14 in 2007, and to 15 in 2008. Of the 15 pairs in 2008, 9 successfully fledged 24 chicks (8 female, 11 male, and 5 of unknown sex). Compare this to the 11 successful pairs that fledged 25 chicks in 2007. A new territorial pair was located this year, in a quarry just south of Boston. Last year, a new pair had been located in a quarry just north of Boston. These are the only two pairs known to be nesting in quarries in Massachusetts.

## Reptiles and Amphibians

### Northern Red-bellied Cooter

Between June 2 and July 1, 2008, a total of 70 Red-bellied Cooter nests were found at the primary nesting pond by contractor John Crane. These nests contained 981 eggs (average 14.01 eggs per nest, range 2-24), of which 627 hatched (8.95 per nest). The 24-egg clutch is a new record. Several nests with small numbers of eggs were found uncovered, suggesting that the female was disturbed before she had completed nesting.



Thirty-eight eggs were found with dead embryos (0.54 per nest) and 316 eggs did not develop (4.51 per nest). Of the 627 hatchlings, 117 were kept for headstarting and 510 were released directly into the wild, where they hatched. Thirty-three of the 70 nests (47%) were dug up and moved because they were originally in the way of cranberry bog operations. An additional eight nests, including the last five of the nesting season, discovered on July 6, were found to have been preyed upon before they could be caged. Another five nests, which were not discovered when the eggs were laid in the spring, successfully produced hatchlings.

## Plants

### Rare Plant Inventory

During the summer 2008 field season, 547 plant records were updated, searched for, or discovered.

A survey of a proposed development project in the Berkshires yielded new records of two different globally rare and Massachusetts Endangered orchid species; the newly discovered population of one of the orchid species is the first to be observed in Berkshire County and the state's largest known population of this species.

### Special Projects

**Protecting the Globally Imperiled and Vulnerable Plants of Massachusetts:** This 5-year, USFWS-funded project has three primary objectives: 1) To assess which of the 38 globally imperiled and vulnerable (G1–G3, G4) plant taxa in Massachusetts are in greatest need of a conservation plan; 2) to develop succinct, action-oriented conservation plans for the species that do not yet have one (i.e., to clearly prioritize conservation needs for these species in Massachusetts, such as inventory, monitoring, population recovery, habitat management, and land protection); and 3) to utilize available federal, regional, and state conservation plans to direct conservation action in Massachusetts. During 2006, the first objective was completed. In 2008, work continued on the second objective, and state conservation plans were developed for Eaton's beggars-ticks (*Bidens eatonii*), Schweinitz's sedge (*Carex schweinitzii*), Fogg's goosefoot, (*Chenopodium foggii*), Ram's-head Lady's slipper (*Cypripedium arietinum*), and Acadian quillwort (*Isoetes acadensis*). Work on the third objective of carrying out conservation actions already identified in regional conservation plans was also begun in 2008. By the end of the field season, 27 regional conservation plan actions were completed for 10 species, and 6 more were in progress. Conservation actions were also accomplished for 14 populations of globally rare taxa that do not have state, regional, or federal conservation plans. The following actions were accomplished for the three federally listed plants:

**Sandplain Gerardia (*Agalinis acuta*):** Population census or sampling procedures were conducted at all known population locations (four on Martha's Vineyard and four on Cape Cod). Populations continued to decline following the late summer drought of the previous year. One site at Manuel Correllus State Forest had been managed in

the hopes of reviving a formerly introduced population, but no plants were found.

**Small Whorled Pogonia (*Isotria medeoloides*):** Three populations were known in 2008. The two largest populations had increased in size between 2007 and 2008. The number in flower had increased dramatically at the Leominster location. The small population in Gloucester had only two plants in 2008.

**Northeastern Bulrush (*Scirpus ancistrochaetus*):** NHESP botanists and a UMass Herbarium botanist monitored the sole known population in Massachusetts; the species was not located, possibly due to the very high water level at the site.

**Housatonic River:** PCB remediation is planned for the main stem of the Housatonic River. In preparation for these activities, the NHESP is updating and precisely mapping known occurrences of rare plant and animal species and conducting surveys to find new locations that will be delineated and avoided during pollution clean-up. The NHESP contracted with a field botanist to conduct updates of known rare plant populations along the Housatonic River this year. Fifty-five of 68 plant populations searched for were successfully relocated (81%). Additionally, one new site of Tuckerman's sedge (*Carex tuckermanii*) a Massachusetts Endangered plant, was discovered during this field work.

**Habitat Management of Imperiled Plants on State Land:** Four state-listed plant populations located on state land were identified as high priority for habitat management. Plans have been developed for three of the sites. The NHESP continued in cooperation with the USFWS, DCR, and The Trustees of Reservations to control Pale Swallowwort within the habitats of four Threatened plant species at Mount Tom State Reservation; treatment within a hickory-hop hornbeam woodland, an area known to be important habitat for Shining Wedgegrass (*Sphenopholis nitida*) and Lily-leaf Twayblade (*Liparis liliifolia*), was particularly successful. Work continued on the other three habitat management plans and implementation of both will be completed by the end of 2009.

**Other projects:** The NHESP continued to fund research on the intricate relationship of the hemiparasitic endangered Swamp Lousewort (*Pedicularis lanceolata*) with native and exotic invasive plant hosts. The research will refine our understanding of how best to manage the habitat of this species and encourage expansion of its population.

The NHESP also funded field visits targeted at confirming the identification of Black Maple (*Acer nigrum*), a state species of Special Concern, at population locations for which there is no vouchered specimen or good photograph on record. Black Maple often hybridizes with Sugar Maple (*Acer saccharum*), posing a challenge to its identification. A contract botanist investigated nine sites to confirm that populations were not hybrids, and thus not subject to regulation. Seven of the nine sites



had trees that fit the description of Black Maple; two sites contained only Sugar Maple.

## Regulatory Review

The following table summarizes the environmental reviews conducted during FY 09.

Review Type	Count
Conservation & Management Permits	15
Data Releases	220
MESA Information Requests	405
Forest Cutting Plans	107
MESA Project Reviews	794
MEPA Reviews	128
Notices of Intent	942
Scientific Collection Permits	135
Other	184
<b>Total</b>	<b>2,930</b>
Vernal Pools Certified	481

## Data Management and Data Products

FY 09 Totals	New Records	Updates to Existing Records
Vertebrates	88	272
Invertebrates	58	214
Plants	33	514
Communities	36	11

## Land Protection

In FY 09, the DFW spent about \$12.8 million to protect 10,280 acres of land across the state, bringing the agency's total land holdings to approximately 180,600 acres. Several of this year's acquisitions were of particular relevance to the protection of rare species and exemplary natural communities, as noted below.

**Northeast District:** A Conservation Easement (CE) acquired on 146 acres along the Squannacook River in Shirley, affords protection to Blanding's Turtle (Threatened) and three rare dragonflies (all Species of Special Concern).

**Southeast District:** A 34-acre addition to the Haskell Swamp WMA helps protect habitat for the Water-willow Stem-borer moth (Threatened; endemic to southeastern Massachusetts) and for Eastern Box Turtle (Special Concern). More than a mile of Taunton River frontage was protected in Bridgewater, protecting water quality for Northern Red-bellied Cooters (state and federal Endangered), Wood Turtles (Special Concern), and an Alluvial Red Maple Swamp downstream.

**Central District:** Purchase of a CE on the 1,875-acre Fitchburg Water Supply property in Fitchburg and Ashby protects breeding Common Loons (Special Concern) and habitat for Blanding's Turtle (Threatened).

**Valley District:** Two rare plants, Pale Green Orchis and Adder's-tongue Fern (both Threatened), on Mt. Toby in Sunderland were protected through the acquisition of 20 acres there.

**Western District:** Almost 250 acres were added to the Hawley Natural Heritage Area in Hawley, helping to protect Jefferson Salamanders (Special Concern).

(For a complete review of lands acquired, see Wildlife Lands page 67.)

## Natural Heritage and Endangered Species Advisory Committee (NHESAC)

Full members are: Kathleen Anderson (Chair), Marilyn Flor, Joseph S. Larson, Mark Mello (Vice Chair), Glenn Motzkin, Thomas Rawinski, and Jonathan A. Shaw (Secretary).

Associate members are: William Brumback, Andy Fin-ton, Timothy Flanagan, Wayne Petersen, Mark Pokras, and Bryan Windmiller.

During FY 09, the NHESAC held nine scheduled meet-ings. August has been a traditional vacation month for the Committee, it went on a Field Trip to the Fens of Bedford in July 2008, and the December 2008 meeting was cancelled due to bad weather. All meetings were held at the DFW Westborough Field Headquarters.

### DFW staff presentations to the NHESAC:

- Mapping to Protect Habitat for State-listed Species: the "New" Natural Heritage Atlas (Sarah Haggerty, NHESP Information Manager).
- The Unexpected and Sudden Decline of Massachusetts Bats (Dr. Thomas W. French, Assistant Director, NHESP).
- Conservation of Snakes in Massachusetts: Habitat Protection Under the State Endangered Species Act (Dr. Thomas W. French, Assistant Director, NHESP).
- Gaining a Perspective on Climate Change: Impact to Fish and Wildlife Resources (John O'Leary, DFW Aquatic Ecologist).

### Other presentations to the NHESAC:

- Nantucket Moth Fauna, Then and Now: Species Change over 75 Years (Mark Mello, Lloyd Center for Environmental Studies).
- Photographs of the Invasive Asian Longhorned Beetle (Joe Warfel, Eighth Eye Photography).
- Effects of Climate Change on Migratory Song Birds: Identification and Assessment of Uncertainties (Dr. Nicholas Rodenhouse, Professor of Biological Sciences, Wellesley College).
- Land Conservation Strategies in the Age of Climate Change (Robert Wilbur, Director of Land Protection, Massachusetts Audubon Society).
- Mass. Audubon's Land Information System (John Coolidge, Massachusetts Audubon Society).
- Managing Shrublands for Birds (Kimberly Smith, University of Arkansas).

**Natural Heritage and  
Endangered Species Program Staff**

Thomas French, Ph.D., *Assistant Director, NHESP*

Henry Woolsey, *Program Manager*

Kim Ausmus, *Administrative Specialist*  
Kristen Black, *Endangered Species Review Biologist*  
Tara Boswell, *Natural Heritage GIS Manager*  
Christopher Buelow, *Restoration Assistant*  
Amy Coman, *Endangered Species Review Assistant*  
Bryan Connolly, *Botanist (part year)*  
Karen Dolan, *Finance and Projects Administrator*  
Lori Erb, *Turtle Conservation Biologist*  
Heather Foley, *Conservation Data Specialist (part year)*  
Marea Gabriel, *Aquatic Ecologist*  
Jennifer Garrett, *Conservation Planning Botanist*  
Sarah Haggerty, *Natural Heritage Information Manager*  
Lynn Harper, *Habitat Protection Specialist*  
Emily Holt, *Endangered Species Review Assistant*  
Tara Huguenin, *Natural Heritage Database Manager*  
Michael Jones, Ph.D., *Endangered Species Review Biologist (part year)*  
Kim Justham, *Conservation Data Specialist*  
Jacob Kubel, *Forest Conservation Management Practices Zoologist*  
Lisa MacGillivray, *Vernal Pool Biologist*  
Sarah Maier, *Conservation Data Specialist*  
Misty-Anne Marold, *Endangered Species Review Biologist*  
Scott Melvin, Ph.D., *Senior Zoologist*  
Carolyn Mostello, *Coastal Waterbird Biologist*  
Michael Nelson, Ph.D., *Invertebrate Zoologist*  
Jonathan Regosin, Ph.D., *Regulatory Review Manager*  
Eve Schluter, Ph.D., *Endangered Species Review Biologist*  
Rebecca Skowron, *Endangered Species Review Biologist*  
Tim Simmons, *Restoration Ecologist*  
Patricia Swain, Ph.D., *Natural Community Ecologist*  
Amanda Veinotte, *Regulatory Review Administrator*  
Kathy Wilensky, *Plant Watch List Coordinator (Volunteer)*

**Seasonal Tern Project Staff**

Katie Blake, *Ram Island Site Manager*  
Jenny Cunningham, *Penikese Island Site Manager*  
Abigail Eibin, *Intern*  
Nicole French, *Bird Island Site Assistant*  
Ezra Lencer, *Bird Island Site Manager*  
Sarah Luecke, *Tern Project*  
Tyler Maikath, *Ram Island Site Assistant*  
Molly Sullivan, *Intern*  
Wendy van Dijk, *Penikese Island Site Assistant*

# INFORMATION & EDUCATION

Ellie Horwitz  
*Chief, Information and Education*

## Overview

The Information and Education (I&E) Section has the responsibility and challenge of keeping sportsmen and other constituents apprised of regulations, laws, and recreational opportunities related to wildlife. It provides news about wildlife and maintains a flow of information about wildlife-related issues. In order to enhance public understanding of wildlife management and compliance with laws and regulations, the Section maintains an active program of educational outreach to develop a public that is aware of, and understands, wildlife issues.

## Information and Outreach

### Website Visitation

The website is the primary portal through which members of the public seek information from the DFW. Visitors seek out the website for information posted there and use the agency mailbox for other inquiries.

### New and Revised Web Pages

New pages added to the DFW website during this past year include a Forest Management Site Walk schedule; the Land Acquisition for FY 08; Wonders of Wetlands workshop information; a waterfowl hunting zones map; the 2009 waterfowl stamp winner; the youth turkey hunt; wood duck information (3 pages); Sport Fishing Award winners; the *Living With Wildlife* fact-sheet series additions on Cottontails, Squirrels, Woodchucks, Bats, Raccoons, Skunks, and Neighborhood Wildlife; 12 pages of Best Bets for Fishing, organized by groups of fish; and a technical report on Target Fish Communities.

Pages that were significantly revised and expanded dealt with the paraplegic sportsmen's deer hunt; coyotes; problem animal control; mammals, reptiles, and amphibians; archery, primitive firearms, and waterfowl stamp contest regulations; and notes on the Landowner Incentive Program. In addition, 10 pages were added to the Hunter Education section, 17 pages were added to the existing information about coldwater fish species; and 17 Tables of Contents of back issues of *Massachusetts Wildlife* magazine were posted to facilitate visitor access to the articles published in past years.

Draft guidelines were prepared for DFW staff regarding the posting of Portable Document Files (PDFs). Those guidelines are currently circulating among web gatekeepers and Internet staff is awaiting feedback.

### Email Inquiries

Outreach Coordinator Marion Larson and I&E staff responded to 4,809 DFW email messages in FY 09, a

distinct decrease from 2008 and a reflection of the fact that Ms. Larson and Systems Analyst Rick Kennedy have posted information to the website more rapidly than in the past. The volume of queries was relatively consistent throughout the year, unlike past years, when inquiries peaked in spring and fall.

### *MassWildlife News*

Ms. Larson and staff issued thirteen issues of the newsletter during this fiscal year. The mailing list for hard copies continues to decline and now stands at 1,100 as more and more people express a preference for the electronic version of the newsletter. A review of the mailing list early in the fiscal year resulted in the removal of about 100 addresses. Other addresses were removed when hard copy subscribers asked to switch to email. The number of subscribers to the *MassWildlife News* in electronic format continues to grow. There were 5,639 subscribers at the beginning of July 2008 and 6,438 subscribers by June 2009. Most subscribers self-subscribed online via the website, but sign-up sheets at offices and various events also garnered subscribers.

### *MassWildlife Advisories*

Advisories are sent out as stand-alone items through the *MassWildlife News* email list, to alert various constituencies to new regulations, special events, or other events to which the public is invited. The following notices were sent in FY 09:

**July 2008:** Antlerless deer permit drawing results

**October 2008:** A land event with Governor Patrick at Monterey

**May 2009:** Northern Red-bellied Cooter marking and release

**June 2009:** A DCR Forest Forum in the central region of the state.

### *MassWildlife News* Items Published In Other Organizations' Newsletters

Other organizations use *MassWildlife News* information or contact the DFW to write specific stories for their own newsletters or other publications. Newsletters using DFW articles included:

- **Massachusetts Forest Update** (Produced by the Mass. Forestry Association)

**July 2008:** Turkey Count, Forest Site Management Walks, Turtle Month/crossing

**April 2009:** Vernal Pool Certification Guidelines Revised, Help Stock Salmon Fry

June 2009: Turtle Crossings, Mile-A-Minute Plant Alert, Board Meeting, Project WILD workshop

- **MassLand E-News** (This e-newsletter from the Mass. Land Trust Coalition reaches land trusts, conservation organizations, local conservation commissions, state land protection agencies, and land use attorneys. Nearly every issue carries information from the *MassWildlife News*)

July 2008: Forestry Program Habitat Management Tours; Massachusetts Wildlife Viewing Sites; New Massachusetts Outdoor Recreation Map; Bats in Your Belfry!

August 2008: 6,200 Protected Acres in FY 2008, Road Fencing Partnership Protects Rare Turtles, Yacino Receives Conservation Award, Remembering Dennis McNamara

April 2009: Vernal Pool Certification Guidelines Revision

- **MassAudubon Alert** (Massachusetts Audubon Society)  
July 11, July 18, 2008: The Schedule of Forest Management Site Walks.

- **Civic Engagement Times** (Published by the Office of Appointments and Civic Engagement)

July/August 2008: The migratory game bird season hearing and Board Meeting (sent to all state agency employees).

- **ACOAM Newsletter** (Animal Control Officers Newsletter)  
Reporting Dead Waterbirds, 10 Ways MassWildlife Assists Animal Control Officers, and Leave Young Wildlife Alone.

- **MACC Newsletter** (Massachusetts Association of Conservation Commissions)

Reprinted a MassWildlife News piece on Douglas ConComm member Mike Yacino who received the Francis Sargent Award.

- **Mass. Veterinary Medical Association Newsletter**  
Ten Ways MassWildlife Assists Veterinarians, Their Staff, and Clients; Leave Young Wildlife Alone

- **Connections** (Newsletter of the DCR Trails Coordinator)  
Thank a Landowner for Access for Recreation

#### Media Services

The decline in media-related phone inquiries, documented over the past two years, has continued. Only 56 phone calls were received from the media or in inquiries from the EEA Press Office in FY 09. EEA Press Team members have contacted DFW staff directly when they receive inquiries from the media. There is no longer any mechanism in place to track media inquiries to the DFW. A request has been submitted to the EEA Press Team for reports of media inquiries relating to activities of the DFW.

The following media interviews were arranged in conjunction with the EEA press office:

#### TV and Radio Interviews

July 2008: **Deer hunting on Cape Cod:** DFW Deer Project Leader Sonja Christensen provided information for Department of Fish and Game Commissioner Mary Griffin, who was interviewed by a radio station on Cape Cod.

October 2008: **Paraplegic Sportsmen's Deer Hunt at Devens:** DFW Outreach Coordinator Marion Larson worked with teams that covered this event for the Boston Globe Northwest and Boston Herald.

November 2008: **Deer in Eastern Massachusetts:** Sonja Christensen; *Chronicle*, Channel 5.

May 2009: **Beavers, Flooding Issues,** DFW Furbearer Project Leader Laura Hajduk; with Bill Shields, Channel 5.

#### News Clippings

There were 2,414 news clippings that were received from the clip service. This is a marked decline from the 2,871 clippings received last year. Alternatives are being investigated to develop a method of tracking the content of the clippings.

#### News Clippings Summary by Month

July 08	247	January 09	160
August 08	224	February 09	204
September 08	197	March 09	215
October 08	218	April 09	202
November 08	162	May 09	174
December 08	209	June 09	202

#### Production of Annual Materials

##### Licenses and Abstracts

The Abstracts of Fish and Wildlife Laws and Regulations (Abstracts) which had been expanded to 24 pages in 2008, was further expanded to 32 pages to allow the inclusion of articles of general interest to sportsmen and sportswomen. In addition to the general hunting and fishing Abstracts, special abstracts were prepared for the regulations on hunting migratory birds and for the regulations on the trapping of furbearers. Section Chief Ellie Horwitz once again worked with the DFW's financial staff to update the license sellers' manual. Production of licenses, abstracts, and stamps ran smoothly, with all materials arriving at Field Headquarters on schedule.

##### Massachusetts Waterfowl Stamps

Selection of the art for the following year's Waterfowl Stamp begins in February of each year, when notices are sent to a growing list of artists. Entries are received in late May. All artwork is screened to ensure that each entry meets the rigorous standards of the competition. Each entry must depict a species not used for the Waterfowl Stamp in the previous five years and must show a decoy crafted by a deceased Massachusetts decoy maker. After

the art has been vetted, a panel of judges reviews the artwork in a blind process wherein the identity of the artists is not disclosed.

Five judges reviewed the art submitted for the 2009 waterfowl stamp in July 2008 in a day-long process. The judges selected a painting of a White-winged Scoter drake carved by Samuel Fabens and submitted by artist Barry Julius of Brockton, MA. Following the competition, all of the qualifying artwork was exhibited at the Marblehead Museum in Marblehead. In celebration of this event, the museum hosted a special reception in September 2008 honoring Mr. Julius and celebrating the memory of long-time stamp program advisor, C. G. Rice. The artwork remained on public display at the museum through the middle of October and was much enjoyed by visitors.

### Massachusetts Archery and Primitive Firearms Stamps

The artwork for the 2009 Archery and Primitive Firearms stamps was also selected through blind judging processes in open competition. For this year, the judges selected a painting of two deer in a field by Barry Julius of Brockton, MA, for the Archery Stamp. Artwork chosen for the Primitive Firearms Stamp depicted a buck walking through snowy woods, also painted by Barry Julius.

## Publications

### MASSACHUSETTS WILDLIFE Magazine

The DFW's most visible publication is *Massachusetts Wildlife*, a 40-page, full-color quarterly magazine that is sent to more than 22,000 paying subscribers, a rate that appears to be holding steady. Magazine/Publications Editor and wildlife biologist Peter Mirick and staff gathered and developed articles on a wide variety of fisheries, wildlife, and outdoor-related subjects, including wildlife research, rare and endangered species, general nature interest, natural events (i.e., 17-year cicadas), and "how-to" articles for the hunter, angler, and nature observer in the four issues produced this year (#3, 2008 - #2, 2009). The last issue of the year was a special, expanded (48-page) edition entitled *A Field Guide to the Reptiles of Massachusetts*. In addition to showcasing the DFW's research on rare species and promoting public involvement, it provides a detailed account of the field marks and natural history of every species of snake and turtle found in the Commonwealth, with exceptional photos of each species. This volume should serve as a high quality reference work for many years to come.

Subjects covered in other issues included botanical subjects, such as an in-depth examination of Pipsissewa in all seasons, along with a warning to look for a new invasive species called Mile-A-Minute Vine. There were feature articles on major environmental issues, including climate change, declining pollinators, and (in an editorial) White Nose Syndrome in bats. For anglers there were articles on how to tie a pickerel fly and how to fish with and collect the enormously successful monster

swim baits for bass. For hunters there was a how-to article on pass shooting waterfowl (within sight of the Boston skyline, no less), another on a woman's experiences becoming a successful bow hunter, and another on game preparation (complete with recipes). There was an article on birding (written to encourage a non-traditional audience), and an exceptional photo essay on bird photography. Other articles focused on the Cape Ann Vernal Pond Team, radio telemetry research on the spadefoot toad, and an article on the latest results of a long term study of the black bear population, supported by a unique photo essay on black bear marking behavior. In addition to all there were the usual correspondence pages and book reviews.

The magazine also carried in-house advertisements, one promoting donations to the NHESP Fund (on Line 31A of the state income tax form), which appeared just before income tax time; another showcasing the Becoming an Outdoors-Woman Program; and a third that encouraged gift subscriptions to the magazine itself.

### Other Publications

In addition to the annual materials and the magazine, I&E staff produced and printed (or reprinted) a variety of materials needed for the smooth operation of ongoing programs, including:

- Bear, Turkey and Antlerless Deer Permits and associated notification cards
- Deer check station cards
- The Division of Fisheries & Wildlife's Annual Report
- Manuals and certificates for the Project WILD, Angler Education, and Massachusetts Junior Duck Stamp programs
- Animal track cards (used as handouts for many public programs)
- "Living with Wildlife" information fact-sheets, including new sheets on Cottontail Rabbits, Red and Gray Squirrels, Woodchucks, Raccoons, Skunks, Moose, and White-tailed Deer.
- Handout sheets with information on waters stocked with trout, areas stocked with pheasants, lists of maps of Wildlife Management Areas, new land acquisitions, best bets for bass, waters stocked with Northern Pike and Tiger Muskellunge, and the sport fishing award affidavit form.

Special publications for the year were a booklet entitled *Fishing Guide, a Guide for Beginning Anglers*; a four-color brochure on the Freshwater Fishes of Massachusetts; a revised and updated version of the *Massachusetts Bird Check List*; a reprint of the *Homeowner's Guide to Bats*, and Research Bulletin #20, *The Wild Turkey in Massachusetts*, by Turkey Project Leader James Cardoza.

### Exhibits & Displays

As in past years, the DFW provided staff, displays, and/or handout materials in a variety of venues. Events at which the DFW had a presence this year were:

## Fairs: August through October

**Marshfield Fair** (Marshfield): Visual display, interaction with visitors, and handouts.

**Franklin County Fair** (Greenfield): Visual display (including various mounts and a passive bear video presentation), interaction with visitors (including live turtles), and handouts.

**The Big E** (West Springfield): Handouts (items were handed out at the DCR booth in Massachusetts building).

**Topsfield Fair** (Topsfield): Visual display (including wildlife mounts), interaction with visitors (including live turtles), and handouts.

## Trade Shows, Conferences, Events, and Presentations:

### September

- Lakes and Ponds Association West Conference, Lee: Display table and a presentation by Endangered Species Review Biologist Misty-Anne Marold.
- Waterfowl Art Reception, Marblehead Museum, Marblehead: display table and interaction with visitors.
- Massachusetts Outdoor Exposition (“The Big MOE”), Hamilton Rod and Gun Club, Sturbridge: Display table, interaction with visitors, and handouts.

### October

- Upton State Forest, Upton: CCC day.\*
- Veterinary Medical Association Fall Continuing Education Conference (for Veterinarians, Technicians, Animal Control Officers, and animal welfare groups), Worcester: Display table, interaction with visitors, and handouts.\*
- Peaked Mountain Festival, Monson: Display on native reptiles and amphibians and a presentation by Publications Editor Peter Mirick).

### January

- Flyfishing Show - Marlboro, Marlborough: Display table.

### February

- Eastern Fishing and Outdoor Expo, Worcester: Visual display, interaction with visitors, and handouts.
- Massachusetts Camping Show, West Springfield: Booth adjacent to the DCR display.
- Springfield Sportsmen’s Show, West Springfield: Visual display, interaction with visitors, and handouts.
- Massachusetts Rehabilitators Conference, Grafton: Exhibit table and handouts.\*

### March

- Massachusetts Association of Conservation Commissioners’ Conference, Worcester: Displays, presentations, and public interactions by NHESP staff.

- Massachusetts Land Conservation Conference, Worcester: Table display, presentations, and public interactions by NHESP staff.

### April

- Invasive Plants Workshop, The Trustees of Reservations’ Highland Communities Initiative, Cummington: Presentation by LIP Coordinator Tracy Grazia and Assistant Habitat Management Biologist Marianne Piche.\*

### May

- Marshfield Yester-Days, Daniel Webster House, Marshfield: Table display and public interactions.\*

### June

- Urban Wildlife Management Conference, Amherst: Presentations by Waterfowl Project Leader H Heusmann, “Living with Wildlife” display with fact-sheets and copies of the Massachusetts Wildlife issue with the article on park mallards and geese.

\*new venue as of this year

## Photography

Senior Photographer Bill Byrne continues to provide images in support of DFW programs. His recurring photography assignments include the awards ceremonies at the Massachusetts Junior Conservation Camp in Chesterfield; the Freshwater Sport Fishing Awards in Worcester; the Junior Duck Stamp awards ceremony in Hadley; the Waterfowl, Archery, and Primitive Firearms stamp awards; and the Massachusetts Outdoor Exposition (“The Big MOE”) in Sturbridge. Favorable weather and good publicity brought attendance up to about 4,000 for this latter event, which provided many opportunities for kids and their families to try their hands at outdoor activities, from archery to cooking to kayaking and beyond, and provided Mr. Byrne with photo opportunities for all of them. A new event this year was the Youth Turkey Hunt, and our photographer managed to obtain images of many of the young hunters in the field and returning, some with field trophies.

The DFW’s digital image collection continues to grow with each photo project, providing a powerful resource to staff seeking to illustrate formal papers, to enhance Power Point presentations, or to provide images to the media.

*Massachusetts Wildlife* magazine continues to be the highest priority for photography. Articles submitted by outside authors often reflect years of study and thus also years of supporting photography. In three out of the four issues produced during FY 09, Mr. Byrne worked closely with the authors to help shape their stories around the photos selected. This was particularly evident in *Becoming a Bowhunter*; *A Woman’s Journey*, by Rosemary Kirousis and *World of Wings Bird Photography* by Gail Hansche Godin (both #3, 2008), and in *What’s New in Massachusetts Black Bear Studies?* by Bear Project



Leader Jim Cardoza, Valley District Wildlife Biologist Dave Fuller, and Valley District Supervisor Ralph Taylor (#1, 2009).

By far the most intense photographic task of the year was obtaining images for the Reptile issue of *Massachusetts Wildlife* (#2, 2009): 48 pages packed with specific identification photos and detailed descriptions of every native snake and turtle in Massachusetts. Weeks of effort, working collaboratively with DFW biologists, went into collecting photos that would reflect and illustrate the detailed species descriptions. After guiding image selection for the articles, Mr. Byrne works closely with Editor Peter Mirick during the layout process, to ensure maximum visual impact. Mr. Byrne also reviews color proofs of all images (including those from authors and guest photographers) and calls for specific corrections from the contracted printer. After the final proofs are accepted, he attends the initial press run to ensure the best possible image and color quality.

In addition to providing images for the magazine, Mr. Byrne provided photographs for two major publications that were in process this fiscal year, the updated *Birds of Massachusetts Checklist* and James Cardoza's *The Wild Turkey in Massachusetts* (Research Bulletin #20).

## Education Programs

### Public Education Programs

Staff members of the I&E Section offered programs to civic, community, conservation, and sportsmen's groups on a variety of wildlife-related topics throughout the year. Outreach by Education Coordinator Pam Landry focused on groups of educators, students, and youth gatherings, but was also highlighted at other public events. Other staff members presented programs for both youth and adult audiences on a wide variety of wildlife related topics.

Through these wildlife education programs (general wildlife, wildlife in backyards, endangered species, living with wildlife, etc.), public appearances at conferences, community reading days, and workshops, we continue to reach suburban and urban youth, international students, scouts, Department of Youth Services secure-treatment residents, pre-service teachers, undergraduate and graduate students, learners in formal and non-formal venues, and other adult audiences.

### Formal or School-based Education Programs

#### Pam Landry, Coordinator

**Project WILD:** Twenty-three volunteer Project WILD facilitators offered 31 workshops (12 WILD, 2 Aquatic WILD, 13 combination WILD/Aquatic WILD, 3 Growing Up WILD teasers, and 1 workshop which was cancelled due to under-enrollment). These workshops reached a total of 660 grade pre-K-12 educators statewide. Project WILD was also represented at the Family Resource Center Homeschool Exposition. Workshop participants included undergraduate and graduate college students, formal and non-formal educators, nature center staff,



*Happy participants in the JDS Program display their award winning artwork.*

homeschooling parents, librarians, early childhood educators, Montessori educators, student conservation alliance volunteers, scout leaders, summer camp staff, and land trust volunteers.

A 3-day combined facilitator training was held for 22 educators who were trained to offer Project WILD, Project WET, and Project Learning Tree workshops.

The annual facilitator gathering was held at the Massachusetts Audubon Society's Arcadia Wildlife Sanctuary in Easthampton. Twenty-nine facilitators and one guest enjoyed a day of camaraderie, updates, recognition, and a very current hot-topic presentation by Robert Childs, UMASS Extension, on the *Asian Longhorned Beetle: Environmental and Economic Impacts*.

**Growing Up WILD: Exploring Nature with Young Children** – This is a new Project WILD-based early childhood initiative now underway in Massachusetts with professional contacts being made with the Mass. Association for the Education of Young Children (MAEYC), Head Start, the Mass. Department of Early Education and Care, and Child Care Resource and Referral. Three Growing Up WILD 'teaser' workshops were offered and very enthusiastically received.

**Junior Duck Stamp Program (JDS), "Connecting Children with Nature through Science and Art":** Students in grades K-12 from across the Commonwealth submitted 234 pieces of artwork to this "Conservation through the Arts" program. Entries were received from public, private, and homeschooled students; scouts; individuals; and private art studios. The judging, by a panel of five wildlife artists, took place at the Massachusetts Technology Collaborative, Westborough. Artwork depicting a drake and hen mallard by Mackenzie Haertlein, a student at Platka's Traveling Art Studio, was selected as Best of Show and represented Massachusetts at the National Competition. The awards ceremony, held at The Trustees of Reservations' Doyle Conservation Center, Leominster, was attended by students, families,



and teachers. A display of Mackenzie's artwork from twelve years of entering the JDS competition inspired many of the other young artists. Combinations of the top 100 pieces of art were part of a statewide traveling exhibit shown at 12 different venues. Sponsors of the JDS program include the DFW; the US Fish & Wildlife Service; Massachusetts Waterfowlers, Inc.; and the Mass. Wildlife Federation.

**Massachusetts Envirothon:** The DFW's continued involvement in this natural resource program, which reaches over 500 urban and rural high school students annually, is through Education Coordinator Pam Landry hosting teacher and student workshops, serving on the state education committee, preparing the wildlife exam, attending monthly committee meetings, providing wildlife related information to the "current issue" question, and attending the competition. The 2009 Envirothon was held at The Trustees of Reservations' Doyle Conservation Center, Leominster, a site that highlighted the current issue of "Renewable Energy: Getting it Right, Ecologically and Economically."

### Environmental Education Initiatives and Training

**Secretary's Advisory Group on Environmental Education:** Section Chief Ellie Horwitz represents the DFW on the Secretary's Advisory Group on Environmental Education (SAGEE), an advisory group that serves the Secretary of EEA and the Commissioner of Education. During this year, Mrs. Horwitz worked with a group developing an environmental literacy plan. Such a plan will be required of any state seeking funding under the federal "No Child Left Inside" initiative. Bills to support outdoor education for students grades K-12 are presently before Congress and the Senate and will undoubtedly be re-submitted over the next few years. When funding is available, Massachusetts will be positioned to apply for it.

**Association of Fish and Wildlife Agencies:** The Section Chief served as one of the Northeast representatives on the Education Committee of the Association of Fish and Wildlife Agencies. This group has expended considerable effort during the year following up on a variety of recommendations developed at a national conservation education summit held in 2007. This meeting was the launch pad for a major conservation education initiative. Two hundred invited participants, including directors of state fish and wildlife agencies and educators from around the nation, focused on conservation education needs and on the appropriate role of fish and wildlife agencies in meeting those needs. Following up on the summit, a committee of the whole developed a list of 11 Core Concepts (2008) and spent the 2009 year working toward *The North American Conservation Strategy: A Tool Kit for Achieving Excellence*, under the leadership of Dr. Judith Silverberg of New Hampshire. Once these materials are published, other subgroups will address the issues involved in placing these concepts and materials in service through training, funding, and other mechanisms.

**Problem Animal Control Agent Training:** I&E Section staff worked with members of the DFW's Wildlife Section to prepare and make available a training class and an examination for licensed Problem Animal Control agents interested in extending their licenses to allow them to deal with problem coyotes.

### Skills Programs

#### Hunter Education Program\*

Susan Langlois, Coordinator

**Overview:** It is the mission of the Massachusetts Hunter Education Program to protect the lives and safety of the public, promote the wise management and ethical use of our wildlife resource, and encourage a greater appreciation of the environment through education. The Hunter Education Program is a public education effort that provides instruction in the safe handling of firearms and other outdoor activities related to hunting and firearm use. Massachusetts offered its first hunter safety course in 1954. The program is administered by the DFW, wildlife biologist Susan Langlois, Coordinator, and courses are taught by certified volunteer instructors. All courses are offered free of charge.

**Courses:** Courses were offered in six disciplines across the state. A total of 4,559 students participated in the Hunter Education Program in FY 09. The participation level increased from FY 08 (4,348 students), and is consistent with the 5-year average of 3,892 students. The following is a summary of course offerings and statistics on student participation in FY 09.

**Basic Hunter Education:** This course provides information on the safe handling and storage of hunting arms and ammunition, hunting laws and ethics, wildlife identification, wildlife management, care and handling of game, basic survival skills, and first aid.

- 76 courses were offered. Courses were 12-20 hours in length. A total of 3,481 students participated, 3,240 successfully completed the course, 24 failed, and 217 did not complete the course. Students are asked to volunteer information on age, gender, and ethnic background on their registration forms: 597 students were minors (10-14 years old), 483 were 15-17-year-old minors, and 85 were minorities. Four hundred and six of the participants were women.

**Bow Hunter Education:** This course is designed for both the experienced and novice hunter. Course topics include the selection of equipment, safety, ethics, bowhunting methods, and care and handling of game. Students may bring their own archery equipment to class to obtain advice on its use and care. This certificate is recognized in other states where Bow Hunter Education certificates are required.

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\* Because of its size and importance the Hunter Education Program stands alone in the organizational structure of the agency. It is included in this report because of its functional relationship to the agency's skills programs.

- 26 courses were conducted. Course length ranged from 8-13 hours. A total of 695 students participated; 678 successfully completed the course; 17 did not complete the course. One hundred and fourteen students were 10-14 years of age and 52 were 15-17 years of age. Five minorities and 57 women were identified.

**Trapper Education:** Mandatory for all first-time trappers, this course includes both classroom work and field training. Students learn the proper use of traps and how to set them, the identification of furbearing animals and their habitat, trapping laws and ethics, and landowner relations.

- Three courses were offered, with a total of 122 participants. Courses were 11 hours in length. One hundred and ten participants successfully completed the course; 12 did not complete the course. Four 10-14 years old minors, six 15-17-year-old minors, and three minorities attended; sixteen women participated.

**Black Powder Education:** Topics addressed in this program cover the selection of hunting equipment, state laws, the safe handling of muzzleloaders, and powder storage. A Certificate of Completion from the Basic Hunter Education course is a pre-requisite for all students under 18 years of age.

- Four courses were conducted. Course length ranged from 10-12 hours. Forty-four students participated. All completed the course successfully. Five women, one minor (10-14 years old), and three older minors (15-17 years old) attended.

**Map, Compass & Survival:** This 1-day course includes both classroom work and field training. Topics include instruction on wilderness survival, as well as the use of a compass and topographical map for land navigation.

- Eight courses were conducted (three in Pittsfield, four in Westminster and one in Westborough). Courses range from 8-10 hours in length. A total of 185 students participated; two did not complete the course. Two minorities, 16 minors (10-14 year old) and 8 minors in the 15-17-year-old age range attended; thirty-nine women participated.

**Waterfowl Identification:** This course teaches the identification of migratory waterfowl, but also covers the shooting characteristics of steel shot, hunting safely from boats, and the proper use of decoys.

- One 12-hour course was held with 32 students participating. Thirty students successfully completed the course and two did not complete the course. One woman and one minority attended.

**Shooting Range Development and Enhancement:** It is the DFW's objective to provide access for the public to range facilities for hunter education and shooting sports purposes by assisting shooting club range development and improvement activities. A total of \$25,000 was made available to clubs for Shooting Range Maintenance and

Enhancement projects in FY 09. A total of eight clubs responded with 14 project proposals. Two project proposals from two clubs were selected for funding. The selected clubs were notified of the awards, and both clubs responded and began work on the projects. Follow-up site visits are conducted by Hunter Education program staff.

## Angler Education Program

Jim Lagacy, Coordinator

**Overview:** The Angler Education Program is the main component of the DFW's Aquatic Resource Education Program. The other component being Aquatic Project WILD which was reported on in the segment related to Project WILD. The Angler Education Program has several components designed to introduce people to fishing and to the outdoors, including Family Fishing Festivals, Basic Freshwater Fishing Classes, Fishing Clinics, and a Fishing Tackle Loaner Program.

**Volunteer Instructors:** The Angler Education Program is in part volunteer-driven. Currently there are 123 established volunteer instructors, as well as 13 instructors-in-training (instructors who have completed the training course during FY 09). These instructors and trainees operate through 12 workshop groups. Of the 136 total instructors, 84, or 61%, were active during the year. Each year, Angler Education Coordinator Jim Lagacy advertises for instructors through news releases, the various winter sportsmen's shows, and by word of mouth. The Angler Education Program was on display at two sportsmen's shows during FY 09, the Eastern Fishing and Outdoor Expo and the Springfield Sportsmen's Show. New instructors are trained in a 1-day Instructor Training Class, or by apprenticing within a given workshop group. In FY 09, the 1-day training was held at the DFW's Field Headquarters in Westborough, in March. The program also held a 1-day "Instructor Meeting and Maintenance Day" for established instructors. This was held at Great Meadows National Wildlife Refuge in Sudbury. The day was divided into meeting



*Ryan Berland and Peter Rawinski are two of the many kids who enjoyed fishing at the Massachusetts Outdoor Exposition (The Big MOE).*

time, wherein instructors reviewed pertinent program issues, and maintenance time, when the group prepared fishing gear for the coming year. Thirty instructors attended this session.

**Family Fishing Festivals and Derbies:** There were a total of 17 major weekend fishing events for the fiscal year. These events include family fishing festivals, fishing derbies, and other weekend fishing events. They ranged in size from approximately 60 people to as many as 1,000. The fishing festivals are set up as an introduction to fishing, where rod and reel combinations, terminal tackle, and bait are made available at no charge. When the volunteer staffing allows, the festivals also offer basic instruction in casting, fish identification, and knot tying. Also in this category are fishing derbies and special needs events that the program supports with volunteer instructors and equipment. Total estimated participation for Festivals and Derbies for FY 09 was just over 5,000 people.

**Basic Freshwater Fishing Course:** Three courses were held during the year, with approximately 100 participants. The three courses were all run by the Metro West Instructors group. In light of the steady decline in demand for these courses and the steady increase in demand for fishing clinics (see below) the program will phase these courses out and will focus on clinics and weekend fishing festivals. A few of the volunteer instructors enjoy offering these courses and will continue to do so on a limited basis.

**Fishing Clinics and other short programs:** Fishing clinics, while short in duration, seem to be the most popular offerings. These clinics are generally two hours long, with a short lecture on the basics of beginner level angling, followed by casting instruction and a healthy dose of fishing. The newly updated and expanded *Fishing Guide, a Guide for Beginning Anglers* is provided to every participant, and class size is kept small enough to allow the instructors to work with participants one on one. Also in this category are trout stocking programs, casting programs, and fishing educational talks (scout groups, etc.). During FY 09, Mr. Lagacy and numerous volunteer instructors offered 49 fishing clinics in various parts of the state. Approximately 1,060 people (mostly children) participated. There were also nine trout stocking programs involving 355 people, and four Angler Education Program talks given to approximately 150 people.

**Tackle Loaner Program:** The Angler Education Program maintains fishing equipment on site (Westborough) for loan to various groups throughout the state. This equipment was loaned out on 25 separate occasions in FY 09, with 730 rod and reel combinations loaned. Rods and reels were loaned to various groups and agencies, including the DCR, the U.S. Army Corp of Engineers, the USFWS, various sportsmen's clubs, and others. Along with the rod and reel combinations, the program provides the necessary terminal tackle, and a variety of fishing education materials.

**Communications:** The program newsletter, *Shortcasts*, was produced once during FY 09 (Winter 2008-2009). In addition, communications through mail and email and by telephone kept volunteer instructors informed and up to date.

**Cooperative Programs:** The Angler Education Program Coordinator and instructors contributed significant time to the Massachusetts Junior Conservation Camp, the Becoming An Outdoors-Women Program, and the Massachusetts Envirothon.

## Becoming an Outdoors-Woman

Ellie Horwitz, Coordinator

Becoming an Outdoors-Woman (BOW) is a program designed for women ages 18 and older, providing basic skills instruction to women who have expressed an interest in participating in outdoor activities and field sports. Because of gender, cultural barriers, and lack of suitable equipment, women have been, and are, underrepresented among persons who enjoy and feel a commitment to the natural resources of the Commonwealth. To meet this need, the DFW offers a program coordinated by Section Chief Ellie Horwitz and conducted by volunteer instructors that provides a relaxed and comfortable venue for basic instruction in a variety of outdoor skills. Because this program is expected to be self-supporting, a good deal of the coordinator's time is spent raising funds to underwrite the costs involved in presenting these workshops.

The 2009 Fiscal Year is the 19th year for this program in Massachusetts. Over that period it has grown from a single weekend workshop to one weekend workshop and twelve Beyond B.O.W. events throughout the year.

The success of this program is measured not in terms of the numbers attending programs, but in terms of the impact of the programs on the participants. Enrollment at the BOW Weekend (June 2009) was very low because of a change in venue. Anticipating the fact that the Eastover Resort, which has hosted the program for the past 13



*Women enjoy learning basic archery shooting at a BOW event.*

years, was about to close, the workshop was moved to Camp Chimney Corners, a YMCA camp in Becket, which is a far more rustic setting. A significant number of former participants chose not to make the move. While this may reduce numbers in the future, it may just alter the nature of the clientele. The decrease in attendance at the June workshop was offset by an increased number of Beyond BOW sessions. (N.B. "BOW" is a designation limited to the 3-day weekend that offers many different workshops. A single focus weekend or a 1-day event is classified as a "Beyond BOW" program.)

#### Events held in FY 09

Date	Topic	Number of Participants
September 08	Coastal Fishing	24
October 08	Upland Bird Hunt	8
November 08	Deer Hunting Seminar	12 (no limit)
December 08	Deer Hunt	20 (full)
January 09	Women's Wellness Weekend	
	Ice Fishing	10
	Tracking	12
February 09	Fly Tying	10 (full)
February 09	Hunting 101	9
March 09	Forest Stewardship 101	20 (full)
April 09	Turkey Hunting Seminar	8
May 09	Hike to Waterfalls (Cancelled due to ice storm damage)	0
May 09	Turkey Hunt	10 (full)
May 09	Seabird & Whale Watch	25
June 09	BOW Weekend	48
<b>Total Attendance:</b>		<b>216</b>

New events for FY 09 were Hunting 101 (i.e., how to plan a hunt), Forest Stewardship, the Seabird and Whale Watch, and Geocaching. All of these were well received, with particular praises for Hunting 101 and Forest Stewardship.

It's difficult to select particular highlights from the workshops as all of the workshops have highlights. Some of the key ones were that although no one harvested a turkey on the turkey hunt, everyone saw turkeys and after the seminar and hunt, a number of women were able to hunt by themselves and harvest birds; in fact, the program increasingly receives letters from former participants who write of their adventures taking turkey or deer on their own. A major high point was having 20 women, all of whom either own land or have management authority over land, attend a day of Forest Stewardship and then express the wish that the event had been longer. The Coordinator reported on the experimental Forest Stewardship workshop at the International BOW Coordinator's Conference.

Fundraising has become more difficult over the past year. However, a very heartening feature was that the program once again received unsolicited donations from sportsmen's groups. These donations were generated by enthusiastic reports and comments from individuals who had attended one or more of the programs.

Following a policy established in 2005, all workshop sites are reviewed for handicapped accessibility, workshop flyers alert individuals with handicaps that special arrangements will be made to accommodate their needs, and workshops are advertised through "All Outdoors" (a program that reaches individuals with physical disabilities).

### Massachusetts Junior Conservation Camp

In August 2008, the Massachusetts Junior Conservation Camp held its sixth session at the Chesterfield Boy Scout Reservation. A total of 120 youngsters attended the two-week program, which allows campers to participate only once. As in the past, DFW staff assisted in the development of an instructional schedule and coordinated arrangements with state-based instructors. DFW staff and DFW program volunteers offered Basic Hunter Education and Bow Hunter Education courses to the campers; provided instruction in wildlife management, fisheries management, game preparation, and cooking skills; conducted an Information Quiz that evaluates the participant's comprehension of outdoor information and skills presented during the camp session; and participated in the graduation ceremonies.

### DFW Visibility

#### Agency Clothing

In an effort to increase public recognition of DFW staff, T-shirts, polo shirts, dress shirts, field jackets, caps, and hooded sweatshirts were purchased, embroidered with the DFW logo and/or the agency nickname (*MassWildlife*), and made available to DFW staff members.

### Tourism

Tourism outreach was limited this year. With the poor economic conditions, outreach efforts of the Mass. Office of Travel and Tourism (MOTT) were severely cut. The annual conference was shortened to one day and did not include sessions pertinent to the work of the DFW. The DFW sent maps and Abstracts to various visitor centers in spring 2009, but feedback from several regional tourism councils (RTC) indicated that there is less money for these groups and that the best way to increase agency presence is by providing content and links about outdoor recreation to RTC websites.

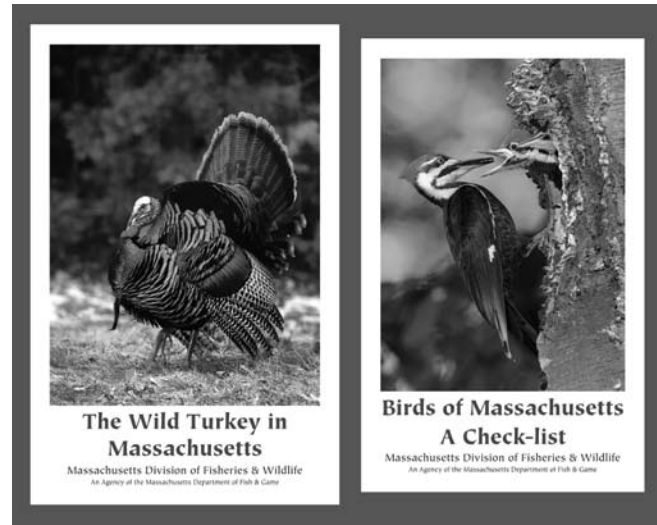
**Massachusetts Get Away Guide (MOTT):** Despite staff's continued efforts to add state wildlife lands to this publication, this has not occurred, except for one mention of the Crane WMA which contained incorrect information on DFW landownership. There is still no information about DFW lands in the Hiking and Wildlife sections. In past years the guide had mentioned that the DFW sells fishing licenses, but there is no such mention anywhere this year. It appears that the DFW's efforts will be better spent providing information on the MOTT Website, which is currently being redesigned for the third time in 4 years.

**Outdoor Recreation Map and Abstracts distribution:** In July 2008, a third edition of the Massachusetts Outdoor Recreation Map was published, and the new maps were sent to Visitor centers throughout the Commonwealth. The Hunting and Fishing Abstracts were also sent out to these centers. In spring 2009, the same mailing went out and we learned that the Mass. Turnpike Authority has closed the Charlton Visitor Center, perhaps a reflection of the poor economic conditions in the state.

## Special Projects

In August 2008, the DFW designated a Promotions and Marketing position to develop and implement a promotional campaign to showcase DFW research, programs, and ongoing land management for its current constituents, as well as for the general public. This position was filled by Promotion Specialist Susan Benoit, who spent considerable time researching agency history; current management policies, education, and public outreach activities; and becoming familiar with the agency and its programs. She also surveyed the websites of Fish and Wildlife agencies in the other 49 states evaluating their look and content in numerous categories, including promotion, presentation of programs; web content; audio-visual content; map and information availability; marketing and revenue generation, and calendars and notification mechanisms.

Ms. Benoit contacted I&E staff in other states (e.g., Vermont, New Hampshire, New York, New Jersey, Alabama, Texas, Colorado) judged to be either similar to Massachusetts in some important way or innovative in their outreach and public interaction. She talked with hunters and anglers in the field, at ponds, and at numerous check stations, as well as at the major sportsmen's shows, some smaller regional shows, and local events. She also canvassed constituents and potential constituents in related groups such as land trusts, watershed councils, and naturalists' clubs.



Based on this information, the I&E staff then identified and analyzed (1) current DFW outreach and promotional efforts (including publications, presentations, conferences, and other public interactions of all sorts); (2) perceived limitations to current outreach and promotion, both in Massachusetts and in other states; and (3) potential opportunities for more intensive outreach and targeted promotion of DFW activities and research across the state.

Initial products developed include ads and promotional features about current DFW research, programs, and initiatives in existing and new DFW publications; focused promotional outreach to interested groups in networks of other, related groups (i.e., naturalist clubs, land trusts, regional and statewide environmental organizations, and nature and environmental centers); and a new DFW presentation developed with extensive input from all Sections of the agency. This presentation discusses the work of the agency through the frame of its history and its evolving and ongoing mission to protect and conserve the biodiversity of the Commonwealth.

## Information & Education Staff

Ellie Horwitz, *Chief*

Susan Benoit, *Promotion Specialist*

Bill Byrne, *Senior Photographer*

Jill Durand, *Circulation Manager*

Suzanne Fritze, *Receptionist*

Jim Lagacy, *Coordinator, Aquatic Resources Education*

Pam Landry, *Education Coordinator*

Susan Langlois, *Coordinator, Hunter Education Program\**

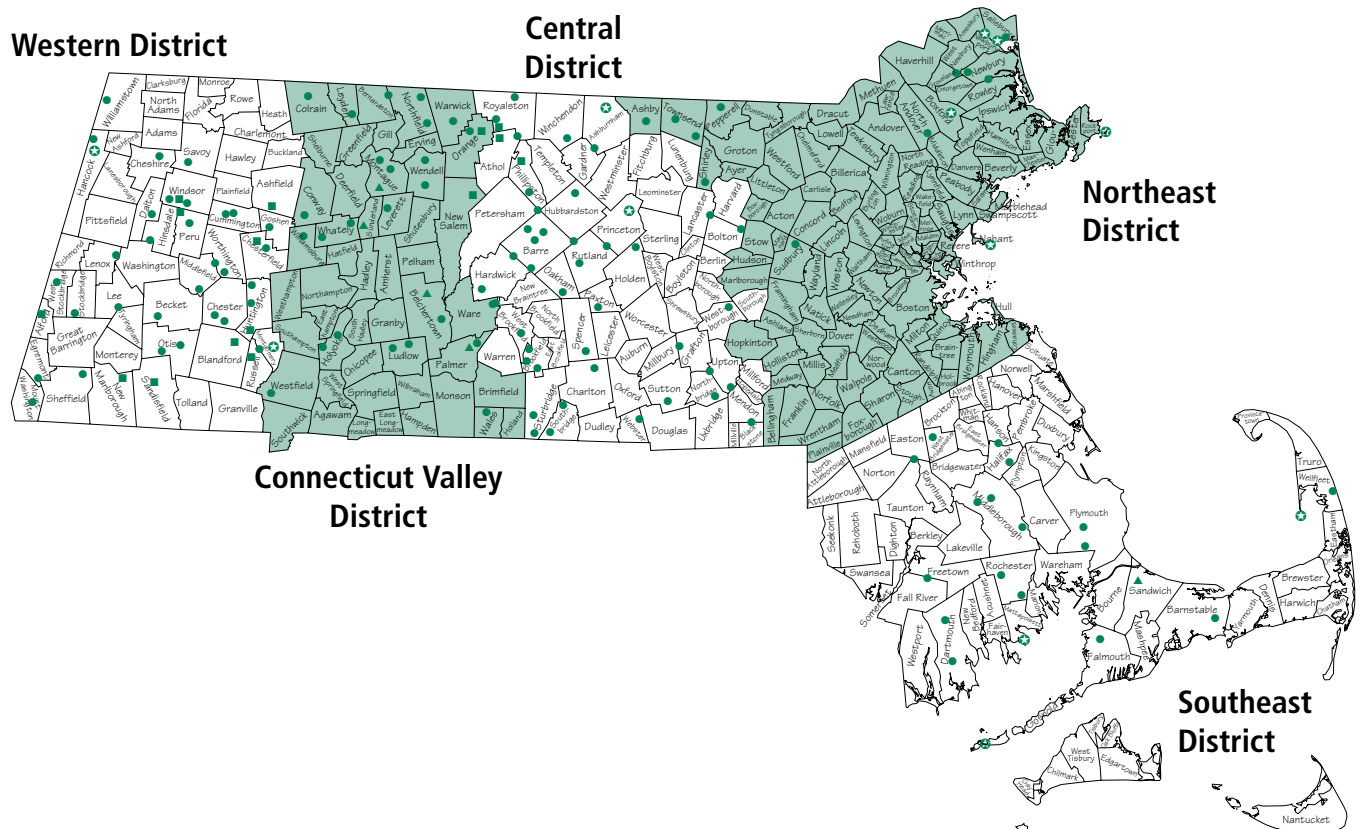
Marion Larson, *Information and Outreach Coordinator*

Peter Mirick, *Publications Coordinator*

\* Because of its size and importance the Hunter Education Program stands alone in the organizational structure of the agency. It is included in this report because of its functional relationship to the agency's skills programs.

# DISTRICT REPORTS

Northeast District, Patricia Huckery, *Supervisor*  
Southeast District, Jason Zimmer, *Supervisor*  
Central District, Bill Davis, *Supervisor*  
Connecticut Valley District, Ralph Taylor, *Supervisor*  
Western District, Andrew Madden, *Supervisor*



## Overview

Most people who meet the DFW do so through one of the agency's five Wildlife Districts. The District offices are this agency's field stations, administering wildlife lands, conducting onsite management, enhancing recreational opportunities, and addressing the wildlife issues pertinent to their individual regions. District personnel sell hunting, fishing, and trapping licenses and stamps and selected permits; and they distribute licenses, Abstracts, stamps, and other materials related to the sale of hunting, fishing, and trapping licenses to vendors throughout their District. They assist officers from the Office of Law Enforcement (OLE) to ensure public adherence to wildlife laws and regulations, and they assist the staff of the Wildlife Lands Section in selecting lands to be acquired; locating titles, landowners, and boundaries; and in making other arrangements necessary for the acquisition of lands for wildlife.

During the past year, staff from all of the Districts conducted these administrative activities and also participated in a wide variety of research programs initiated by the DFW's biological staff based at the Westborough

Field Headquarters (see the individual Section reports for the status of these projects). Among the research/survey projects conducted by District staff are the annual Midwinter Bald Eagle Survey, waterfowl inventory, and banding/collaring of geese. District personnel also conduct census counts of wild turkey, mourning doves, woodcock, ruffed grouse, and quail.

District staff members enhance recreational opportunities throughout the state by stocking Brown Trout, Eastern Brook Trout, Rainbow Trout, Tiger Trout, Northern Pike, Tiger Muskellunge, and Broodstock Salmon into waters scheduled to receive them. But first they must monitor the water quality of the designated lakes and streams prior to releasing fish into them. They release pheasants on Wildlife Management Areas (WMAs) and in open covers. They monitor and maintain the WMAs in their region by cutting brush, mowing, trimming trails, assisting with forest cutting operations, planting shrubs, and maintaining roads and parking areas. They emplace gates, erect signs, and make other arrangements related to the protection and management of the



agency's lands, buildings, and vehicles. They also build and maintain nesting boxes for wood ducks, bluebirds, and bats, and establish cooperative agreements with farmers who raise crops on DFW land. District staff members operate check stations, where sportsmen register deer, bear, turkeys, and furbearers taken during the designated hunting and trapping seasons.

District Supervisors are the agency's point persons, spending many hours with civic and conservation groups, including sportsmen's clubs and county leagues, and responding to inquiries from interested citizens. They provide technical advice on wildlife matters, particularly on matters pertaining to the handling of nuisance animals. In this context, District staffers deal with a large number of beaver complaints, deer damage complaints, bear damage complaints, questions about coyotes, and other issues dealing with the impact of wildlife on human activities, and vice versa.

In addition to the activities that are common to all of the Districts, there are projects that involve only some of the Districts.

## **Northeast District**

### **Administration**

In January 2009, David Critchlow joined the staff as a Wildlife Technician. In March, Anne Gagnon, former Shirley Conservation Agent, capably filled the long-vacant Northeast District's Land Agent position.

The end-of-the-year license delivery proceeded smoothly, with all deliveries completed by the end of the first week in December. The midwinter license pick-up was also completed on schedule and without problem. The December 2008 ice storm left many access roads and parking lots blocked with downed branches and trees, and there was plenty of snow to plow. Two farmer license agreements were reviewed and updated. Computer upgrades increased District efficiency considerably. Equipment and buildings were maintained as necessary.

Proceedings regarding the move of the Northeast District Office to Ayer began in earnest in FY 09, with all the required planning, permitting, site visits, and meetings for a new office space to be built at the Division's Ayer Game Farm. In mid-year, project plans changed and a parcel was purchased on Route 2A in Ayer, which had existing office space, shop, and garage space that meet the long-term needs of the Northeast District office.

The District Supervisor's land acquisition activities included reviewing parcels for their ecological and recreational significance on properties in Townsend, Shirley, and Salisbury.

### **Research and Conservation**

#### ***Wildlife***

Staff tried unsuccessfully to monitor the remaining radio-collared deer in the Northeast District, finding that the collars were either dead or not detectable.

District staff conducted springtime waterfowl surveys in the Northeast, Central, and Valley Districts, where eight waterfowl breeding plot surveys were checked, and banding was conducted from the airboat in August and September. Northeast District staff assisted with the Canada goose population study by collaring geese throughout the District.

District staff ran dove, grouse, and woodcock census routes for the Annual Breeding Bird Surveys. Staff conducted two flyover surveys for grouse. They also conducted wood duck surveys at 36 sites, and checked 296 nest boxes.

Beaver plot surveys were suspended during this fiscal year. Beavers continue to be of interest to towns struggling with growing, disbursing beaver populations. Toward this end, the Bolton Conservation Commission set up a series of meetings to develop a town management plan for beaver with assistance from District staff. Five beaver complaints were addressed.

The Upland Habitat Program staff finished Phase II restoration work at the Martin Burns WMA in FY 09, overseeing a whole-tree harvest operation during the winter months. An early thaw led to a sedimentation problem in Cart Brook, which was quickly remedied with help from the Newbury Conservation Commission and neighboring farmer Bob Colby's hay bales. Brush piles from the downed woody debris were created for rabbits, fox, woodchuck, and snakes. Significant road work was needed to repair roads after the tree harvest, and gates were realigned. The Martin Burns WMA Right-of-Way, which bisects this 1,500-acre property, is on a map of possible locations for a bicycle rail trail proposed by the Border to Boston Trail Committee. Staff met with interested sportsmen and trail committee members on the matter. As a result, Division staff will be undertaking an ecological assessment of the property, including herpetological work coordinated with students from the Governor's Academy. Beaver dammed and flooded out an important access road through Martin Burns, which prompted the removal of the beaver, and repair of the road under an Emergency Permit pursuant to the Mass. Wetlands Protection Act.

Surrenden Farms West Conservation Easement (CE) committee meetings in Groton continued, with significant progress made on the resource management plan. The committee is taking a tough stance on dog use of the property by limiting the number of dogs walked per person, and establishing leash and waste pick-up requirements.

Management decisions regarding domestic dogs at the Delaney WMA in Stow/Harvard/Bolton culminated in posting signs allowing leashed dogs only and requiring dog owners to pick up after their pets. Division staff worked with the Stow Board of Health, Stow Animal Control Office, and officers from the Office of Law Enforcement (OLE) to monitor compliance with the new rules, to distribute information, and to educate dog





*Pheasant hunting.*

walkers. Staff participated in a clean-up day organized by the “Friends of Delaney” group.

Permitting for the Ox Pasture Brook dam removal project on the William Forward WMA (Rowley and Newbury) continued to move forward. Some boundary work and sign posting was conducted here to maintain compliance with federal Land and Water Conservation requirements.

Management Plan committee meetings for the Mt. Watatic Reservation (Ashby and Ashburnham) continued throughout the fiscal year, focusing on the acceptable conditions of a snowmobile license agreement.

The Charles River WMA may be getting some sprucing up in the coming year based on discussions with the Army Corps of Engineers. District staff are looking to lead an organized clean-up day and to establish a parking area in an area which is currently used as a dumping site and an illegal ORV access point.

The Nissitissit River WMA is getting a sponsor for a memorial overlook onto the Nashua River. The town of Pepperell asked to place the Prudence Wright stone, found during the renovation of the covered bridge, on a corner of Division land near the bridge. Staff also reviewed a proposal to release weevils into high density purple loosestrife locations at the Nissitissit River WMA.

Management and research at Dunstable Brook WMA received a boost from a \$214,000 grant from the Charles George Trust natural resource damage funds. The first year of wood turtle work was initiated, reptile and amphibian assessments progressed, bird count transects were established and surveyed, and equipment was purchased.

A GIS-based mowing project was completed for the DFW’s Upland Habitat Management Program.

## *Fisheries*

Staff assessed 42 brooks and rivers in nine drainages: Charles River (4 sites), Concord River (5 sites), Ipswich River (3 sites), Nashua River (1 site), Merrimack River (14 sites), North Shore (4 sites), Parker River (3 sites), Shawsheen River (4 sites), Neponset River (3 sites) and Weymouth/Weir rivers (1 site). Extensive work to clear stocking access roads occurred at the Squannacook River and Nissitissit River WMAs.

All fish stocking locations were digitized into the GIS system from paper maps maintained in the District office. Specific information germane to each site was included with each point, such as access, approach notes, and traffic tips.

Staff monitored the Sucker Brook stream bank restoration sites at the Nissitissit River WMA, finding some damage from illegal ORV activity, which was repaired immediately, and modest success of the native shrub plantings. Another trout restoration project began as District staff joined forces with Todd Richards, DFW Coldwater Fisheries Biologist, and with members of the Squannatissit Chapter of Trout Unlimited, to locate additional potential native brook trout restoration sites at the Nissitissit River WMA.

## *Natural Heritage and Endangered Species Projects*

Due to the loss of their West Newbury nest during the December ice storm, the Merrimack River bald eagle pair flew across the river to tend one of their nests on the Haverhill side of the river. Then, late in the nesting season, they switched back and began rebuilding the West Newbury nest. It ended up being an unsuccessful year for these two much-loved eagles. The Carr Island Sanctuary pair of bald eagles fledged one eaglet, from a clutch of two. Several attempts to band this chick were rained out. A new bald eagle pair that nested on Lake Shirley received a lot of attention throughout the chick-rearing process. This central Mass. pair had an audience of about 30 on banding day, where two chicks received “jewelry.” The excited onlookers consisted of local conservationists, a State Representative, journalists, photographers, local cable television, Division staff, and doting human neighbors. Unfortunately, in June, Division staff received calls that one of the Lake Shirley eaglets was on the ground looking bedraggled. A trip to Tufts Wildlife clinic could not save the young bird from a heavy infestation of liver flukes. The District had a successful year participating in the Merrimack River Eagle Festival, sponsored by the Massachusetts Audubon Society (MAS). The DFW station at Deer Island in Newburyport was a favored location for viewing eagles.

A new peregrine falcon box was installed in Gloucester’s “leaning tower” beside town hall, to the delight of town and building committee members. District Staff assisted Assistant Director for the NHESP, Dr. Tom French, in banding peregrine chicks at UMass in Lowell (4 chicks), and Lawrence (4 chicks), where the young were moved from their cramped window ledge to a crafted cover on

the roof. Staff at UMass installed another video camera on the roof that focuses directly into the box. Peregrines nested out of reach in a Melrose quarry for the second year in a row.

The second year of the Blanding's Turtle nesting project on the Squannacook River WMA was slimmed down, with six visits allotted to track the eight female turtles fitted with radio transmitters. All females so marked are currently still alive and "on the air."

The first Landowner Incentive Project (LIP) site visit with landowner Bob Lovejoy in West Newbury proceeded with much fanfare as Bob transported staff to the site in a reconditioned, open-top Ford used in local parades. Mr. Lovejoy received LIP funding to create turtle nesting habitat on a former Christmas tree field directly abutting Blanding's turtle wetland habitat within the Crane Pond WMA.

Two historic breeding sites for the threatened piping plover were monitored starting in April and continuing through mid-July. There was one sighting of a piping plover, but no breeding pairs were detected. DFW staff returned to monitor rattlesnakes and copperheads at the Blue Hills Reservation in Milton.

### **Enhancement of Outdoor Recreation**

Fifteen sportsmen applied for waterfowl permits at the Delaney WMA, vying for 11 waterfowl blinds that are maintained by District staff. Twelve field trial permits, one camping permit, and 270 range permits were issued. The U.S. Coast Guard used the shooting range at Martin Burns WMA for training purposes, and helped with its clean-up.

Twelve deer check stations operated within the District, adding Bass Pro in Foxborough and the Essex Agricultural School, Danvers, this year. The District office in Acton checked deer 6 days a week, with a total of 448 deer checked during the deer hunting season. We added a new hoist to the Martin Burns WMA deer check station. Northeast District staff collected Chronic Wasting Disease (CWD) samples. District staff sold over 1,667 over-the-counter Antlerless Deer Permits (ADP), with hundreds of hunters lining up on the first day of permit sales. Five hunters took a total of two deer, and everyone saw deer, at the DFW-sponsored special hunt for paraplegic sportsmen held at the Devens Reserve Forces Training Area. The District tagged 19 coyotes, 215 beaver, 112 fisher, 4 gray fox, 5 red fox, 5 otter, 4 mink, and 3 bobcats. Turkey check stations were maintained at the Acton District office and the Martin Burns WMA installation.

Five thousand pheasants were released onto five WMAs and 11 open covers. Five Special Pheasant Stocking Permits were issued for the Martin Burns WMA, to be used between January 5, 2008, and March 31, 2008. The Danvers Fish and Game Club ran a successful Youth Pheasant Hunt at Martin Burns WMA, with eight youngsters participating. District Supervisor Pat Huck-

ery conducted the Youth Hunt Seminar sponsored by the Danvers Fish and Game Club. A controlled pheasant hunt was offered at Martin Burns WMA and a controlled waterfowl hunt was offered at the Delaney WMA.

Staff released 558 salmon in nine ponds throughout the Northeast District in FY 09. Combined spring and fall trout and salmon stocked numbered 125,420 fish. In the fall, anglers saw 13,200 browns and rainbow released into two rivers and 18 ponds, followed in the spring by 112,220 trout (60,500 Rainbow Trout, 20,060 Eastern Brook Trout, 31,060 Brown Trout, and 600 Tiger Trout) in 42 ponds, 7 major rivers, and 66 brooks and minor rivers.

William Forward WMA received more staff attention this year, with significant roadside vegetation clearing and road repair, with assistance from farmer Bob Colby. Staff mowed the fields and invasive shrubs occurring at Dunstable Brook WMA. Significant road clearing was also needed at Martin Burns WMA and Crane Pond WMA in the wake of the December ice storm.

On a tip, District staff investigated a possible illegal tree harvest on Mulpus Brook WMA, and found a much greater trespass, including everything from a corner of a house to a paved turnaround, a sprinkler system, and gardens.

Boundary work was completed at the newly acquired Greene property in Tyngsborough.

### **Information and Education**

District staff led a group of conservationists out to Mt Watatic Reservation to record sounds for National Public Radio's show on climate change with Bruce Gellerman. Staff answered questions about deer management at a Lyme Disease talk sponsored by the Littleton Board of Health. We began talks with Boxborough selectmen on in-town deer management. Staff led the discussion about Eastern cougar at the Carlisle Conservation Breakfast, which led to a further discussion about deer management and beavers. We led a beaver walk and talk for the Bolton Conservation Trust's annual meeting that was attended by over 100 adults and children. A deer management talk at the Acton Conservation Trust's annual meeting was attended by about 120 people and was followed by a discussion of Lyme Disease. Over 150 Cub Scouts and parents from Billerica and Acton learned about wildlife management from District Wildlife Manager Erik Amati, thereby earning their conservation badges.

Coordination, collection of materials, scheduling, and booth coverage for the Topsfield Fair were handled by District personnel, with booth assistance from Westborough staff. Staff also worked at the Wilmington Sportsmen's Show and the Eastern Fishing and Outdoor Expo in Worcester, and contributed their services to the annual Massachusetts Outdoor Exhibition.

## Technical Assistance

Staff fielded phone calls from the general public on everything from baby birds to bear. Many hours are spent listening to and helping the public with questions about wildlife they see in their houses, yards, and woodlands.

As a result of a neighbor's complaint, archery deer hunting at the Braintree Conservation Area (about 700 acres) came up for scrutiny by the local conservation commission. District staff assessed deer habitat at the parcel and provided information to the commission on deer management, hunter education safety statistics, and other pertinent facts.

District staff conducted site visits and reviewed DEP reports in coordination with the Newbury Board of Health in response to neighborhood concerns about the impacts of an existing beaver flowage on a small abutting landfill and on nearby drinking water wells.

## Other District Activities

Staff members hosted and attended a variety of meetings, classes, and talks during FY 09. The District Supervisor routinely attended meetings of the Norfolk, Essex, and Middlesex County Leagues of Sportsmen's Clubs. She also attended the Annual Meeting of the Mass. Association of Conservation Commissions and selected meetings of the Vernal Pool Assn. Board, the Great Marsh Partnership, and the Miles River Partnership. The Supervisor and staff members provided presentations to the Nashua River Watershed Association, Acton Conservation Trust, Littleton Board of Health, Bolton Conservation Trust, Carlisle Conservation Breakfast, and a variety of Scout groups. Staff received training in fish identification, captive deer handling, deer aging, climbing techniques for bald eagle banding, use of ARCVIEW, and diversity awareness.

## Southeast District

### Administration

While most of the District's staff remained unchanged, longtime Wildlife Technician Ed Kraus was on medical leave from early August 2008 through the end of the fiscal year. Other staff members picked up the slack and business continued as usual. Training for staff included a wildlands fire refresher course and fire engine operation training for wildland fires. These courses increase the District's ability to manage land using prescribed and controlled burns. District staff also participated in a course taught by the DFW Deer Project Leader and assisted by the CWD Program Coordinator on the handling and tagging of deer on deer farms as part of an initiative to improve the staff's ability to monitor and manage commercial deer farms in Massachusetts.

The District made various additions and improvements to equipment. This included getting new tires for several vehicles, an onboard marine battery charger and a live well aerator for the electrofishing boat; climbing gear and safety equipment for bald eagle, peregrine falcon, and raven banding; equipment for PIT-tagging (Passive Integrated Transponder) salted brook trout; prescribed fire related equipment, including slip-in water tanks; replacement mower blades; an Energy Star rated refrigerator; waders; electrofishing safety gloves; and a new flatbed for an F250 pickup truck.

The Southeast District continued its close working relationship with the Sandwich Fish Hatchery, with each installation benefiting from the cooperation and assistance of the other. Southeast District assisted the Hatchery by unloading trout food, assisting with trout spawning activities, and snow removal. Hatchery staff assisted the District crew on a number of projects, including operating biological deer and turkey check



*Lehtola field, Bridgewater, MA.*

stations and assisting with the operation of Otis/Camp Edwards controlled hunting opportunities.

## Research and Conservation

### *Wildlife*

District staff helped other Division personnel; federal, state, and local agencies and organizations; and members of the general public to accomplish a wide variety of projects to protect and conserve native wildlife populations and their habitats. District staff also provided technical assistance and field support to municipalities, law enforcement personnel, and the general public relative to dealing with wildlife issues, particularly nuisance or damage complaints and reports of sick or injured wildlife.

District staff continue to assist in the planning and monitoring of the Frances A. Crane WMA management plan in cooperation with the DFW Upland Habitat Management and Ecological Restoration programs. The District Supervisor worked closely with the Frances A. Crane Sporting Dog Association to gain support for, and eventually complete the removal of, nearly all invasive/exotic tree hedgerows within the main sand plain grassland at Crane North. District staff also assisted with the identification and removal of areas of mile-a-minute vine at Crane South. The seeding of several roads and fields with native ecotype Little Bluestem and other native ecotype grasses was also completed. District personnel assisted with prescribed fires to manage for early-successional habitat at the Frances A. Crane WMA, as well as at Camp Edwards (Mass. Military Reservation, or MMR), Katama Plains NHA, Ram Island Sanctuary, Pave Paws, and on Nantucket Conservation Foundation land.

The Department of Fish and Game has care, custody and control of the northern 15,000 acres of the MMR and annually assists in many wildlife and habitat management activities in accordance with the Integrated Natural Resource Management Plan (INRMP) that is required under the SIKES Act and guides military activities to ensure proper management of natural resources. As one of the three partners on INRMPs developed for the installation, the Division assisted in the review and revision of the INRMP for the Pave Paws site. The District again cooperated with the MMR's Natural Resources staff and other organizations to plan and operate controlled deer and turkey hunting opportunities. These controlled hunting efforts ensure the proper management of healthy deer and turkey populations on the MMR and provide an important source of recreational hunting on Cape Cod, where development and local restrictions have greatly reduced the amount of land open to hunting.

The District continues to work towards applying for a small grant through the North American Wetlands Conservation Act to restore damaged wetlands at the Burrage Pond WMA in Hanson and Halifax. We currently manage this property by periodically flooding

and dewatering over 190 acres of old cranberry bogs, to encourage the growth of native shallow and deep emergent plant species and provide feeding, nesting, and resting habitat for a wide variety of waterbirds and habitat for other species of wildlife.

District staff conducted many habitat improvement activities on WMAs, including the hand removal of invasive species and mowing of dikes at Burrage Pond WMA, the installation of gates and other blockades to limit vehicular and ORV access to Cooks Pond NHA in Plymouth to protect the sensitive coastal plain pond habitat, mowing and maintenance of the dams at West Meadows WMA and Rochester WMA, planting of native ecotype Little Bluestem at Burrage Pond WMA and Frances A. Crane WMA, reinforcement of a damaged eagle nest at Quittacus Pond, the review and issuance of a License Agreement allowing mutually beneficial agricultural activities at Burrage Pond WMA, and a license agreement with a non-profit model airplane organization at the Noquochole WMA to allow the maintenance of a small model airplane strip in return for beneficial management activities on the WMA, including trash removal and control of invasive/exotic plant species.

District staff conducted breeding surveys for ruffed grouse, mourning dove, and various waterfowl species as assigned by DFW Wildlife Section biologists. They operated biological check stations for white-tailed deer and wild turkeys throughout southeastern Massachusetts. They also performed routine inspection and tagging of furbearers. A total of 129 deer, 79 turkeys, 54 coyotes, and 79 other furbearers were checked at the Southeast District office.

The District Supervisor assisted the DFW Wildlife Section by conducting routine inspections of commercial deer farms with the assistance of the officers of the OLE. A major enforcement action was taken against a Southeast District deer farm that resulted in the removal of elk, which cannot legally be possessed in Massachusetts, from the facility. Two other situations in which deer were owned illegally were successfully handled through the judiciary system. District staff assisted with the annual Canada goose banding effort. They built, maintained and monitored nest boxes for wood ducks, eastern bluebirds, and American kestrels on various state and private properties.

District staff assisted with nuisance or problem and injured wildlife calls. The District Wildlife Manager rescued an injured red-throated loon and transported it to the Cape Wildlife Center for rehabilitation. Information and technical assistance was provided to a farmer dealing with coyote predation on livestock in Raynham, coyote complaints in West Yarmouth and Attleboro, and Canada goose complaints in Cohasset. The District also assisted Connecticut Valley District personnel to locate, immobilize, and re-collar an adult female black bear and take measurements on her cubs in Williamsburg.

## *Fisheries*

As part of the statewide stream survey effort, surveys were completed on 20 streams in the District and several new wild trout waters were documented. Temperature and dissolved oxygen profiles were conducted on 16 ponds, including Hamblin, Mystic, Ashumet, Lovells, Mashpee-Wakeby, Long (Plymouth), Long (Harwich), Cliff, Little Cliff, Little, Sheep, Spectacle, Peters, Big Sandy, Little South, and Great South Ponds. In September 2008, the annual triple pass survey to evaluate wild brook trout population responses to stream habitat improvement projects was completed on the Quashnet River.

The District's salter brook trout PIT-tagging research study continued on the Quashnet River and Red Brook in cooperation with the Waquoit Bay Estuarine Research Reserve, Trout Unlimited, and the U.S. Geological Survey. In addition, District Fisheries Manager Steve Hurley initiated a recovery effort to bring wild brook trout back to the Childs River in Falmouth. Historically, the Childs River was a world class salter trout stream, but over time trout disappeared due to such stream alterations as dams, creation of cranberry bogs, and development. An intensive survey of the Childs River in September 2006 provided no evidence of brook trout reproduction even though quality trout habitat still remained in the stream. Through this project, the DFW reestablished reproducing wild brook trout after only 1 year of translocation effort from the nearby (3.5 miles) Quashnet River. The District Fisheries Manager also provided technical assistance to aid in the removal of dams and other obstructions along Red Brook.

The District continues to assist the Mass. Dept. of Environmental Protection in collecting fish from Cape Cod ponds, including Spectacle, Cliff, Lawrence, Peters, and Hayden ponds, and the Cape Cod National Seashore for contaminant analysis.

Several fish kills were investigated by the Fisheries Manager and crew, including a menhaden die-off in the Cole River in Swansea, a disease outbreak killing yellow perch in Mares Pond, a disease outbreak killing yellow perch and brown bullhead in Cliff Pond, white perch in Cedar Pond dying due to oxygen depletion, winter kill at Upper and Lower Burrage Pond Reservoirs, and a sunfish kill due to a natural disease outbreak in Big Island Pond. The Fisheries Manager also investigated a bullfrog die-off in bogs near Clear Pond in Plymouth and a mussel and snail die-off in Bartlett Pond in Plymouth.

The Fisheries Manager provided technical assistance to the Town of Plymouth during their review of a development proposal adjacent to Hobs Hole Brook, a wild brook trout stream. District staff also helped staff of the Town of Sandwich Department of Natural Resources to rescue stranded fish and mussels during the removal of the dam at Shawme Pond.

## **Natural Heritage and Endangered Species Projects**

District staff worked closely with the NHESP on a variety of projects. As in previous years, the District worked with Carolyn Mostello to assist with the Tern Restoration Project, helping with boat and equipment maintenance, habitat improvements on Bird and Ram islands, and nest and chick monitoring.

District staff continued to assist NHESP and the MAS in protecting piping plover nesting habitat on the Fox Island WMA in Wellfleet by installing symbolic fencing and signage. Further, in accordance with the *Guidelines for Managing Recreational Use of Beaches to Protect Piping Plovers, Terns and their Habitats in Massachusetts*, after a nest was established on the WMA, District staff provided many hours of onsite monitoring to escort shellfishermen to their oyster grants on the tidal flats nearby. Because of these collective efforts and the cooperation of the shellfishermen, the nesting pair was successful in fledging four healthy chicks.

District Wildlife Manager Dick Turner installed signage and floats to protect the active bald eagle nest at Pocksha Pond in Middleboro. District staff assisted in monitoring three known bald eagle nesting territories and banded a total of four eagle chicks at two active nests. District Wildlife Technician Dan Fortier assisted Assistant Director of the NHESP Dr. Tom French in his effort to band and relocate two healthy peregrine falcon chicks at the Braga Bridge in Fall River. District staff also assisted with the annual Midwinter Bald Eagle Survey, recording a total of eight individual eagle observations, and assisted with Northeastern Beach Tiger Beetle surveys on Martha's Vineyard.

District staff continued the rare turtle survey and research at Burrage Pond WMA in an effort to document and understand the distribution, habitat use, and movement patterns of Blanding's turtles and spotted turtles.

## **Enhancement of Outdoor Recreation**

The staff released birds for another safe and successful upland game bird hunting season, stocking 7,912 pheasant and 3,500 quail on seven WMAs and over twelve open covers throughout the District. District personnel maintained quail pens at the District Headquarters and provided food and water throughout the season. The District responded to requests from upland game bird hunters on Martha's Vineyard and Nantucket and increased the number and frequency of birds stocked on the islands. Eight-week-old pheasants were delivered to the Samoset Rod and Gun Club, a continuing participant in the club bird program. These birds are raised by members of the club and released on open covers during the pheasant season. The District also provided pheasants to the Carver Sportsmen Club and Falmouth Rod and Gun Club for use in the Division's Young Adult Pheasant Hunt. District personnel were on hand to assist with both hunts.

District staff released its fall 2008 allocation of 13,200 trout into 25 ponds and stocked its spring 2008 allocation of 92,770 trout into 46 ponds and 38 streams. Two new ponds were added this year; Johnson Pond in Raynham and Island Grove Pond in Abington. District staff released 30 broodstock Atlantic salmon from the Palmer Salmon Hatchery into Long and Little Ponds in Plymouth and Cliff, Sheep, and Peters ponds on Cape Cod in December 2008. An additional 434 broodstock salmon from the White River National Fish Hatchery (White River Hatchery) in Bethel, Vermont, were released into Long and Little ponds in Plymouth and Peters Pond in Sandwich in January 2009.

In preparation for the hunting seasons, District personnel mowed and maintained roads, trails, parking areas, and fields within the WMAs, to provide safe and effective access and hunting opportunities for the general public. Signage was installed and maintained at Burrage Pond WMA and at the Popponesset Beach Fishing Access. Gates were installed at the Taunton River WMA and Cooks Pond NHA. Parking lots were created, maintained, or improved at Burrage Pond WMA, Taunton River WMA, Cooks Pond NHA, Frances A. Crane WMA, Haskell Swamp WMA, Erwin Wilder WMA, the MMR, and Rochester WMA. Safety zone signs were placed and boundaries were marked at many properties, including West Meadows WMA, Erwin Wilder WMA, Bearse Pond Access, Mashpee-Wakeby Pond Access, Mashpee River Access, Mashpee Pine Barrens NHA, Muddy Pond, Washburn Pond, Rocky Gutter WMA, Sandwich Game Farm, Hyannis Ponds WMA, Taunton River WMA, Weymouth Back River Access, Sandwich Fish Hatchery, and Canoe River Access. Boundary marking is important for Green Certification of our lands, for guiding outdoor recreational users, and for identifying illegal encroachments.

District staff issued permits for two winter pheasant hunts, one at the Erwin Wilder WMA and one at the Frances A. Crane WMA under the Division's special winter pheasant hunting program, which provides sportsmen with opportunities to pursue upland game birds through the winter and keep their hunting dogs in good shape. Additionally, the District Supervisor reviewed and issued permits for seven hunting dog field trials to be held at the Frances A. Crane WMA. These field trials provide an opportunity for serious upland game bird hunters and sporting dog trainers to participate in a controlled field competition on the WMA.

The District operated and managed controlled access hunting opportunities for white-tailed deer, wild turkey, and coyotes on the MMR. This effort provided 1,155 days of deer hunting opportunity (hunter-days) and 121 days of turkey hunting opportunity on roughly 9,500 acres of land. A total of 4, 41, and 6 deer were killed during the 2008 archery, shotgun, and muzzleloader deer seasons, respectively, on the MMR. Twelve male turkeys were taken during the spring 2009 turkey season. These

controlled access hunting opportunities provided a total of 1,276 days of recreational hunting opportunity.

District staff monitored and maintained many boat ramps and fishing access areas throughout the District in this fiscal year, with significant repairs being completed at the Tispaquin Pond and Monponsett Pond boat ramps. Access improvements were also completed at Little South Pond in Plymouth.

#### Technical Assistance

District staff provided technical advice and support on issues dealing with fish, wildlife and their habitats to many local Animal Control Officers, police departments, boards of health, and conservation commissions, as well as to officers of the OLE. Many of these issues relate to the review of the potential impacts of proposed development projects on fish and wildlife. Others dealt with suburban wildlife, conflicts with humans, and public health and safety concerns. The entire staff assisted in fielding the many calls received during the year pertaining to coyotes, foxes, Canada geese, and other common suburban species. Coyote complaints, however, appear to be declining as residents of southeastern Massachusetts and Cape Cod learn to live with them and how to prevent conflicts. The "Living with Wildlife" publication series and educational messages were provided to many individuals and organizations to assist in dealing with these human-wildlife conflicts.

Southeast District personnel were actively involved with the Cape Cod Rabies Task Force, the Mashpee National Wildlife Refuge Management Team, the Southeastern Massachusetts Bioserve Management Team, and the Assawompsett Pond Complex Management Team.

The District Supervisor provided technical assistance to the town of Marshfield in the course of its review of hunting on conservation land and other town-owned lands and to the Sheriff's Meadow Foundation and Wildlands Trust of Southeastern Massachusetts during their reviews of hunting on their respective lands. He also served as a review team member for the Textron Natural Resource Damages Grant applications, and provided technical assistance during the Fall River City Council meeting pertaining to the Southeastern Mass. Bioserve conservation easement.

The District Supervisor regularly attended meetings of the Barnstable, Bristol, and Plymouth County Leagues of Sportsmen. The District Supervisor and Fisheries Manager participated in the Monomoy, Noman's Land Island and Nantucket National Wildlife Refuges Comprehensive Conservation Planning Team meetings.

Each year a considerable amount of time is spent in providing technical assistance to the Air Force Center for Environmental Excellence and their contractors in relation to the MMR cleanup. The Fisheries Manager was actively involved as a member of the Plume Containment Team, assisting with the ongoing planning and review





*Wildlife Technician Mike Morelly stocking trout in the Quinnepoxet River.*

of treatment systems and investigational wells on the MMR and on the Frances A. Crane WMA.

The Fisheries Manager also provided technical assistance to the Westport Rivers Estuaries Committee, the A.D. Makepeace River Restoration Project, the First Herring Brook Water Management Group, and during review of the Santuit Pond dam, as well working with the District Supervisor to assist in the review of repair or reconstruction of the Chandler Pond dam in Marshfield.

#### **Information and Education**

District personnel continued to provide information and education to the general public, as well as a wide variety of other agencies and organizations, through publications, presentations, and by attending meetings and events throughout the region.

Southeast District personnel prepared and staffed displays for the Thornton Burgess Society's Animal Day, Waquoit Bay National Estuarine Research Reserve's Watershed Block Party, the Cape Cod Rabies Task Force's Rabies Awareness Event in Yarmouth, Freetown State Forest "Fun in the Forest Day", the Monument Beach Sportsman's Club Show and the Standish Sportsmen's Association Show. A display with publications and educational materials was provided for the Marshfield Fair and partially staffed by the Westborough Field Headquarters' I&E staff.

The District Fisheries Manager and District Supervisor provided materials and background information

highlighting the hunting, angling, and outdoor legacy of Daniel Webster to Promotion Specialist Susan Benoit, for presentation and display at the Marshfield Historical Society's "Yester-Days" event.

#### **Central District Administration**

District Clerk Priscilla MacAdams reduced her hours from 37.5 per week to 28 during FY 09.

#### **Research and Conservation**

##### ***Wildlife***

Central District personnel oversaw the operation of 16 deer check stations; 14 turkey check stations (having added two new ones this year); 12 eastern coyote check stations; and one black bear check station.

Census operations were conducted for ruffed grouse, American woodcock, and mourning doves. Canada goose leg banding continued and waterfowl breeding plots were surveyed, as were waterfowl observed in parks.

A total of 265 wood duck nesting boxes were checked in FY 09, with six new boxes erected at various wetland sites. Donations of wood duck boxes and rough cut lumber for this program were received from sportsmen as well as from other members of the general public.

District staff released 12,800 ring-necked pheasants on 16 WMAs, five town coverts, and participating club properties. They also distributed 5,580 7-week-old pheasants for rearing to 12 sportsmen's clubs and two correctional institutions. The Bolton Flats WMA was



available for the DFW's special winter pheasant hunting opportunity. One application was received for a winter pheasant hunting permit.

Radio telemetry studies continued, focusing on tracking collared deer, moose, and bear. Nuisance animal reports were addressed and recorded, technical assistance was provided and site visits were conducted where necessary. The majority of reports related to beaver, coyote, bear, fisher, and fox.

Several moose-vehicle collisions were documented and data was collected from specimens that could be salvaged. District staff responded to calls about moose or bear in various towns and the District Supervisor participated in a class on immobilization conducted by Safe Capture International.

Active osprey nests were documented at two sites in Sturbridge, both on cell towers. The known nests in Westborough and Grafton were also active, the Westborough pair having relocated to a nest pole installed by District staff.

Common Loon nesting rafts were floated at Quabbin and Wachusett Reservoirs by the DCR. The District compiled statewide loon nesting records for submission to the NHESP database.

Fourteen WMAs were actively maintained during FY 09, with efforts directed at fields, roads, parking lots, gates, and dumping and ATV deterrents. Vegetation control was provided at Phillipston and Muddy Brook WMAs. A total of 45 acres of woody growth was cut to reclaim fields and early successional vegetation.

Miles of boundaries were marked and signed at the Millers River WMA, the McKinstry Brook WMA, the Savage Hill WMA, the Mine Brook WMA, the Barre Falls WMA, and the Coys Hill WMA. License agreements were renewed with one snowmobile club and three groups of model airplane hobbyists to continue their use of WMAs. Other agreements were maintained with 17 central Massachusetts farmers, primarily for raising hay and corn. Seventeen acres of agricultural land were put out to bid at the Quacumquasit WMA.

Six boat ramps were visited and trash removed. Assistance was provided to the Office of Fishing and Boating Access (OFBA) for improvement and maintenance projects at Chauncey Pond in Westborough, Comet and Moosehorn ponds in Hubbardston, and South Meadow Pond in Clinton.

Erosion issues were assessed at the Leadmine WMA. Illegal cutting of trees was documented and charges filed in cooperation with officers of the OLE at the Five Mile River Area in North Brookfield.

DCR's Office of Dam Safety issued ten Orders of Non-Compliance for dams located on Central District WMAs during FY 09, and inspections were begun by OFBA engineers.

## *Fisheries*

Central District staff surveyed 72 sites on streams to assess fish populations and water conditions, focusing on the Nashua, Blackstone, Millers, and Chicopee river basins. Hatchery raised trout were released into 36 ponds and lakes, as well as 23 rivers and 29 streams in the Central District. Stocking participants included Cub Scouts, school groups, youth groups, and members of the New England Fly Tyers, of Trout Unlimited, and of local sporting clubs.

Broodstock salmon obtained from the Roger Reed Hatchery in Palmer and the White River Hatchery were released into Comet Pond and Quinsigamond, Whalom, Wallum, and Webster lakes.

Fish kills were investigated on the Quaboag River in West Brookfield and in Whalom Lake in Lunenburg. Assessments of stream impacts were conducted for a retention basin failure in Leominster and the washout of a section of DCR rail trail in West Boylston.

Sampling studies were conducted on four Central District lakes and ponds to determine species composition and growth rates. A target study of northern pike and chain pickerel reproduction and growth continued at Quaboag Pond and in the Quaboag River.

Assistance was provided to Westborough staff in support of a proposal to remove town-owned dams on Hamant Brook in Sturbridge.

## *Natural Heritage and Endangered Species Projects*

The bald eagle nest at Wachusett reservoir in Boylston was active and produced two chicks. Both chicks were banded by District staff. The Quaboag Pond eagle pair was observed on territory but never confirmed as incubating eggs. A new nest was located at Lake Shirley in Lunenburg, and two chicks were banded there. Assistance was provided to the Southeast District for eagle banding in Middleboro and Fall River, where a total of four eaglets were banded.

Peregrine falcons nested successfully in downtown Worcester, where three female chicks were banded.

## **Information and Education**

District personnel set up and helped staff the DFW's booth at the Eastern Fishing and Outdoor Expo in Worcester.

## **Other District Activities**

A 300-seedling chestnut orchard was maintained at the District Office in cooperation with the American Chestnut Foundation and the DCR. Several seedlings flowered and were bagged for pollination as part of the research to develop blight-resistant trees.

The District Supervisor continued to represent the DFW on the Board of Trustees of the Worcester County Horticultural Society.

The District Supervisor attended meetings and functions of the Worcester County League of Sportsmen's Clubs. The District Supervisor, Wildlife and Fisheries biologists, and Wildlife Technicians attended meetings with various federal, state, and local agencies and private organizations, including the Massachusetts Audubon Society, the Fisherville Redevelopment LLC, the Blackstone River National Heritage Corridor Commission, the American Chestnut Foundation, the Ecotarium, the Mid-State Trail Committee, Oakmont High School, Wachusett Greenways, the East Quabbin Land Trust, the Northborough Trails Committee, the Central Mass. Regional Planning Commission, the Westborough Trails Committee, the Princeton Land Trust, and the Friends of the Upton State Forest.

## **Connecticut Valley District**

### **Administration**

A house was acquired with the purchase of the Partridge Lot, which was an inclusion in the Tully Mountain WMA. The building had some salvageable materials, including a stone foundation and chestnut floors and beams. The house was removed at no cost to the Division, using these materials to offset demolition costs.

### **Research and Management**

#### ***Wildlife***

Connecticut Valley District staff monitored ruffed grouse drumming routes and conducted line transect surveys, assisted with the resident Canada goose survey, and participated in the mid-winter Bald Eagle survey and in the DFW's wild turkey brood survey.

The Black Bear Project is a focal point for staff in the Connecticut Valley District as the majority of the radio collared bears are located in this region. District staff monitored the survival and reproduction of 17 radio collared female bears. One 2-year-old female bear dropped its collar. An adult female was taken during the hunting season. Two bears were killed by cars (one adult, one yearling). One adult was shot by officers of the OLE because it appeared sick, and one 2-year-old bear was shot by a property owner who caught it breaking into a chicken coop. Fifteen female bears were checked in their dens during February and March, to assess reproductive success and first-year cub survival. Eight bears had 20 newborn cubs (six male, 11 female, and three unknown). Of the three female bears expected to have a total of eight yearling cubs, two had at least six yearling cubs that survived the first year. In a cooperative study with the University of Massachusetts at Amherst (UMASS), three GPS collars that report locations every 90 minutes were affixed to female black bears.

U. Mass. graduate student Dave Wattles continues to monitor moose radio-collared in previous years in the Connecticut Valley.

District staff banded 100 Canada geese at eight sites. They maintained 180 wood duck nesting boxes at 48 sites.

District staff cleared six acres of early successional habitat on two WMAs (two acres at Montague WMA and four acres at Southwick WMA). An additional 70 acres were mowed with the District tractor and rotary brush cutter (15 acres at Southwick WMA, 30 at Herm Covey, three at Leyden WMA, and 22 acres at Southampton WMA).

#### ***Fisheries***

Staff of the Connecticut Valley District conducted stream surveys on approximately 30 streams. Data obtained were used for stream inventory and several streams of interest to the NHESP were specifically investigated.

### **Natural Heritage and Endangered Species Projects**

The Valley District now monitors all breeding territories and bands all eaglets at the Quabbin Reservoir and west to the New York line. Staffers climbed into 29 eagle nests and banded 39 chicks. Valley District Wildlife Manager Dave Fuller assisted in the Midwinter Bald Eagle Survey (aerial survey) at the Quabbin Reservoir and over the Connecticut River. He also assisted in compiling and summarizing statewide information from this survey. Two new eagle nests were found on the Connecticut River. One active nest was located at the "Honey Pot" area in Hadley, where two chicks were banded. Another nest was found just below the "dinosaur tracks" area. This was found to be a "housekeeping" nest, which will likely produce chicks next year.

Staff banded seven chicks in the District: four at the UMASS Library, Amherst; and three at Mt. Sugarloaf in Deerfield. Staff also checked a peregrine falcon nest at Mt. Tom in Easthampton, which produced at least one chick that was not banded.

### **Enhancement of Outdoor Recreation**

Existing signs and access were maintained at all Wildlife Management Areas in the Valley District. A parking area was established at the Tully Mountain WMA.

Valley District staff released 10,000 pheasants on 33 town covers and 10 WMAs during the six-week pheasant hunting season. Six sportsmen's clubs in the Valley District participated in the club pheasant rearing program. District staff distributed 1,496 seven-week-old pheasants to these clubs in July.

Four field trial permits were issued for the Herman Covey WMA.

One permit was issued for winter pheasant hunting on the Herman Covey Wildlife Management Area.

District staff administered a controlled waterfowl hunt at the Ludlow WMA. Five hunters applied and participated in the hunt.

Connecticut Valley District staff released 109,200 rainbow, brook, and brown trout during the spring stocking season. Trout were also provided for several local fishing derbies, much to the delight of the participants. In

addition, several loads of broodstock Atlantic salmon received from White River Hatchery were released during January.

### Information and Education

District staff assisted the DFW's Angler Education Program in setting up and staffing fishing festivals located at Five Mile Pond in Springfield, Heritage Pond in East Longmeadow, Dean Pond in Brimfield, the USFWS Open House in Hadley, and Piper Brook Pond in West Springfield.

District personnel also set up and staffed display booths at the Franklin County Fair, Greenfield, and the Springfield Sportsmen's Show, West Springfield. In addition, District staff hosted special events on "Coexisting with Black Bears" for the Whately Grange and for the Northfield Library Reading Group.

### Other District Activities

The District Supervisor attended meetings of the Hampden County Sportsmen Council, the Hampshire County League of Sportsmen, and the Franklin County League of Sportsmen. The District Supervisor and the District biologists participated in various meetings with federal, state, local agencies and land trusts, focusing primarily on land acquisition and management.

## Western District

### Administration

The District added some much needed new equipment in FY 09, including a tractor, a trailer, and a utility vehicle. These vehicles will be essential in land management efforts as protected acreage continues to increase. District personnel devote considerable time to habitat and access on WMAs. Maintaining open field, early-successional areas, and public access to properties keeps Western District tractors in use almost every day from July through October. These efforts (along with cooperative license agreements) are necessary to maintain habitat diversity. The District Wildlife Manager works closely with local farmers to develop mutually beneficial license agreements.

In December 2008, the region was hit hard by the major ice storm that affected most of the state, and resulted in power outages that lasted for weeks in many Western District communities. This ice storm also had dramatic effects on the forests of many DFW properties, particularly in the higher elevation Berkshire hilltowns. The storm affected many District staff personally as well, and extensive work was required to clean up downed trees. The full extent of the damage has still not been completely assessed in the interior of some WMAs.

The Housatonic River Area of Critical Environmental Concern (ACEC) was established by EEA in FY 09. The District Supervisor provided technical assistance and biological information, attended public hearings, and was a member of the review committee for the Housatonic ACEC designation. The ACEC includes approximately 800 acres of DFW-owned land.

The District Supervisor and Wildlife Technicians provided support and technical assistance to the USFWS in their sampling related to PCB reduction in the Housatonic River Watershed. The Supervisor also represented the DFW at public meetings related to the proposed plans for PCB reduction in the river, including the Citizen's Coordinating Council and other informational sessions.

The District Supervisor met with officials from the City of Westfield and the Town of Montgomery on multiple occasions to discuss management of the Westfield Watershed Property, on which the DFW had purchased a Conservation Easement in FY 08. These meetings were productive in reducing the concerns in Montgomery, while ensuring that public access continued.



*After two winters of being impacted by White Nose Syndrome, the Little Brown Bat, once our most common bat, has become very scarce.*

### Research and Conservation

#### Wildlife

District staff spent considerable time addressing issues related to White Nose Syndrome (WNS) in bats. District Wildlife Manager Tony Gola worked closely with the USFWS and staff of the NHESP, as well as other biologists throughout the Northeast. The District Wildlife Biologist and the Wildlife Technicians conducted bat counts, picked up dead or dying bats, and provided information to the public. Western District lands contain some of the most important bat hibernacula in Massachusetts. WNS continues to be at the forefront of conservation issues in this District.

Mr. Gola also participated in the 24th annual Hiram Fox WMA bird count. He also conducted annual surveys for woodcock, grouse, and breeding waterfowl. District

Wildlife Technicians constructed and installed nest boxes for wood ducks, kestrels, and bluebirds. District staff provided support for wildlife project leaders by monitoring radio-collared deer, conducting dove census routes, staffing check stations, providing labor for upland habitat projects, and banding geese.

### ***Fisheries***

District staff completed fish community surveys on 44 rivers and streams and 7 lakes and ponds in FY 09. This information will be entered into the statewide database and used in making conservation and management decisions. Fisheries Manager Dana Ohman organized and led a trip for District and Field Headquarters staff to view habitat enhancement projects in Vermont.

Ms. Ohman represented the DFW at meetings of the Eastern Brook Trout Joint Venture, which is a national effort to address threats to brook trout throughout their range.

District staff responded to and investigated four fish kills. Staff members also attended a fish identification training hosted by the Westborough Fisheries Section. District Wildlife Technicians conducted winter creel surveys on six lakes and ponds, including the Westfield Reservoir, which was opened to fishing for the first time in 2008.

The Fisheries Manager also attended and presented information at a stream restoration workshop hosted by the Natural Resource Conservation Service (NRCS).

The District Supervisor and Fisheries Manager continued to work on the development of coldwater conservation guidelines for the District. These guidelines will help address stream habitat degradation and emphasize the importance of the region's coldwater resources.

### ***Natural Heritage and Endangered Species Projects***

District Staff provided support in the form of local knowledge and biological input for the NHESP on environmental reviews and other rare and endangered species issues.

The District Wildlife Manager continued his association with the New England Plant Conservation Program (NEPCOP) and supported that organization by conducting botanical surveys for rare plants. He also worked with the NHESP in developing plans for mowing and other land management that would be consistent with protection of rare species.

District staff participated in the Midwinter Bald Eagle Survey and assisted staff from the Connecticut Valley District in banding eagles in Sheffield and Pittsfield.

### **Enhancement of Outdoor Recreation**

Enhancement of outdoor recreation is a primary function of the District office. Trout were released into 24 lakes and ponds and 56 streams and rivers to enhance recreational fishing. District staff also released brood-stock salmon into five Western District lakes.

Staff maintained open areas on five WMAs where pheasants are stocked. District staff released 4,000 pheasants onto 14 areas (including WMAs and local covers). These areas represent the best available opportunities for pheasant hunting and cover all parts of the District. Pheasant chicks were provided to two sportsmen's clubs. The birds were raised until release onto public areas during the season.

District Wildlife Technicians constructed and installed signs and maintained parking areas and access for the public. Two boat access sites managed by the DFW were maintained by District Staff. Staff also provided support for the DFW's special deer hunt for paraplegic hunters, which provides a unique opportunity for these hunters to participate in the hunting season.

The District Supervisor and the District biologists provided input on potential land acquisition projects, focusing on wildlife habitat and recreational opportunities.

### **Information and Education**

District staff participated in many activities that provide information and education about outdoor recreation and wildlife to members of the public. The District Supervisor attended monthly meetings and provided updates to the Berkshire County League of Sportsmen (BCLS), and to the Hampshire County League of Sportsmen's Clubs when the meetings occurred in the Western District. The BCLS honored District Supervisor Andrew Madden with an outstanding achievement award at its annual Silvio O. Conte Banquet.

The District Supervisor gave wildlife and fisheries presentations to Project Wild, Berkshire Gardeners, and Trout Unlimited, as well as to local community groups. He also led interpretive walks for the Becoming an Outdoors-Woman Program at their January and June events.

The Fisheries Manager provided technical presentations to the MACC conference, Trout Unlimited, and the NRCS. Other staff communicated with the public at the Springfield Sportsmen's Show, the Lakes and Ponds Association of Western Massachusetts (LAPA-West) Symposium, and at the Massachusetts Junior Conservation Camp.

### **Technical Assistance**

District Clerk Elna Castonguay fielded hundreds of calls requesting technical assistance. District staff, particularly the clerk, District Supervisor, and District biologists, responded to these inquiries with professionalism and expertise. The Clerk also addressed the needs of walk-in visitors, and issued permits and licenses to hundreds of sportsmen. In addition to advising members of the public, District personnel were often called upon to provide technical assistance to other agencies or user groups. The Wildlife Manager responded to numerous calls seeking advice on dealing with black bear and other wildlife species. Many inquiries were handled

by phone, but, when necessary, the Wildlife Manager and District Supervisor also met onsite with landowners having problems with bears. Remedies included installation of electric fencing and other site-specific

behavior modifications. District staff, particularly the Wildlife Technicians, provided assistance on site to Animal Control Officers and responded to numerous calls about injured or problem wildlife.

## District Personnel

### Northeast District

Patricia Huckery, *District Supervisor*  
Erik Amati, *Wildlife Manager*  
David Critchlow, *Wildlife Technician*  
Bob Desrosiers, *Wildlife Technician*  
Travis Drudi, *Wildlife Technician*  
Anne Gagnon, *Land Agent*  
Sue Ostertag, *Clerk*  
John Sheedy, *Fisheries Manager*  
Steve Wright, *Wildlife Technician*

### Southeast District

Jason E. Zimmer, *District Supervisor*  
Aaron Best, *Wildlife Technician*  
Jeff Breton, *Wildlife Technician*  
Daniel Fortier, *Wildlife Technician*  
Steve Hurley, *Fisheries Manager*  
Ed Kraus, *Wildlife Technician*  
Camie Marsh, *Clerk*  
Joan Pierce, *Land Agent*  
Dick Turner, *Wildlife Manager*

### Central District

Bill Davis, *District Supervisor*  
Mark Brideau, *Fisheries Manager*  
Bob Chapin, *Wildlife Technician*  
Scott Kemp, *Wildlife Technician*  
Brandon Kibbe, *Land Agent*  
Priscilla MacAdams, *Clerk*  
Jessi Manty, *Wildlife Technician*  
Bridgett McAlice, *Wildlife Manager*  
Michael Morelly, *Wildlife Technician*

### Connecticut Valley District

Ralph Taylor, *District Supervisor*  
David Basler, *Fisheries Manager*  
Barbara Bourque, *Clerk*  
David Fuller, *Wildlife Manager*  
Gary Galas, *Wildlife Technician*  
Sam Lovejoy, *Land Agent*  
Kevin Peloski, *Wildlife Technician*  
Walter Tynan, *Wildlife Technician*  
James Wright, *Wildlife Technician*

### Western District

Andrew Madden, *District Supervisor*  
Dale Beals, *Wildlife Technician*  
Elna Castonguay, *Clerk*  
Tammy Ciesla, *Wildlife Technician*  
Nancy Dewkett, *Wildlife Technician*  
Anthony Gola, *Wildlife Manager*  
Jacob Morris-Siegel, *Wildlife Technician*  
Peter Milanese, *Land Agent*  
Dana Ohman, *Fisheries Manager*

# WILDLIFE LANDS

William J. Minior  
*Chief of Wildlife Lands*

The 2009 fiscal year was a very interesting and successful land protection year, with many new projects begun and a few important old projects brought to completion. Fifty-six acquisitions were completed, providing additional habitat protection and compatible public recreation on approximately 10,280 acres at a cost of \$13.85 million. Statewide transactions included 44 different areas within 42 different municipalities. Eleven new areas were established.

The eastern part of the state, specifically the Southeast and Northeast Districts, benefitted most, with about 57% of the total acreage protected in 2009. Conservation Easements (CEs), which restrict development yet provide public access for recreational purposes, including hunting and fishing, played a major role in our land protection efforts in the eastern and central part of the state. Although CEs accounted for only 12 of the 56 projects, they accounted for over three-quarters of the total acreage protected. (Note: the property created by a CE is referred to as a Wildlife Conservation Easement [WCE]). The 4,300-acre Fall River WCE, held jointly with DCR, and the 1,875-acre Fitchburg Watershed WCE are the primary reasons for the large eastern acreage. Other large CEs in the eastern half of the state include the 624-acre Nineteenth Hill WCE in Winchendon, the 564-acre Wekepeke WCE in Sterling and Leominster, and the 125-acre Lehtola WCE which is part of the Taunton River Wildlife Management Area (WMA) in Bridgewater.

Parcels ranged in size from 1-acre stream access tracts on the Nissitissit River in Pepperell and on the Sawmill River in Montague to the huge 4,300-acre Fall River WCE. The largest parcel acquired in fee is the 248-acre Pinkham/Miller tract, which more than doubled the size of the Hawley Natural Heritage Area (NHA). Other relatively large fee acquisitions include the 223-acre Town of Winchendon addition to the Birch Hill WMA, the 174-acre Town of Montague addition to the Montague WMA, and a 143-acre Town of Huntington addition to the Hiram Fox WMA. Municipalities were the grantors of about 75% of the total acreage protected by the DFW in 2009. The driving factor appears to have been the given town's need for revenue coupled with the desire to preserve open space for resource protection and recreational needs.

Non-profit, third-party assistance was once again an important element in these acquisition efforts. Non-profit third parties assisted directly on a dozen acquisitions and provided valuable input on others.

## Land Acquisition in FY 09

### Western District

Expended	\$2,324,000.00
Acreage	839.30
Cost/acre	\$2,768.97

### Valley District

Expended	\$964,960.00
Acreage	501.30
Cost/acre	\$1,924.92

### Central District

Expended	\$3,314,339.00
Acreage	3,046.30
Cost/acre	\$1,087.99

### Northeast District

Expended	\$2,060,161.00
Acreage	1075.70
Cost/acre	\$1,915.18

### Southeast District

Expended	\$5,190,500.00
Acreage	4,818.10
Cost/acre	\$1,077.29

<b>Total Expended:</b>	<b>\$13,853,960.00</b>
<b>Total Acreage Acquired:</b>	<b>10,280.70</b>
<b>Average Cost Per Acre:</b>	<b>\$1,347.57</b>

*Above figures include DFG acquisitions. It should be noted that the acreage figures and costs are for all properties acquired with FY 09 funds and recorded by June 30, 2009. Ancillary costs are not included.*

Direct assistance was provided by various non-profit groups, including the Berkshire Natural Resources Council, Inc.; the Sheffield Land Trust; Mount Grace Land Conservation Trust, Inc.; Franklin Land Trust; East Quabbin Land Trust; and the Nissitissit Land Trust. The Wildlands Trust and the Massachusetts Audubon Society provided substantial assistance with the land protection efforts in the Southeast.

Other notable acquisitions include the 158-acre A. D. Makepeace (ADM) "bookend" acquisition in Wareham and Plymouth that initiates and creates the framework for the future protection of thousands of acres of ADM property; the 17-acre Western Massachusetts Council of the Boy Scouts of America tract along the Housatonic River in Dalton; and the 15-acre Garrison, Inc., addition to the DFW's Game Farm property in Ayer. The latter



two acquisitions also include buildings that may be helpful for future use by DFW Districts.

Eighteen acquisitions were recorded in the Central District, 12 in the Western District, and nine in each of the Valley, Northeast, and Southeast districts. Eleven new areas were established, with five in the Southeast, three in the Central and two each in the Northeast and Western districts. The Fitchburg Watershed WCE includes substantial acreage in both the Central and Northeast districts.

Overall, FY 09 was a very successful land protection year for DFW/DFG. Tight fiscal times sparked early, vigorous acquisition activity, which led to many recordings early in the fiscal year with a smaller-than-usual “crunch” at the end. The 10,280 acres protected in FY 09 bring DFW’s total protected acreage to approximately 180,000 acres, or about 281 square miles.

## Western District

The Western District completed twelve acquisitions in FY 09, protecting a total of 839.3 acres. Parcels ranged in size from the 4.1-acre Farmington River Access in Otis to the 248-acre addition to the Hawley Natural Heritage Area (NHA), which more than doubled the size of the area. Three acquisitions exceeded 100 acres in size, including the 144-acre Alford Spring WCE. Two new areas were acquired: the Farmington River Access and the 58.4-acre Hubbard Brook WMA in Sheffield.

Municipalities and non-profits again played an important role in our overall Western District acquisition effort. The Town of Huntington conveyed two tracts totaling 143 acres as an addition to the Hiram Fox WMA, and the Town of Peru transferred a 7.8-acre tract abutting the more than 5,200-acre Peru WMA. The Berkshire Natural Resource Council, Inc., conveyed a 144-acre CE in Alford, increasing the size of the Alford Spring WCE to 784 acres, while the Sheffield Land Trust conveyed the new 58.4-acre Hubbard Brook WMA.

Of special note is the 17-acre Boy Scout property in Dalton, which includes approximately one quarter mile of Housatonic River frontage and an attractive log cabin style office building that has potential for a future DFW District headquarters. The 24.4-acre Lapinski inholding within the Fisk Meadows WMA in Chesterfield is a welcome addition, having eluded DFW acquisition for years.

Other significant acquisitions include 63 acres to the Savoy WMA in Windsor, 80.5 acres to the Hancock WMA, 34.1 acres to the Powell Brook WMA in Cummington, and a 15-acre addition to the Westfield River Access in Windsor.

Successful efforts in FY 09 resulted in the protection of a total of 839.3 acres in 11 towns and 12 separate areas in the Western District, at a cost of \$2.3 million.

## Connecticut Valley District

Nine projects were completed on seven different areas, protecting a total of 501.3 acres. Four of the projects are in Montague and two are conveyances from the town, one being a narrow 1-acre access strip along the Sawmill River and the other a 174-acre addition to the Montague WMA. A 24-acre private conveyance was also added to the Montague WMA, and the Franklin Land Trust pre-acquired and conveyed a 21-acre abutting tract as well.

The Franklin Land Trust also pre-acquired a 52.8-acre addition to Satan’s Kingdom WMA in Bernardston, pushing the total acreage for that WMA to more than 2,040 acres. This acquisition includes extensive road frontage and could easily have succumbed to residential development. Mount Grace Land Conservation Trust conveyed a 78-acre tract in Warwick, which a welcome addition to the Tully Brook Access Area.

A 121.5-acre addition to our Green River Access in Colrain and Greenfield provides extensive stream and road frontage and is an excellent resource and recreational acquisition. Twenty acres were added to the Mount Toby WMA in Sunderland, and a 9-acre tract increases the Whately Ponds Fish and Wildlife Area to over 85 acres.

The Valley acquired land in seven towns at a total cost of about \$0.96 million. All acquisitions in the Valley were for fee interest.

## Central District

The Central District had an outstanding year, completing eighteen acquisitions in ten different areas. A total of 3,046 acres were protected in eleven municipalities. Four of the five largest acquisitions were Wildlife Conservation Easements (WCEs). Slightly over 75% of the acreage protected in the Central District was via CEs. Three new WCEs were thus acquired, and all other acquisitions were additions to existing properties. The new WCEs are the Wekepeke, the Nineteenth Hill, and the Fitchburg Watershed WCEs.

The largest project completed by this District is the 1,875 acre Fitchburg Watershed, which included 1,198 acres in Fitchburg and 677 acres in Ashby (Northeast District). Other large CEs include the 564-acre Wekepeke WCE in Sterling and Leominster, acquired from the Town of Clinton, and the 498-acre Nineteenth Hill WCE in Winchendon, acquired from the Town of Winchendon. The Town of Winchendon also conveyed the fee interest in a 19-acre and a 223-acre parcel, both of which are now part of the Birch Hill WMA.

Mount Grace Land Conservation Trust (MGLCT) assisted in our acquisition efforts through three conveyances. Two of these transfers were associated with the Nineteenth Hill project, and included a CE on a 134-acre tract abutting Nineteenth Hill and a 25-acre fee transfer as part of the Birch Hill WMA. The third MGLCT project was funded by the USDA Forest Service’s Forest Legacy



Program (FL), and involved a 6.9-acre tract in Petersham, now part of the Phillipston WMA. This FL-funded parcel was part of a 129-acre, four-parcel project assembled by MGLCT, all now part of the Phillipston WMA. The East Quabbin Land Trust (EQLT) provided third party assistance in the acquisition and protection of the 79-acre former Jakshtis property, which is an addition to the Muddy Brook WMA.

Two major additions were completed on the Wolf Swamp WMA, the first being a 23.6-acre parcel with substantial field habitat, and the second a 111-acre wooded tract that was slated for a high density subdivision. Both were considered major inholdings that, if residentially developed, would have had a serious impact on the resource and recreational use of the remainder of the Wolf Swamp WMA. The purchase of two inholdings increased the Oakham WMA by 22.6 acres. A 22.7-acre tract provided valuable wetland habitat to the High Ridge WMA, and a 7-acre addition to the Millers River WMA in Athol will provide early successional habitat and prevent development.

The Central District now has over 41,500 acres under DFW management and control.

### **Northeast District**

The Northeast District remains the DFW's most difficult district to assemble meaningful land protection projects because of the small, fragmented parcels and the relatively high cost of land. We did not have a Northeast District Land Agent for a substantial portion of FY 09, however other land staff pitched in to move existing and new projects along, and projects were completed on eight different areas in seven municipalities. Acquisitions ranged in size from a 1-acre river access to a 677-acre CE. Two new areas were established, namely, the Fitchburg Watershed WCE and the Townsend Hill WMA.

The 677-acre Fitchburg Watershed WCE in Ashby was courtesy of the Central District, which negotiated for the entire 1,875-acre WCE that included 1,198 acres in Fitchburg. It is a valuable property and will help to insure resource protection and provide a tremendous amount of recreational opportunity. The Nissitissit River Land Trust provided third party assistance in the acquisition of the extremely popular 1-acre access to the Nissitissit River in Pepperell, and the Shirley Rod and Gun Club graciously conveyed a CE on 146 acres with access along the Squannacook River, which adds substantially to DFW holdings in that area.

Purchase of the 15-acre Garrison property, with buildings, in Ayer abutting the DFW's Game Farm property, provides additional buffer to our area and excellent potential for a future DFW District facility. Acquisition included some "minor" 21E issues, which proved to be a learning experience. Two abutting acquisitions in Townsend and Pepperell combine to form the newly created 200-plus-acre Townsend Hill WMA. Several abutting properties are also under negotiation.

Other valuable acquisitions include a 4.8-acre addition to the Salisbury Marsh WMA, the Town of Groveland's conveyance of a 4.5-acre parcel abutting the Crane Pond WMA, and a 26.4-acre attachment to the Hunting Hills WMA in Townsend. Nine acquisitions resulted in the expenditure of \$2.06 million and the protection of approximately 1,076 acres, in all an excellent year for this district.

### **Southeast District**

Nine land protection projects were completed in the Southeast District involving 4,818 acres. Five new areas were established, including the seemingly long overdue 4,300-acre Fall River WCE held jointly with DCR. Five of the Southeast's projects are CEs, which account for approximately 93% of the acreage protected in FY 09. Parcels were acquired on seven different areas and in six separate towns.

The Fall River WCE is the result of a fairly extensive and complex effort by the Commonwealth (DFG and DCR), the City of Fall River, and TTOR that involved escrowed funds and a conveyance of about 300 acres from DCR to the city for industrial purposes. Dispositions are never 100% supported, however the protection of 4,300 acres with guaranteed public access on most is generally believed to have been a worthwhile trade-off.

The most costly and perhaps the most notable Southeast acquisition in FY 09 was the 158-acre ADM transaction in Plymouth and Wareham. It created two new WMAs for the DFW, Halfway Pond and Maple Springs, but more importantly it paved the way for future protection of thousands of acres of ADM property. Much of this property is considered by Natural Heritage to be some of the most valuable rare and endangered species habitat in the eastern part of the state, and any proposed use is subject to MESA review. This complex deal involves ADM, local municipalities, non-profits/land trusts, and the Commonwealth, and under options will span several decades.

Another outstanding acquisition is the 230-acre Lehtola addition to the Taunton River WMA in Bridgewater. This joint project with the Wildlands Trust involved fee and CE acquisitions which resulted in the protection of over 1 mile of road frontage and 1.3 miles of Taunton River frontage. It contains extensive field habitat as well as riparian corridor and is extremely rich in wildlife resources. Protection of the approximate 70-acre Crawley property on the easterly shore of Billington Sea in the northerly part of Plymouth was a joint venture with the Town of Plymouth. Although hunting is allowed, the 3,000-plus feet of frontage on Billington Sea and 1,000-plus feet of frontage on Louts Pond is the major draw. The town will hold the fee interest subject to a DFG-held CE.

Other less flashy but equally important acquisitions include two additions (34.5 and 3 acres) to the Haskell Swamp WMA, the 3-acre tract from the Fin, Fur and Feather Club, and the new 4-acre Agawam River WCE

in Wareham, in which the Wareham Land Trust was the driving force and the holder of the fee interest.

Southeast District efforts resulted in the protection of 4,818 acres at a cost of about \$5.2 million.

### Land Agents

Phil Truesdell, *Statewide*  
 Peter Milanese, *Western District*  
 Sam Lovejoy, *Connecticut Valley District*  
 Brandon Kibbe, *Central District*  
 Anne Gagnon, *Northeast District*  
 Joan Pierce, *Southeast District*

### Western District

<b>Wildlife Management Areas: 30</b>	<b>Acres</b>	<b>Tract</b>
Agawam Lake	779.8	254
Becket	239.6	60
Chalet	7,080.3	86
Cumington	194.0	240
Day Mountain	382.4	264
Eugene Moran	1,669.9	91
Farmington River	1,760.3	211
Fisk Meadows	1,145.2	88
Fox Den	4,702.6	100
Green River	489.2	125
Hancock	491.5	123
Hinsdale Flats	1,554.3	89
Hiram H. Fox (formerly Canada Hill)	3,706.8	48
Hop Brook	424.8	112
Housatonic Valley	817.9	67
Hubbard Brook	58.4	323
John J. Kelly	267.0	85
Jug End*	1,233.8	191
Knightville	721.0	244
Lilly Pond	349.7	255
Maple Hill	370.1	148
Mount Tekoa	1,422.0	231
Otis	83.5	124
Peru (including Tracy Pond)	5,203.7	30 & 113
Powell Brook	402.6	115
Savoy	1,603.8	64
Stafford Hill	1,591.6	56
Taconic Mountain	157.3	232
Three Mile Pond	1,127.1	181
Walnut Hill	812.0	190
	<b>40,846.4 acres</b>	

\*Jointly owned and managed with DCR

### Wildlife Conservation Easements: 12

Alford Spring	784.0	269-1
Ashfield	101.0	247-1
Blanford	986.0	249-1,2&3
Chesterfield	491.0	248-1&2
Dalton Fire District	2,754.0	253-1
Huntington	78.0	250-1
Mount Plantain	1,337.4	241
New Marlborough	239.0	246-1
Sandisfield	692.0	245-1,2&3
Tyringham	1,136.0	252-1
Westfield Watershed	2,300.0	312
Wright/Mica Mill	1,782.0	243
	<b>12,637.4 acres</b>	

### River Access: 6

Farmington	4.1	319
Green River (Egremont)	21.5	292
Hoosic River	5.9	213
Housatonic River	146.5	103
Konkopot River	8.8	114
Westfield River (W)	800.0	94
	<b>986.8 acres</b>	

### Wildlife Sanctuaries: 2

E. Howe Forbush	268.0	16
Grace A. Robson	69.5	24
	<b>337.5 acres</b>	

### Wildlife District: 1

District Headquarters	2.1	13
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### Natural Heritage Areas: 9

Bullock Ledge	15.5	212
Dolomite Ledges	164.9	227
Fairfield Brook	203.3	226
Hawley	532.7	277
Jug End Fen	38.8	147
Kampoosa Fen	72.0	173
Lanesborough	88.6	233
Nordeen Marsh	22.9	102
Rowe	36.4	310
	<b>1,170.1 acres</b>	

### TOTAL WESTERN DISTRICT 55,980.3 acres

### Connecticut Valley District

<b>Wildlife Management Areas: 31</b>	<b>Acres</b>	<b>Tract</b>
Brewer Brook	214	309
Catamount	413.0	119
Coy Hill (V)	211.6	221
East Mountain	347.9	202
Facing Rock	1,556.1	179
Herman Covey*	1,521.5	49
Honey Pot/Westfield	227.0	174
Lake Warner	94.8	180
Leadmine (V)	344.0	170
Leyden	759.0	200
Millers River (V)	65.84	A62
Montague	1,807.9	118
Montague Plains	1,493.0	234
Mount Esther	191.0	307
Mount Toby	379.5	222
Orange	1,605.2	229
Palmer	1,052.1	178
Pauchaug Brook**	161.3	74
Poland Brook	679.4	70
Satan's Kingdom	2,044.8	107
Shattuck Brook	156.1	293
Southampton	170.6	262
Southwick	254	311
Tully Mountain	1,187.4	225
Tully River (V)	59.0	272
Wales	207.1	172
Warwick	379.0	126
Wendell	585.7	144
Whately	380.7	182
Whately Great Swamp	441.4	235
Williamsburg	88.0	127
	<b>19,078.2 acres</b>	

\*Combination: Hatchery (McLaughlin), WMA, and District HQs.

\*\*WMA and Connecticut River access

<b>Wildlife Conservation Easements: 3</b>		
Amherst/Pelham ALA	36.9	274
Ludlow Reservoir	1,750.0	271
North Quabbin CEs		257
New Salem	59.0	
Tully River	<u>250.0</u>	
	2,095.9 acres	

<b>Islands (Connecticut River): 2</b>		
Shepherd's Island	15.0	80
Sunderland Islands - 2	9.0	189
	24.0 acres	

<b>Fish Hatcheries: 4</b>		
Bitzer	150.6	7
McLaughlin (included in Herman Covey WMA)		
Reed	301.0	8
Sunderland	<u>47.7</u>	9
	499.3 acres	

<b>Game Farm: 1</b>		
Wilbraham*	137.2	4

\*Turned over to Town in FY 99. CE retained on 137.2 acres.

<b>River Access: 9</b>		
Connecticut River	82.3	117
Deerfield River	20.5	201
Green River (V)	179.7	185
Mill River	23.0	239
Sawmill River	52.0	176
Sibley Brook	13.4	152
Tully Brook	154.9	177
Ware River (V)	14.0	A63
Westfield River (V)	<u>76.8</u>	111
	616.6 acres	

<b>Pond Access: 4</b>		
Little Alum Pond	0.5	128
Lake Lorraine (OFBA)	0.3	129
Lake Rohunta	2.5	209
Packard Pond	<u>0.5</u>	306
	3.8 acres	

<b>Fisheries &amp; Wildlife Areas: 1</b>		
Whately Ponds	85.6	294

<b>Natural Heritage Areas: 5</b>		
Rainbow Beach	30.9	142
Mt. Toby Highlands NHA	100.0	159
Mt. Tom	72.7	238
Darwin Scott Memorial	27.3	157
Honey Pot NHA	<u>234.1</u>	175
	465.0 acres	

**TOTAL VALLEY DISTRICT 23,005.6 acres**

<b>Central District</b>		
<b>Wildlife Management Areas: 41</b>		
<b>Acres</b>		<b>Tract</b>
Ashby	48.5	134
Bennett	281.2	A77
Birch Hill	4,122.4	50
Bolton Flats	1,177.9	90
Breakneck Brook	1,409.0	158
Coy Hill*	654.2	221
E. Kent Swift	200.5	84
Fish Brook	221.0	130

Four Chimneys	200.0	77
High Ridge**	2,348.5	98
Lackey Pond	150.5	165
Lawrence Brook	947.5	108
Leadmine (C)	296.0	170
Martha B. Deering	272.4	237
McKinstry Brook	348.3	184
Merrill Pond (System)	803.0	10
Millers River (C)	3,643.4	62
Mine Brook	1,062.5	258
Moose Brook	495.3	132
Moose Hill	567.1	59
Muddy Brook	1,739.4	167
North Brookfield	102.6	278
Oakham	730.2	153
Palmer*	208.0	178
Phillipston	3,615.2	31
Popple Camp	1,161.0	A31
Poutwater Pond (formerly North Street)	378.0	133
Prince River	749.0	113
Quaboag River	1,677.4	55
Quacumquasit	179.9	131
Quisset	635.0	196
Raccoon Hill	645.5	151
Richardson	467.2	106
Savage Hill	1,109.7	150
Thayer Pond	131.0	171
Tully Mountain	119.5	225
Tully River (C)	9.0	272
Ware River (C)	291.4	63
Westboro***	894.6	35
Winimuset	670.1	61
Wolf Swamp	<u>1,048.5</u>	217
	35,779.3 acres	

\*Listed and managed under Connecticut Valley District

\*\*Management and control under DFW: 1,673.7 acres; DFW owned in fee: 282.0 acres

\*\*\*467 acres added from a FY 97 DCAM transfer

<b>Wildlife Conservation Easements: 13</b>		
Burnshirt River	5.64	160
Carter Pond	280.0	155
Fitchburg Watershed	1,197.6	321
Hitchcock Mountain	610.0	305
Hunting Hills	53.7	183
Leadmine Mountain	826.0	295
Moose Brook	125.0	296
Nineteenth Hill	623.9	315
North Quabbin CEs		257
Phillipston (Secret Lake)	212.0	
Quabbin Corridor	99.3	301
Tully River	6.6	
Quabbin	28.0	161
Quabbin Corridor (MGLCT/Wilson)	99.3	301
Stillwater River	29.0	162
Wekepeke	<u>564.0</u>	314
	4,660.7 acres	

<b>Wildlife Sanctuaries: 2</b>		
Susan B. Minns	140.0	20
Watatic Mountain	<u>100.0</u>	25
	240.0 acres	

<b>River Access Areas - 5</b>		
Blackstone/West River	28.0	76
Five Mile River (including 17-acre CE)	195.5	120

Natty Brook	95.2	220
Quinapoxet River	32.0	66
Seven Mile River	<u>77.0</u>	275
	427.7 acres	

**Natural Heritage Areas: 4**

Chockalog Swamp	52.5	286
Clinton Bluff NHA	42.0	154
Podunk Marsh	15.0	104
Quag Pond Bog	<u>31.0</u>	197
	140.5 acres	

**Marshes: 1**

Quinsigamond Marsh	59.0	156
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**Pond Access: 6**

Cusky Pond	23.75	163
Fisherville Pond	1.6	166
Glen Echo Lake	1.0	149
Mossy Pond	16.1	267
South Meadow Pond	0.25	266
Sputtermill Pond	<u>58.5</u>	164
	101.2 acres	

**Forest - 2**

Hamilton	70.0	75
Northborough	<u>88.8</u>	51
	158.8 acres	

**TOTAL CENTRAL DISTRICT 41,567.2 acres**

**Northeast District**

<b>Wildlife Management Areas: 12</b>	<b>Acres</b>	<b>Tract</b>
Ashby	1,020.0	134
Crane Pond	2,256.1	38
Dunstable Brook	131.6	283
Hunting Hills*	382.8	183
Martin H. Burns	1,554.5	37
Mulpus Brook	177.7	203
Nissitissit River	365.9	71
Pantry Brook	410.9	29
Salisbury Marsh	658.8	279
Squannacook River**	1,312.1	53
Townsend Hill	200.6	320
William Forward	<u>2,122.5</u>	36&82
	10,598.3 acres	

\*Includes 53.7-acre CE in Central District

\*\*21 acres title vested in DCR

**Wildlife Conservation Easement (WCE): 7**

Ashby	148.0	280
Fitchburg Watershed	677.4	321
Groton	127.0	289
Newbury Common Pasture	46.7	304
Pepperell Springs	255.0	285
Surrenden Farms	159.7	299
Throne Hill	<u>177.5</u>	302
	1,591.3 acres	

**Wildlife Sanctuaries - 5**

Carr Island	110.5	18
Egg Rock	2.0	17
J.C. Phillips	391.0	15
Milk Island	29.0	19
Ram Island	<u>20.0</u>	23
	552.5 acres	

<b>Game Farm - 1</b>		
Ayer	111.9	1

**Wildlife District: 1**

District Headquarters	1.9	11
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**Fisheries & Wildlife Area: 1**

Flint Pond	81.9	28
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**Forest: 2**

Acton	36.0	207
Townsend	<u>60.0</u>	33
	96.0 acres	

**Pond Access: 4**

Knops Pond	0.6	52
Mascopic Lake	0.3	65
Baddacook Pond	0.2	A52
Long Sought For Pond	<u>1.0</u>	143
	2.1 acres	

**Salt Marsh - 1**

North Shore	340.7	47 & 58
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**River Access: 7**

Concord River	23.6	97
Ipswich River	1.8	204
Nashua River	68.5	110
Sucker Brook	12.0	297
Sudbury River*	139.1	121
Trapfall Brook	45.4	109
Weymouth Back River**	<u>16.4</u>	135
	306.8 acres	

\*Held jointly with DCR

\*\*Department acquisition

**Natural Heritage Areas:4**

Boxboro Station	124.2	188
Eagle Island	5.0	199
Elbow Meadow	210.3	101
Hauk Swamp	<u>55.0</u>	206
	394.5 acres	

**TOTAL NORTHEAST DISTRICT 14,077.9 acres**

**SOUTHEAST DISTRICT**

**Wildlife Management Areas - 23**

Black Brook	283.8	300
Burrage Pond	1,960.7	265
Copicut	3,874.1	141
Church Homestead	163.0	287
Dartmoor Farms	473.0	236
Erwin Wilder	450.0	A83
Frances A. Crane	1,912.8	27
Freetown Swamp	337.0	298
Gosnold	3.5	96
Halfway Pond	28.6	316
Haskell Swamp	2,922.9	218
Hockomock Swamp	4,454.5	83
Hyannis Ponds *	357.0	187
Maple Springs	129.2	317
Meetinghouse Swamp	109.0	214
Noquochoke	204.6	208
Peterson Swamp	250.0	81
Purchade Brook	120.0	215
Red Brook	400.0	260
Rochester	70.0	57

Rocky Gutter	3,054.7	68
Taunton River	409.0	219
West Meadows	<u>221.9</u>	34
	22,189.3 acres	

\*NHESP priority area; Department taking

**Wildlife Conservation Easements: 11**

Acushnet River	30.2	263
Agawam River	4.0	323
Angeline Brook	50.7	273
Billington Sea	69.7	322
Brandt Island Cove	109.5	308
Camp Cachalot	789.0	223
Fall River*	4,300.0	318
Pickereel Cove	78.3	313
Plymouth Pine Hills	188.0	288
Plymouth Town Forest	296.0	303
Santuit Pond	<u>293.0</u>	268
	6,208.4 acres	

\*Held jointly with DCR

**Wildlife Sanctuaries - 4**

Billingsgate Island	0.5	14
Penikese Island	60.0	21
Ram Island	2.0	22
Tarapaulin Cove	<u>4.5</u>	93
	67.0 acres	

**Wildlife District: 1**

District Headquarters	23.8	12
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**Fish Hatcheries: 1**

Sandwich	60.0	5
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**Game Farm: 1**

Sandwich	133.0	3
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**Salt Marsh: 6**

Brayton Point	2.2	169
Chase Garden Creek	56.4	205
Eastham	7.4	136
English	191.5	146
Fox Island	87.1	192
South Shore	<u>22.4</u>	69
	367.0 acres	

**River Access - 7**

Bread and Cheese Brook	5.2	291
Canoe River	116.6	282
Childs River	0.2	193
Mashpee River	56.5	78
Nemasket River	0.5	122
Quashnet River*	426.0	32
Taunton River	<u>8.9</u>	219
	613.9 acres	

\*360 acres of Quashnet held jointly with DCR

**Pond/Coastal Access - 13**

Agawam Mill Pond	1.7	216
Bakers Pond	1.7	79
Bearse Pond	5.8	72
Clapps Pond	68.4	87
Cooks Pond	3.0	73
Dogfish Bar Beach (OFBA)	2.4	210
Lake Snipatuit	0.5	92

Robbins Pond	1.0	284
Sandy Point	0.2	54
Scorton Creek	5.5	228
Spectacle Pond	0.5	224
Triangle Pond	81.9	256
Wakeby Pond	<u>15.9</u>	242

188.5 acres

**Military Lands: 7**

Dillingham Lot	37.0	
Fisk Forestdale Lot	117.0	46
Hog Pond Lot	26.2	42
Lawrence Pond lot	10.0	43
Mashpee Pond Lot	25.0	40
Poponneset Beach	2.0	41
Springhill Lot	<u>7.0</u>	44
	224.2 acres	

**Hatchery Land: 1**

No. Attleboro Hatchery	36.5	99
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<b>MA Military Reservation (MMR)</b>	15,000.0	281
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**Fisheries & Wildlife Area - 3**

Muddy Pond	72.0	95
Provincetown Rte.6 Corridor	122.0	276
South Barrier Beach(Leland)	<u>99.5</u>	194
	293.5 acres	

**Natural Heritage Areas - 11**

Grassy Pond	59.4	168
Grassy Pond (Dennis)	7.2	230
Harlow/Cooks Pond	53.6	145
Head of the Plains	2.0	138
Katama Plains*	18.5	140
Mashpee Pine Barrens	193.2	105
Miacomet Heath	3.8	186
Olivers Pond	12.0	139
Sly Pond	192.0	137
South Triangle Pond	10.3	198
Thad Ellis	<u>1.5</u>	195
	558.4 acres	

**TOTAL SOUTHEAST DISTRICT 45,963.5 acres**

**Total Acreage Area by Area Type**

(Through FY 09)

Wildlife Management Areas: 137	128,491.5 acres
Wildlife Sanctuaries: 13	1,197.0
Fish Hatcheries: 5	559.3
Game Farms: 3	382.1
River Access: 34	2,951.8
Salt Marsh: 7	707.7
Lake, Pond & Coastal Access: 27	295.6
Fisheries & Wildlife Areas: 5	461.0
NHESP Areas: 33	2,728.5
Conservation Restriction/Easements: 46	27,193.7
(Some CEs are included in WMAs)	
MA Military Reservation: 1	15,000.0
Other*	<u>663.9</u>
<b>GRAND TOTAL</b>	180,631.9

\*Includes: Military Lands, Forest Areas, Wildlife Districts, Islands, Hatchery Land, DCR/F&W Areas and Marsh Management Areas.

Above figures include Departmental acquisitions.

# FEDERAL AID PROGRAM ADMINISTRATION

Kristin McCarthy  
*Federal Aid Coordinator*

**Project Objectives:** To implement the Division of Fisheries and Wildlife's (DFW) Federal Aid program, acting through the Deputy Director, including overview of documentation, reporting, compliance with acts and regulations, and other requirements for administration of federal grants, as well as to serve as liaison between the grantee and the Region 5 office of the U.S. Fish and Wildlife Service (USFWS) grant administrator for the U.S. Department of the Interior (DOI).

## **Federal Aid in Wildlife Restoration (Pittman-Robertson):**

The DFW apportionment of Federal Aid in Wildlife Restoration funds, \$3,299,200.00, was an increase from last year's apportionment. These funds are available for wildlife restoration projects and hunter education. The following projects were reimbursed with these funds: hunter education, wildlife population trends and harvest surveys, waterfowl research and management, wildlife habitat management, program coordination, and land acquisition.

## **Federal Aid in Sport Fish Restoration (Dingell-Johnson and Wallop-Breaux):**

The State's Federal Aid in Sport Fish Restoration Act apportionment of \$4,044,499.00 represents an increase over last year's apportionment. These funds were divided as follows: The Department of Fish and Game's Office of Fishing and Boating Access (OFBA), which is responsible for constructing and maintaining motorboat access facilities, received \$606,674.85 (15%); and the balance of \$3,437,824.15 was equally divided between the Division of Marine Fisheries and the DFW (\$1,718,912.08 each).

Twelve projects were obligated with the OFBA and DFW shares of the Dingell-Johnson and Wallop-Breaux funds (a total of \$2,325,586.93). The OFBA, in cooperation with the DFW, had eight boat accommodation grants active in FY 09, while the DFW had four grants of its own. DFW activities reimbursed under the Sport Fish Restoration Program include aquatic resources education, program coordination, hatchery operations, hatchery maintenance, fish distribution, and anadromous fish coordination and technical assistance.

## **State Wildlife Grant Program (SWG):**

The DFW's FY 09 State Wildlife Grant apportionment of \$889,137.00 was a decrease from the previous year. The SWG funds were obligated toward five projects. Activities reimbursed under those projects include fish community research, anadromous fish restoration, biodiversity impact review, biodiversity inventory and research, biodiversity conservation mapping and planning, habitat evaluation, regional conservation needs, and land acquisition.

SWG funds had also been used in the implementation of the Comprehensive Wildlife Conservation Strategy (CWCS). The final version of this document can be found on the DFW's webpage in the "Quick Links" menu of the Wildlife Section where it is listed as the "State Wildlife Action Plan."

## **The Endangered Species Act (Section 6)**

The DFW continues to receive minimal Endangered Species Section 6 funding. Our FY 09 apportionment of \$30,000.00 was used to reimburse the Globally Imperiled and Vulnerable Plants project.

## **Landowner Incentive Program (L.I.P.):**

The federal government did not fund the Landowner Incentive Program in FY 09; as a result the DFW received no federal funding for its state program. In FY 07 the DFW had received a combined award of \$1,029,510.00 under this highly competitive Program, which was a significant increase when compared to the FY 06 award of \$180,000.00. The Landowner Incentive Program awards are divided into two tiers. Our FY 07 Tier I apportionment of \$180,000.00 was used for project coordination. Our Tier II award, \$849,510.00, was used for program implementation. For more detailed information relating to the DFW's FY 09 activities under the Land Owner Incentive Program, please see page.

## **Chronic Wasting Disease Surveillance and Management:**

In FY 09, the DFW received \$75,000.00 in federal assistance through the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service, Veterinary Services for Chronic Wasting Disease Surveillance and Management. The CWD funds are used to fund the DFW's CWD Surveillance and Management Program. For more information relating to DFW's activities under the Chronic Wasting Disease Surveillance and Management Program (see page 26).

**Avian Influenza Surveillance and Monitoring:**

In FY 09, the DFW received \$50,000.00 in federal assistance through the USDA, Wildlife Services for Avian Influenza Monitoring. The funding was used to conduct statewide Avian Influenza surveillance.

**Audits:**

The DFW contracted with the Auditor of the Commonwealth to conduct a state audit of all Sport Fish and Wildlife Restoration grants administered by the DFW for the 2007 and 2008 fiscal years. The Coordinator's Office spent considerable time facilitating the audit by providing records, performing additional data analysis, and coordinating audit efforts within the agency. The audit is anticipated to continue into FY 10.

**Other Matters:**

Additional Federal Aid Coordinator's duties included responding to requests for information, public inquiries, DFW inventory management, overview of projects performance and financial reporting, project assistance (both field and office), field visits, and serving as the liaison between all Federal Aid personnel and the DFW.

**Project Personnel**

Kristin McCarthy, *Federal Aid Coordinator*

Jessica Lane, *Assistant to the Federal Aid Coordinator*

Debbie McGrath, *Federal Aid Bookkeeper*



# MAINTENANCE & DEVELOPMENT

Gary Zima  
*Senior Planner*

During FY 09, the DFW was subject to a 10% budget cut mandated by the Office of Administration and Finance. This resulted in many cuts to various parts of the operations budget. The Office of Vehicle Management suspended all vehicle purchases for FY 09, which severely impacted the DFW's purchase of new vehicles. The DFW was thus able to acquire only three replacement vehicles, which were trade-ins at the state auction lot.

Priority infrastructure improvements for FY 09 included the following maintenance and repair projects at the Westborough Field Headquarters Complex:

- 1) Replacement of a failing steam boiler in Building A.
- 2) Improvements to the perimeter drainage around Building A. Approximately 200 feet of drainage pipe now connects the main downspouts from Building A to two catch basins. This work will further protect the new carpeting that was recently replaced in the basement as a result of some flooding earlier this spring.
- 3) Upgrade of the receptionist work station in Building A with new furniture.

Other infrastructure improvements for FY 09 included the relocation of the Hunter Education Program to a double-wide modular office unit at the former Ayer Game Farm property. The bidding process also began on the relocation of the Northeast Wildlife District Office to a modular office building, also at the Ayer Game Farm; a possible alternative is the purchase of an office/garage complex on Route 2A in Ayer.

## **Maintenance & Development Staff**

Gary Zima, *Senior Planner*

Bruce Walker, *Facilities Maintenance Specialist*

# LEGISLATIVE REPORT

Jack Buckley  
*Deputy Director & Legislative Liaison*

Chapter 20 Acts of 2009, Approved June 10, 2009

**AN ACT AUTHORIZING THE DEPARTMENT OF FISH AND GAME TO ACQUIRE CONSERVATION RESTRICTIONS IN AND TO LANDS OWNED BY THE CITY OF FITCHBURG**

Summary:

This act authorized the Division of Fisheries and Wildlife to acquire a conservation restriction on 1,750 acres of water supply land owned by the City of Fitchburg in the City of Fitchburg and the town of Ashby. The conservation restriction included public access to fish, hunt and trap.

# PERSONNEL REPORT

Peter Burke  
*Personnel Officer*

## New Hires

Name	Title	Date	Comments
Benoit, Susan	Aquatic Biologist II	08/10/08	
Gieder, Thomas	Wildlife Technician I	9/7/2008	
Connolly, Bryan	Conservation Biologist III	9/7/2008	
Critchlow, David L.	Wildlife Technician I	1/4/2009	
McGrath, Jonathan	Game Biologist II	1/26/2009	
Zukauskas, Karl	Wildlife Technician I	4/26/2009	
Gabriel, Marea	Conservation Biologist III	5/17/2009	
Harper, Lynn C.	Conservation Biologist III	5/17/2009	
Jones, Michael T.	Scientist	1/4/2009	
Durkan, Patrick	Contracted Seasonal Employee	4/12/2009	
McDermott, Derek R.	Contracted Seasonal Employee	4/12/2009	
Leon, Bennet H.	Contracted Seasonal Employee	4/12/2009	
Johnson, Jason L.	Contracted Seasonal Employee	4/12/2009	
Mumma, Victoria S.	Contracted Seasonal Employee	4/12/2009	
Stinemack, Kelsey C.	Contracted Seasonal Employee	5/17/2009	
Hatt, Joanna	Scientist	5/10/2009	
Lencer, Ezra	Scientist	5/10/2009	
Maikath, Tyler	Scientist	5/10/2009	
McClellan, Christopher	Researcher	5/10/2009	
Schulwitz, Sarah	Researcher	5/10/2009	
Scantlebury, Kimberly	Researcher	5/10/2009	
Woodward, Sarah	Contracted Student Intern	5/10/2009	

## Promotions

Name	Title	Date	Comments
Huguenin, Michael A., Jr.	Game Biologist II	08/01/08	
Simmons, Timothy	Conservation Biologist III	05/17/09	
Nelson, Michael	Conservation Biologist III	05/17/09	
Mostello, Carolyn	Conservation Biologist III	05/17/09	
Black, Kristin	Conservation Biologist II	05/17/09	
Boswell, Tara	Conservation Biologist I	05/17/09	
Dolan, Karen	Program Coordinator II	05/17/09	

## Transfers

Name	Title	Date	Comments
Melvin, Scott	Conservation Biologist III	9/21/2008	
Connolly, Brian A	Conservation Biologist III	9/21/2008	
Melvin, Scott	Conservation Biologist III	5/31/2009	
Simmons, Timothy	Planner	1/18/2009	
Nelson, Michael	Scientist	1/18/2009	
Boswell, Tara	Scientist	1/18/2009	
Ausmus, Kim	Administrative Assistant	1/18/2009	
Buelow, Christopher	Scientist	1/18/2009	
Erb, Lori	Scientist	1/18/2009	
Foley, Heather	Researcher	1/18/2009	
Kubel, Jacob	Scientist	1/18/2009	
Plaggi, Lisa	Researcher	1/18/2009	
Mazzei, Benjamin A.	Program Coordinator	1/18/2009	
Lencer, Ezra	Scientist	5/3/2009	

## Reallocations

Name	Title	Date	Comments
Veinotte, Amanda	Program Coordinator I	07/01/08	
Turner, Richard	Game Biologist II	07/01/08	

## Reallocations, *continued*

Amati, Eric	Game Biologist II	07/01/08
Basler, Jr. David	Aquatic Biologist II	07/01/08
Brideau, Marc	Aquatic Biologist II	07/01/08
Delaney, Juliette	Program Coordinator II	07/01/08
Fuller, David	Game Biologist II	07/01/08
Gola, Anthony	Game Biologist II	07/01/08
Haggerty, Sarah	Conservation Biologist III	07/01/08
Hurley, Stephen	Aquatic Biologist II	07/01/08
Marold, Misty-Anne	Conservation Biologist III	07/01/08
McAlicie, Bridget	Aquatic Biologist II	07/01/08
Ohman, Dana	Aquatic Biologist II	07/01/08
Schluter, Everose	Conservation Biologist III	07/01/08
Sheedy, John	Aquatic Biologist II	07/01/08
Skowron, Rebecca	Conservation Biologist I	07/01/08
Cooke, Laura	Administrative Assistant II	06/14/09
McGrath, Deborah	Administrative Assistant II	06/14/09
Cavaliere, Mary	Accountant II	06/14/09
Gibson, Gail	Accountant II	06/14/09

## Terminations

Name	Title	Date	Comments
Johnson, Jason	Wildlife Technician I	10/30/2008	Resigned
Valaitis, Audra	Scientist	7/1/2008	Contract not renewed
Manhard, Christopher	Contracted Seasonal Employee	7/18/2008	End of contract
Durkan, Patrick J.	Contracted Seasonal Employee	7/18/2008	End of contract
Harder, Timothy M.	Contracted Seasonal Employee	7/18/2008	End of contract
French, Nicole	Researcher	7/25/2008	End of contract
Maikath, Tyler	Researcher	8/2/2008	End of contract
Blake, Katherine	Scientist	8/9/2008	End of contract
Eibin, Abigail	Contracted Student Intern	8/9/2008	End of contract
Van Dijk, Wendy	Researcher	08/09/2008	End of contract
Cunningham, Jenny	Scientist	9/13/2008	End of contract
Lencer, Ezra	Scientist	9/13/2008	End of contract
Luecke, Sarah	Scientist	9/13/2008	End of contract
Sullivan, Molly	Contracted Student Intern	9/13/2008	End of contract
Flynn, David	Contracted Seasonal Employee	9/27/2008	End of contract
Knox, Christopher	Contracted Seasonal Employee	9/27/2008	End of contract
McDermott, Derek R	Contracted Seasonal Employee	9/27/2008	End of contract
Foley, Heather	Researcher	5/29/2009	End of contract

## Part Time Employees

Name	Title	Hours	Comments
Cavaliere, Mary	Accountant I	28.50	
Durand, Jill	Clerk III	22.50	
Hew. Lillian	Accountant I	6.25	Retired
MacAdams, Proscilla A.	Clerk III	28.00	
Sienczyk, Elizabeth	Administrative Services Coordinator	22.50	
Huguenin, Tara	Conservation Biologist I	30.00	
Gabriel, Marea	Conservation Biologist III	32.00	
Black, Kristin	Conservation Biologist II	30.00	

## Work Hour Changes

Name	Title	Date	Comments
Huguenin, Tara	Conservation Biologist I	01/18/09	
Huguenin, Tara	Conservation Biologist I	04/12/09	

## Work Out of Grade

Name	Title	Date	Comments
Kathleen Plett	Program Coordinator II	9/15/2008	Due to K. Meagher absence
Rebecca Skowron	Conservation Biologist II	12/7/2008	To be reallocated 07/01/2009

# FINANCIAL REPORT

## **Administrative Staff**

Jessica Patalano, *Chief Financial Officer*

## **Procurement and Payables**

Yunus Khalifa, *Purchasing Coordinator*

Kathleen Plett, *Contract Coordinator*

Gail Gibson

Lillian Hew

Betty Sienczyk

## **Revenue**

Robert Oliver, *Revenue Coordinator*

Mary Cavaliere

Carl Lui

David Manzer

Kerry Murphy

## **Permits**

Robert Arini

## **Information Technology**

Rick Kennedy

Robert Morley

James Pollock

# How the Sportsmen's Dollar Was Spent

## Inland Fish and Game Fund

July 1, 2008 to June 30, 2009

<b>PROGRAMS/ASSESSMENTS</b>	<b>EXPENDITURES</b>	<b>PERCENTAGES</b>
<b>Administration:</b>		
Administration	\$1,423,155.54	
Information-Education	\$759,272.80	18%
<b>Total</b>	<b><u>\$2,182,428.34</u></b>	
<b>Fisheries and Wildlife Programs:</b>		
Hatcheries	\$1,624,018.58	
Game Bird Program	\$431,912.36	
Seasonals	\$49,400.00	57%
Cooperative Units	\$99,066.68	
Fisheries and Wildlife Management	\$4,822,732.30	
<b>Total</b>	<b><u>\$7,027,129.92</u></b>	
<b>Other Programs:</b>		
Land Acquisitions	\$1,000,000.00	
Waterfowl Management Program	\$45,000.00	12%
Hunter Safety Program	\$444,437.05	
<b>Total</b>	<b><u>\$1,489,437.05</u></b>	
<b>Other Assessments:</b>		
Payroll Taxes	\$80,639.86	
Group Insurance and Other Fringe Benefits	\$1,523,793.00	13%
<b>Total</b>	<b><u>\$1,604,432.86</u></b>	
<b>TOTAL EXPENDITURES</b>	<b>\$12,303,428.17</b>	

# Summary

## Revenues, Expenditures and Fund Equity

### Natural Heritage & Endangered Species Fund

July 1, 2008 to June 30, 2009

**REVENUES**

Natural Heritage and Endangered Species Tax Checkoff Donations	\$213,317.84
Sales	\$24,544.57
Federal Aid Reimbursements	\$65,083.00
Massachusetts Endangered Species Act Fees	\$437,223.50
Contracts	\$560,050.32
Direct Donations	\$3,930.44
Interest	\$10,030.81

**TOTAL REVENUES: \$1,314,180.48**

**\*EXPENDITURES**

Natural Heritage and Endangered Species Program	\$1,826,741.82
Tern Restoration	\$223,483.27
Wildlife Habitat Incentive Program	\$36,428.46
State Wildlife Grant Program	\$23,210.86
Housatonic Natural Resource Damages	\$199,572.47

**TOTAL EXPENDITURES: \$2,309,436.88**

**TOTAL FUND EQUITY: \$764,517.72**

\*89% of total expenditures charged to Natural Heritage Fund for FY2009.  
 Remaining 11% (\$249,999.63) from the General Fund

## Other Funds and Programs

### Expenditures Division Wide

July 1, 2008 to June 30, 2009

**CAPITAL OUTLAY FUNDS:**

Land Protection	\$274,173.29
Heritage Mapping for Biodiversity	\$242,262.7
Forest Certification	\$84,510.33
Upland Habitat Management	\$157,268.68
Staffing for Land and Infrastructure Programs	\$347,644.84
Hatchery/District/Westborough Field Headquarters Repairs	\$474,989.83

**TOTAL CAPITAL EXPENDITURES \$1,580,849.76**

**INTERDEPARTMENTAL SERVICE AGREEMENTS:**

Department of Conservation and Management	
Resource Management Plan	\$24,290.38
Rare Species Planning and Identification	\$40,957.08
Conservation Management Practices	\$19,000.00
Massachusetts Highway Department	
Accelerated Bridge Program	\$25,172.17

**TOTAL ISA EXPENDITURES \$109,419.63**

**FEDERAL GRANT ACCOUNTS:**

Landowner Incentive Program Tier 1	\$81,975.54
Landowner Incentive Program Tier 2	\$870,326.95
Chronic Wasting Disease	\$116,345.71
Avian Influenza	\$16,202.06

**TOTAL FEDERAL EXPENDITURES \$1,084,850.26**

**OTHER TRUST ACCOUNTS:**

Upland Sandpiper	\$20,241.00
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**TOTAL OTHER TRUST EXPENDITURES \$20,241.00**



# Summary

## Revenue and Fund Equity

### Inland Fish and Game Fund

July 1, 2008 to June 30, 2009

**DEPARTMENTAL REVENUES:**

Fishing,Hunting, and Trapping Licenses	\$5,297,887.30
Archery Stamps	\$150,677.20
Primitive Firearm Stamps	\$165,959.70
Waterfowl Stamps, Administration	\$10,751.00
Waterfowl Stamps, Ducks Unlimited	\$11,494.00
Waterfowl Stamps, Other	\$34,482.00
Wildlands Stamps	\$1,029,620.00
Trap Registrations	\$1,415.00
Antlerless Deer Permits	\$191,415.00
Bear Permits	\$33,827.50
Turkey Permits	\$89,147.50
Special Licenses,Tags and Posters	\$50,015.00
Magazine Subscriptions	\$109,579.43
Sales,Other	\$-
Fines and Penalties	\$89,707.50
Rents	\$33,116.05
Prior Year Refunds	\$-
Miscellaneous Income	\$16,229.20
PAC	\$24,631.00
NSF Charge/Debt. Collection	\$1,425.00
<b>Total</b>	<b>\$7,341,379.38</b>

**FEDERAL AID REIMBURSEMENTS;**

Dingell-Johnson (Fisheries)	\$2,323,602.33
Pittman-Robertson (Wildlife)	\$4,479,542.57
Indirect Cost Reimbursements	\$911,928.01
<b>Total</b>	<b>\$7,715,072.91</b>

**TAXES;**

Gasoline Tax Apportionment	\$868,986.16
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**OTHER FINANCIAL SOURCES;**

Reimbursement for Half-Price Licenses	\$129,894.25
Investment Earnings	\$20,768.73
<b>Total</b>	<b>\$150,662.98</b>

**TOTAL REVENUE** **\$16,076,101.43**

**FUND EQUITY AS OF JUNE 30, 2009** **\$13,872,506.86**

# License and Stamp Sales

July 1, 2008 to June 30, 2009

Code	Type of License	Unit Cost	Quantity	Amount
F1	Resident Citizen Fishing	22.50	122,371	2,753,347.50
F2	Resident Citizen Minor Fishing	6.50	5,930	38,545.00
F3	Resident Citizen Fishing (Age 65-69)	11.25	5,569	62,651.25
F4	Resident Cit. Fishing (Over 70, etc.)	FREE	13,003	0.00
F6	Non-Res. Citizen/Alien Fishing	32.50	8,545	277,712.50
F7	Non-Res. Citizen/Alien Fishing (3 day)	18.50	2,335	43,197.50
F8	Resident Fishing (3 day)	7.50	1,220	9,150.00
F9	Non-Resident (Citizen) Minor Fishing	6.50	312	2,028.00
DF	Duplicate Fishing	2.50	509	1,272.50
	Quabbin 1-Day Fishing	5.00	3,308	16,540.00
T1	Resident Citizen Trapping	30.50	245	7,472.50
T2	Resident Citizen Minor Trapping	6.50	7	45.50
T3	Resident Citizen Trapping (Age 65-69)	15.25	22	335.50
DT	Duplicate Trapping	2.50	9	22.50
H1	Resident Citizen Hunting	22.50	18,739	421,627.50
H2	Resident Citizen Hunting (Age 65-69)	11.25	822	9,247.50
H3	Resident Citizen Hunting (Paraplegics)	FREE	257	0.00
H4	Resident Alien Hunting	22.50	50	1,125.00
H5	Non-Res. Cit./Alien Hunting (Big Game)	94.50	2,384	225,288.00
H6	Non-Res. Cit./Alien Hunting (Sm. Game)	60.50	955	57,777.50
H8	Resident (Citizen) Minor Hunting	6.50	1,326	8,619.00
DH	Duplicate Hunting	2.50	293	732.50
S1	Resident Citizen Sporting	40.00	33,115	1,324,600.00
S2	Resident Citizen Sporting (Age 65-69)	20.00	2,883	57,660.00
S3	Resident Citizen Sporting (Over 70)	FREE	9,162	0.00
DS	Duplicate Sporting	2.50	756	1,890.00
	<b>TOTAL LICENSE SALES (GROSS)</b>		<b>234,127</b>	<b>5,320,887.25</b>
<b>Current Year Stamp Sales</b>				
M1	Archery Stamps	5.10	29,645	151,189.50
M3	Primitive Firearm Stamps	5.10	32,677	166,652.70
W1	Wildlands Stamps	5.00	191,393	956,965.00
W2	Non-Resident Wildlands Stamps	5.00	14,531	72,655.00
M2	Waterfowl Stamps, Administration	1.00	11,045	11,045.00
M2	Waterfowl Stamps, Ducks Unlimited	1.00		11,045.00
M2	Waterfowl Stamps, Other	3.00		33,135.00
	Duplicate Stamps	2.50	25	62.50
	<b>TOTAL STAMP SALES (GROSS)</b>		<b>279,316</b>	<b>1,402,749.70</b>
<b>Previous Years Stamp Sales</b>				
M1	Archery Stamps		34	180.30
M3	Primitive Firearm Stamps		31	165.00
M2	Waterfowl Stamps, Administration	balance	449	449.00
M2	Waterfowl Stamps, Ducks Unlimited	1.00		449.00
M2	Waterfowl Stamps, Other	3.00		1347.00
	<b>TOTAL STAMP SALES (GROSS)</b>		<b>514</b>	<b>2,590.30</b>
	Fees Retained and Adjustments by Clerks			(24,748.15)
	Refunds			(607.90)
	TOTAL			<b>(25,356.05)</b>
	<b>TOTAL LICENSE/STAMP SALES (NET)</b>			<b>6,700,871.20</b>

# Commonwealth of Massachusetts Division of Fisheries and Wildlife Organizational Chart

