Annual Report 2010

Massachusetts Division of Fisheries & Wildlife

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About The Cover:

Ripples in a tidal pool. A Piping Plover, *Charadris melodus,* in fall plumage on Plum Island does a bit of foot trembling in the sand below, perhaps an attempt to flush out an invertebrate meal. It feeds heavily to build up fat reserves to make the annual migration to our south Atlantic coast and the Carribean for the winter. Massachusetts Piping Plover nesting numbers continue to hover around 570 pairs for 2010.

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 individuals 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 wildlife manager, and one representative with a specific interest in the management and restoration of wildlife populations not classified as game species. Each member is appointed by the Governor to a five year term. The Board oversees operations of the Division of Fisheries and Wildlife, reviews the agency's programs, and sets policy and regulations pertinent to wildlife in the Commonwealth.

The Board remains very concerned about the agency's operating budget in this difficult economy. Last fiscal year the agency was able to maintain its operations and avoid laying-off any personnel despite an 18% cut of $1.7 million from the operating budget. This year, despite having more than adequate, dedicated funds in reserve, the agency was level funded, and hence continues to lack the ability to replace or hire personnel, allow staff to travel to crucial meetings involving federal and international wildlife management, and in many cases to purchase critically needed equipment. The Board is very pleased that appropriations to purchase or conserve wildlife lands have continued at acceptable levels and that there has been a modest increase ($200,000) in operational expenses for personnel and equipment/facilities purchase/repair, but it anxiously awaits further developments regarding the budget 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/Jig Regulation

During the previous fiscal year 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 one ounce in weight in all inland waters. If passed, the regulations would go into effect in 2012. A public hearing on the proposal was held in June, and following review of the comments the Board voted unanimously in July to adopt the new regulations.

Deer Regulations

The Board heard a presentation at its April meeting from Deer Project leader Sonja Christensen about the state of the Massachusetts deer herd. She provided an excellent summary of the herd's current status, management highlights, deer density goals, and the final harvest numbers for the 2009 hunting seasons during which 10,381 deer were taken. She reported further on deer population goals, public safety issues, the relationship to agricultural and ornamental vegetation damage complaints, and the number of deer/vehicle collisions. She presented State Farm Insurance Company rating data showing the relationship between deer densities and the number of accidents, noting that the collision rate drops sharply when deer densities are lower than 20 deer per square mile. She reported further that, since 1966, there has been an increase in hunting opportunity. In 1984 there were a total of 30 hunting days: archery 18, shotgun 9, and muzzleloader 3 days. In 2009 there were a total of 63 hunting days: 36 archery, 12 shotgun, and 15 muzzleloader days. Antlerless permit numbers have declined as we have reached our management goals in most of the deer management zones west of Interstate 495. She presented a recommendation for an allocation of 37,750 antlerless deer permits for the 2010 deer seasons.

Ms. Christensen then noted that some deer hunters in the Southern Berkshires would like to see an increase in deer density, and she presented the antlerless deer permit allocation that would be necessary to increase deer density from 12-15 to 15-18 deer per square mile in Zones 1 and 3, estimating it would take at least 5 years to reach this goal. After due consideration, the Board voted unanimously to support the statewide deer permit allocations, including a reduction of permits in wildlife management zones 1 and 3 to address the concerns of hunters in the Berkshires.

Muzzleloader Review

At the April meeting, Assistant Director Tom O'Shea presented an overview of the regulatory history of hinge or break-open action muzzleloaders. He reported on revisions to the regulation from 1979 until the present, noting that issues still remain such as confusion relative to the definition of the break-open breech or hinge action. With new models being designed there is still confusion. He explained the different types of break-open breech muzzleloaders and interchangeable barrels/access to breech, and defined antique firearms and muzzleloaders not excluded by the Gun Control Act as well as some modern designs with modern ignitions or components. Following staff review, he recommended to allow break-open breech muzzleloaders. Several Board members reported they had heard from numerous constituents in support of the change, and the Board voted to hold a public hearing on the matter.

Stamp Status

With the upcoming switch to an all-electronic licensing system, the Board has various concerns, not the least of which is what will happen to various revenue stamps. The Board was therefore pleased to hear Chief of Information & Education Ellie Horwitz provide a history of conservation stamps dating from 1960 until 2010. She talked about the stamp collectors, partnerships with Ducks Unlimited and the Peabody Essex Museum, and the program's many accomplishments. She noted further that times are changing and in 2011 Massachusetts will have a fully automated electronic licensing system. Issues involved in the current printing of stamps are cost of printing and of staff time; the fact that traditional perforation machines are not being maintained; the print collector's market is disappearing; artists cannot afford to create prints for which there is no market; museums cannot host exhibits that do not pay for themselves; and for stamp collectors the "real stamp" would be replaced with an electronic one associated with the electronic license. For all of these reasons, beginning in 2011, the Division will move to all-electronic stamps.

Ecological Overview of Dams

At the Board's request, Dr. Mark Tisa presented an overview of dams and their ecological effects. He talked about the ecological implications of dams on water quality, biology, hydrology, connectivity and geomorphology. He noted that there are approximately 3,000 dams in Massachusetts, and that Worcester County has the highest density of dams in the nation. He further stated that approximately 60% of all waters in Massachusetts have dams. The percentage of ponds/lakes with dams by district is: Central, 76%; Connecticut Valley, 62%; Northeast, 53%; Southeast, 21%; and Western, 73%.

Dr. Tisa reported on the potential ecological implications of dam removal which include community shifts, reduction of the abundance of individual species, loss of wetlands/marsh habitat, loss of open water habitat, loss of habitat supporting state-listed species dependent on lakes/ponds, downstream nutrient loading, and loss of vernal pools. The benefits to state-listed species are that almost half of such species dependent on lakes and ponds occur in impounded waters. He also reported on repair versus removal costs and projects for removal, but in summary stated that it's a complex issue, there is no simple management formula and that each opportunity to remove a dam must be decided on a case by case basis.

Following this presentation, Chief of Wildlife Lands Bill Minior reported on dams on agency properties. Noting that in 2002 the Massachusetts Legislature had enacted revisions of the Dam Safety Statute which significantly changed the responsibilities of dam owners to register, inspect, and maintain dams in good operating condition. He stated that the Division owns 31 dams, of which none are considered high hazard dams. Mr. Minor spoke about the annual costs for inspection and repairs, and noted that total potential repair costs are estimated at $9.3 million. A discussion was held on compliance, dam removals, state liability issues, and an evaluation process, and Mr. Minor stated that we would have better data by next year and might possibly remove some dams.

Turkey Regulations

Staff recommended extending the spring turkey season to four weeks in Zones 11 and 12 (Barnstable, Bristol and Plymouth counties). This would make the regulations in the southeast consistent with regulations in the remainder of the state. The Board held a public hearing in July at Borderland State Park in North Easton for the purpose of soliciting public comment, which was received along with two letters of support. After due consideration, the Board voted unanimously to extend the turkey hunting season to four weeks in Zones 11 and 12, making the spring hunting season consistent with the rest of the state.

On a related note, the Board received a request from the Barre Sportsmen's Club that the agency look at possible changes to the Youth Turkey Hunt program that would make the tag (s) that are issued for the special permit hunt valid not only for the Youth Hunt Day, but also the entire regular turkey season. The Board voted to have staff conduct a review regarding the Youth Turkey Hunt Program and report back to the Board with their findings.

MESA Review

Deputy Director Jack Buckley briefed the Board on proposed changes to the Massachusetts Endangered Species Regulations. He provided background information on regulations which were passed in 2005 and stated that the Division would create a new conservation planning component that would be the basis for providing more flexibility within the MESA permitting process for regulating the take of a species of special concern that is the subject of a conservation plan. The regulations would authorize the Division to develop conservation plans for species of special concern where the Division

determines that conservation planning will be effective in long term protection of the species.

Under this provision the Director would authorize the taking of species of special concern subject to a conservation plan that will occur outside of a conservation protection zone through the issuance of a state-wide general conservation and management permit.

Municipalities that contain substantial areas of priority habitat within their boundaries would have the option of requesting technical assistance from DFW to undertake a joint comprehensive review of existing or potential development or land protection areas within the municipality for MESA planning and permitting purposes. The outcome of this planning and review process could include a comprehensive conservation and management permit that could authorize a local mitigation bank or the pre-permitting of building envelopes within one or more development areas.

Exemptions to the law include forestry operations, railroad rights-of-way, and the construction of a new home on an infill lot that was part of an approved subdivision plan prior to being mapped a priority habitat. The Division would publish "On-site Net-benefit Mitigation Guidelines" which, if met on-site, will qualify the project as having achieved net-benefit to the conservation of said species, thereby precluding the need for pre-permitting state-listed species surveys which might otherwise have been required.

Deputy Director Buckley also addressed the matter of mapping, noting that updating to the Priority Habitat (PH) maps would be done through a process that would allow public review and comment prior to printing of final maps. The public review period would encompass a total of 90 days: a 30 day public comment period, a 30 day period for the Division to review public comments, and a 30 day period to produce the final maps. At the conclusion of the process, the Division would post the final maps and explain the basis for changes made to the maps in response to public comment on the Division's website.

The Board has several concerns regarding the biological and management implications of these somewhat complicated proposals, and will hold a public hearing on these matters early in the next fiscal year.

Electronic Licensing

Systems Analyst Rick Kennedy provided an update on the electronic licensing system project at the Board's August 2009 meeting. He reviewed the project and scheduling goals for the Divisions of Marine Fisheries and Fisheries & Wildlife. The electronic licensing system will streamline license buying. Goals attained would be 100% automation for DFW and DMF. This new system will eliminate DFW paper licenses, associated manual processes, and costs. The new system will provide multiple options for license buyers, streamline revenue collection, and integrate permit issuance and harvest reporting. A request for RFR went out in March 2010 and two proposals were received. The Department conducted a thorough evaluation of both proposals and is in negotiations with Active Outdoor. Mr. Kennedy further reported that at the March meeting a discussion was held on senior licensing and ways to provide options for seniors or for the general public to be able to make a donation or purchase a subscription to *Massachusetts Wildlife* magazine. These options would also be available for the consumer if they so desire at the end of their online purchase. The projected schedule is as follows: Contract signing - September 2009; System Analysis - Fall 2009; Development - Winter 2009-2010; Testing - Spring 2010; Initial Deployment - Mid-July 2010; and Full Deployment - December 2010 (for the 2011 license year). As we conclude the fiscal year it remains unclear if the electronic licensing program will be fully operational by the start of 2011.

Bobcat Review

Wildlife Biologist Laura Hajduk provided a presentation on the biology, ecology, management, harvest, and management recommendations for bobcat. She stated that this review is being conducted because it has been a number of years since the biology, status, and management of bobcats have been addressed. Bobcats are sparking increased interest among sportsmen and women. Following a thorough review of bobcat range and available habitat, Ms. Hajduk reviewed current bobcat regulations, noting the species can be trapped or hunted in Wildlife Management Zones 1-8, which have a high percentage of forest cover. All bobcats harvested must be tagged within four working days of harvest. If the quota of 50 animals, established in 1977, is reached, the season is automatically closed. She further stated that based on the data collected from harvest and reports, we can conclude that Massachusetts has an increasing bobcat population and the range of bobcats in Massachusetts is expanding with bobcats moving eastward. In Massachusetts the harvest has doubled over the last 20 years and we reached the annual quota for the first time during the 2008-2009 season. Harvest numbers are small relative to the overall bobcat population. Given that we have reached the annual harvest quota this year and that this trend is likely to continue, this is an area that should be addressed. The staff recommendation is to remove the bobcat quota and make bobcat management consistent with management of other furbearers. Continual monitoring, including sighting reports, harvest, and pelt tagging will ensure that staff tracks any changes that may occur as a result of eliminating the quota. If the quota is removed, pelt tagging requirements would be made consistent with those of other furbearers.

The Board voted to conduct a public hearing on the proposed recommended changes to bobcats in Massachusetts, and following review of all public comments received, voted unanimously to accept the proposed changes as presented.

Bike Path Policy

Deputy Director Dr. Rob Deblinger provided the Board with an overview of bike paths, and, through input from several meetings, an evolving draft of a Bike Path Policy for the Board's review and comments. The DFW is in need of such a policy because bike paths are being proposed that run through several of the agency's wildlife land holdings and their construction and use can potentially result in habitat damage as well as restrictions and/or curtailment of the wildlife-related recreation the agency is mandated to provide. Dr. Deblinger noted that the statement proposals to locate and construct bike paths (hard surfaced or otherwise) will be considered on Wildlife Management Areas if they are not contrary to the best interests of: 1) habitat related biological resource protection and /or 2) wildlife-dependent recreation (including, fishing, and trapping), *and* the proponent is able to provide impact mitigation that substantially outweighs any harm to: 1) habitat related biological resource protection, 2) habitat management, 3) wildlife dependent recreation, and 4) the habitat of state-listed species protected pursuant to the Massachusetts Endangered Species Act. He further reported on the proposal requirements, mitigation, and options for authorization of the construction/operation of a bike path through a Division WMA. After much deliberation and improvement of multiple drafts, the Board voted unanimously to approve a final Bike Path Policy. The Board is confident this policy will insure the protection of the agency's wildlife lands and minimize any impact to other forms of outdoor recreation on these lands as the result of construction, use, or maintenance of bike paths within our wildlife land holdings.

Winter WMA Pheasant / Quail Hunt Permits

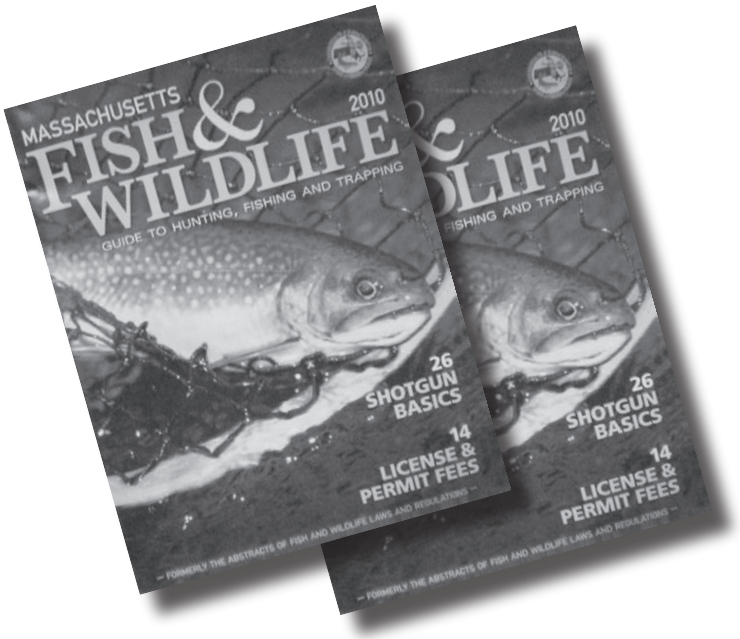
Upland Game Biologist Dave Scarpitti offered a presentation on special winter pheasant hunting permits. He reported on the permit's inception/creation, gamebird hunting opportunities, and the program itself, noting that a request had been made by the Eastern New England Brittany Club to allow quail stocking at Crane and Wilder WMA's (Southeast). He explained that at present licensed hunters can file free permit applications to District offices where a one-day permit would be issued which allows for private purchase, liberation, and hunting of ring-necked pheasants only. One WMA per district is designated for such hunts (two in SE and Central Districts) Hunts are conducted between January 1 and March 31, on a first-come, first-served basis with no daily or season bag limit, and no limit or minimum stocking required. Staff recommended that the DFW continue winter WMA pheasant hunt permits and expand the permit to include quail stocking and hunting in all Districts. This would provide additional upland gamebird hunting opportunity statewide. It would be consistent with existing stocking/hunting statewide, and no regulatory changes would be required. After considering the recommendations as put forward by staff, the Board voted unanimously to include bobwhite quail in all Districts under the winter hunt permit program.

Waterfowl Regulations

The Board heard Waterfowl Project Leader H Heusmann's annual presentation on the framework and proposed season dates, bag, and possession limits for the 2009-2010 waterfowl seasons. Following a public hearing on the proposed dates and limits, the Board voted unanimously to accept them.

Guide to Hunting, Freshwater Fishing, and Trapping

The Board would like to express its appreciation to the working committee and staff who were involved in preparation of the new Massachusetts Fish & Wildlife Guide to Hunting, Fishing and Trapping for 2010. It was a long time in the process, but the result is an exceptional product for the sporting community, and that community has been lavish in its praise for the new format and for the additional educational material. The Board is particularly pleased that the agency's mission and regulations are being promoted as never before, at a considerable cost savings, and it commends all who were involved in the planning and production of this new annual publication.



National Archery in the Schools Program

Tom Bennett provided the Board with a presentation on the National Archery in the Schools Program (NASP). He explained that NASP is a venture of state departments of education, state fish and wildlife agencies, and archery organizations and equipment manufacturers with the mission of promoting student education and lifelong interest and participation in the sport of archery. The program, which is administered by the non-profit NASP Inc., provides international-style target archery training through a standardized education package that can be incorporated into a school's existing physical education curriculum. Since its inception in March, 2002, more than 4 million students at 4,900 schools in 46 states and 5 countries have participated in the NASP. The Board voted unanimously to have the staff initiate the

NASP program in Massachusetts. A working committee was established to study the program and to get a pilot program underway in at least 10 schools. The proposal was so popular that 34 schools expressed an interest in the program. As the year nears its end the committee is trying to prioritize the applications and has narrowed its focus to two schools in each District. A NASP teacher training seminar has been held at the JFK Middle School in Northampton. There is a clear message that there is a genuine interest in this activity and the Board looks forward to seeing it implemented in every school that desires it.

Natural Heritage Advisory Committee Appointments

DFG Commissioner Mary Griffin reported that members of the Natural Heritage & Endangered Species Advisory Committee needed to be appointed at the Board's June meeting. Although it is the Commissioner who appoints the members to this Committee, the appointments are subject to approval by the Board of Fisheries & Wildlife. The Commissioner presented the following members for reappointment: Mark Mello (Lloyd Center for Environmental Studies), William Brumback (New England Wildlfower Society), Timothy Flanagan (Prof. Environmental and Life Sciences, Pittsfield Community College), Kathleen Anderson (Chair of the NHESAC), Thomas Rawinski (U.S. Forest Service Botanist), Marilyn Flor (retired Mass Audubon teacher), Andy Finton (The Nature Conservancy), and Bryan Windmiller (Environmental Consultant). The Board is very pleased with the quality and expertise of all the individuals involved and voted unanimously to concur with the recommended re-appointments as presented.

"Housekeeping" Regulation Changes

Assistant Director Tom O'Shea provided the Board with an overview of two minor "housekeeping" regulation proposals regarding agency land holdings. Regulations are updated about every five years to account for newly acquired areas, changes in stocking status, and changes in name. Also, for the purpose of enforcing regulation, every DFW property except installations, wildlife sanctuaries, and nature reserves are considered Wildlife Management Areas (WMAs). Therefore, staff has always included "game farms" under "installations"; however, we no longer have active game farms. The Board held a public hearing on the proposed changes, but no comments were received relative to changing installations and removing them as game farms. The Board therefore voted unanimously to allow the former game farms to default to WMAs.

Assistant Director O'Shea also reviewed a second proposed set of minor regulation changes in regards to classes of hunting, fishing, and trapping licenses. There was an administrative error dating from the inception of the regulation relative to a resident minor alien license. Staff proposed to add that category of person to the F2 license, consistent with including resident (adult) aliens with the F1 license. Also, there is a typographical error ("15-17") in the T2 license (minor trapping), however, by statute, this license is issued to those 12-17. The license manual correctly states 12-17. The Board voted unanimously to accept the regulation changes and clear up the confusion relating to these minor typographical errors.

Congratulations

The Board was very pleased to present the 2009 Governor Francis W. Sargent Conservation Award to Dr. Gwilym Jones, former Chair of the Natural Heritage & Endangered Species Advisory Committee and a former member of the Fisheries and Wildlife Board. He is the eighth recipient of this prestigious award, presented annually by the Fisheries & Wildlife Board to honor an individual or organization for their contribution to the conservation of natural resources in the Commonwealth.

Other 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 Dr. Mark Tisa on the zebra mussel following the discovery of this invasive species in Laurel Lake, Lee. The discovery led to immediate emergency local boating restrictions, a ramp closure, and eventually to entirely new protocols on launching boats in Quabbin Reservoir, but the Board is encouraged that extensive statewide restrictions will not be required to prevent the spread of this invader because the majority of waters in the Commonwealth do not have the chemistry to support this species. While the agency is very much involved in the identification and prevention of potentially invasive species, jurisdiction over boat ramps and the formation of a Clean Boat Certification proposal falls under the Department of Fish & Game and the Office of Fish & Boating Access, as well as the Department of Conservation & Recreation. Chairman Darey formally requested that Secretary of Energy and Environmental Affairs Ian Bowles establish a task force of no more than nine people to assess and evaluate the experience in other states, current level of scientific knowledge, and the resources available to best manage the zebra mussel. He asked the Secretary to include the appropriate state agencies, those directly impacted, and other interest groups. The Board is very concerned that certain individuals and associations are using the zebra mussel as an excuse to restrict public access to certain waters, and this cannot be tolerated.

The Board is very pleased that Board member Dr. Joseph Larson was appointed to the Task Force on Zebra Mussels. The Task Force meetings produced a draft report by January. Some of the items in the report deal with regulations, statutes, and the framework for Great Ponds with respect to mussels. The report also addresses decontamination, review forms that are being used, recommended enforcement, the monitoring of boats in and out of the water, and commercial washing stations for boats. It is the Board's understanding that once every-

thing is completed, the public will have an opportunity to review the report and provide comment.

The Board enjoyed an overview and excellent presentation by John O'Leary on climate change and on using vulnerability assessment results to inform agency decisions. He talked about the collaborative project with the Manoment Center for Conservation Sciences, The Nature Conservancy, and the Division of Fisheries and Wildlife; project goals, vulnerability assessments, sensitivity, and adaptive capacity variables to consider; implications for ecosystems, habitat vulnerability categories, habitats evaluated under climate change conditions, and the preliminary vulnerability rankings. He also reviewed DFW holdings, the land acquisition process, and our view for the overall need for land protection in the state BioMap, as well as developing site plans for focus areas. The Board is pleased to note that, thanks to the agency's early and focused interest in climate change, Massachusetts is a recognized leader in developing wildlife management/conservation plans in specific response to the changing climate.

Chief of Hatcheries Ken Simmons provided an overview of the DFW's trout stocking program – including the Division's operational structure and procedures for trout stocking, and an overview of the public access requirements relative to trout stocking. Dr. Simmons noted that spring stocking usually begins in March and is completed by Memorial Day. Approximately 500 waters are stocked in 250 cities and towns using 90% of the annual trout production. The fall stocking begins in late September and is completed by Columbus Day, with approximately 90 waters stocked in 74 cities and towns and using 10% of annual trout production. Dr. Simmons reported on the hatchery program goals and on trout allocations to each District. In summary, he explained that Districts managed each stocked water body on a case-by-case basis, and that stocking density and frequency is based on a combination of parameters including public access, available fish, habitat, fishing pressure, and best judgment.

The Board heard reports from most of the agency's District Managers throughout the year, which keeps the body apprised of regional issues and successes. An informative field trip to the recently acquired Red Brook Wildlife Management Area in the Southeast District was particularly enlightening. The Board was also very pleased to hear a report from Dr. Tom French on the status of the timber rattlesnake in Massachusetts, the reasons for its decline, and concerns about the presence and investigation of a potentially lethal fungus or fungi that could possibly be implicated in some population declines. The Board also heard a presentation from Senior Zoologist Scott Melvin on the recreational, coastal flooding, off road vehicles, and pedestrian impacts on the piping plover population. He addressed the protection efforts and monitoring of piping plovers over their breeding and winter range. Guidelines were established in 1993 for managing the recreational use of beaches to protect piping plovers, least terns, and their habitats. Dr. Melvin noted that in 1985 there were 130 pairs of piping plovers, and as of 2009 there are 575 pairs. He also noted there are approximately 3600 pairs of Least Terns. In view of the fact that the Board believes our management policy has proven adequate to conserve the species, yet a nonprofit entity has filed suit against the Division claiming that the beach management plan for Plymouth Beach is not in compliance with the provisions to the Natural Heritage & Endangered Species Act (primarily because the birds are not protected from natural predation), the Board specifically and unanimously voted to support the Division's policy for the protection of piping plovers.

The Board was also heard a presentation in October from Chief of Wildlife Lands Bill Minior, who reported on Wildlife Land Transactions for fiscal 2009. Fifty six acquisitions were completed, providing habitat protection and compatible public recreation on approximately 10,280 acres at a cost of $13.85 million. Assistance by non-profit and third-party groups was once again an important element in our acquisition efforts. 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 acres protected in FY 09 bring DFW's total protected acreage to approximately 180,000 acres, or about 281 square miles. This was Mr. Minior's last Board meeting, as he retired in November 2009, and the Board thanks him for his many years of exemplary dedication and expertise. He will be greatly missed.

Wildlife Biologist Jim Cardoza gave a very informative presentation to the Board this year on the history of black bear in Massachusetts. His presentation provided a culmination of 30 years addressing the history, status, reproduction, food habits, range, population increase, hunting seasons, and recommendations for the management of black bear. Mr. Cardoza has received many awards for his outstanding research and management work concerning black bear and wild turkey, and the Board and the citizens of Massachusetts are forever in his debt for his many accomplishments in wildlife restoration and management. The Board and staff will miss his authoritative knowledge of wildlife law and regulation, as well as his biological expertise, and wish him all the best as he leaves the agency to enjoy a well deserved retirement.

Assistant Director Tom O'Shea presented a review of Division of Fisheries and Wildlife comments to the Department of Conservation and Recreation's "Futures Visioning" process. He touched upon the history, goals and process, and vision recommendations. In summary, he stated DFW's mission is to perpetuate biological diversity. Actions preventing active, sustainable forestry over large expanses of forest habitat will have unintended negative consequences on the biota of Massachusetts forests and fail to adequately support biodiversity, resulting in a decline of wildlife species and associated habitats

such as young forests, shrublands, and grasslands. It would also diminish the ability to regenerate oak forests and constrain response to climate change and invasive species. The Secretary of the Executive Office of Energy and Environmental Affairs has requested that the agency review its forest and management practices in light of the Forest Legacy Plan, with the goal of coordinating and integrating forest stewardship across state agencies. The Board, despite some reservations given that the agency has conducted exemplary forestry management for decades, voted unanimously to have the staff conduct a comprehensive review of the forest management on Division lands within the context of the land management program of the agency.

In response to the aforementioned vote, Deputy Director Buckley provided the Board with a presentation explaining the history of the Division's Biodiversity Initiative and the various habitat management related programs and conservation strategies for the species in greatest need as identified in the Massachusetts Comprehensive Wildlife Conservation Strategy. He further addressed conservation information/education, conservation research, technical assistance, and integrated management decision making within established guidelines. He also reported that data coordination developed a shared, readily accessible, geospatial database which describes the management activities, target species and habitats, acres and types of management and where the projects are located within the state. The summary of the review process will include presentations about DFG/DFW habitat management programs on DFW lands, explaining current goals and practices and recommendations for their future direction. Recommendations from DFW staff will be presented to the Board and to the Natural Heritage Endangered Species Advisory Committee, along with regional public informational meetings to seek public input and comment. The Fisheries and Wildlife Board will review public comment and input in establishing the future direction of habitat management programs for DFW lands. A final vote on habitat management goals and practices will take place sometime next autumn.

Miscellaneous

A Board-appointed working committee and the Director participated in a public forum to discuss concerns regarding public recreational access to the Ludlow Reservoir where the Department now holds a Conservation Restriction. The Springfield Water and Sewer Commission (SWSC) significantly reduced the hours of public access during the previous fiscal year due to concerns about adequate Law Enforcement patrols, but the City of Holyoke has since begun paying for a detail of Environmental Police. The agency is committed to making our partnership work and was informed that the SWSC was forming a Management Planning Team to assist them in the management of the Public Access Program. Their first meeting was held in September and Drs. Rob Deblinger and Joseph Larson attended as the agency/Board designees. In June, Deputy Director Deblinger provided the Board with an update on the history of problems associated with the Springfield Water & Sewer Commission (SWSC). The Division paid $875,000 for a Conservation Restriction for 1,850 acres for the purpose of acquiring public access for fishing, hunting, and related passive outdoor recreation. Deputy Director Deblinger attended a meeting of the Ludlow Reservoir Advisory Committee on June 9th and reported that the committee has assembled 15 volunteers to open and close the gate at the Ludlow Reservoir. This would provide a cost savings in security staff for the SWSC. The Advisory Committee presented a plan to the SWSC staff in attendance. The plan included an earlier opening time and a later closing time. Both were rejected by the SWSC staff. Chairwoman Dorothy Mikaelian of the Ludlow Advisory Committee attended the SWSC meeting on June 10. The Commission asked Ms. Mikaelian to describe the plan, after which they voted to change the opening hour from 8:00 a.m. to 6:30 a.m., but to retain the 6:00 p.m. closing. After a 2 week period beginning June 21, the SWSC staff will decide whether to change the closing time to 8 p.m. To date, the issues relating to this property have yet to be resolved and the Board will periodically revisit this area of concern.

The Board notes that the Nantucket Tick Health Advisory Committee has been reformed, and that Dr. Deblinger and Deer Project leader Sonja Christensen went to Nantucket to meet with this committee relative to their concerns over deer ticks. Given the history of deer management on Nantucket and Martha's Vineyard, we are confident that a positive outcome is possible, but as we have yet to be informed that the citizens of Nantucket have achieved a consensus on what to do about the situation, we do not expect to see a different outcome in the near future.

The Board is very pleased with several successful facility moves this past year. These include the move of the Western District Office from Pittsfield to a much improved facility in Dalton; the move of the Hunter Education Program from the antiquated building in Westminster to a temporary facility at the Ayer Game Farm; and the move of the Northeast District Office from Acton to a newly acquired facility adjacent to the Ayer Game Farm. These all represent significant improvements in working and storage capabilities, and should improve public access to all of the offices involved.

Ernie Foster, whose term on the Central District seat of the Board expired last October, will be missed. Mr. Foster worked on many projects and contributed much to the Board. He was a member of various working committees and played a major part in numerous programs, always volunteering to work with staff on various projects. One of his most recent accomplishments was the new Massachusetts Fish & Wildlife Guide to Hunting, Fishing and Trapping. We thank him for his long service and friendship. Bonnie Booth of Spencer was appointed by Governor Patrick to replace Mr. Foster. Ms. Booth has

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Bill and Stephanie Bradley together with their three children and John and Bonnie Witiaz, all from South Easton, celebrate the opening of a new 278-acre Wildlife Management Area on the Ashfield/Hawley line. Acquisition of this land was made possible by a generous bequest from the estate of Calvin and Annette Farrell

been active in environmental and wildlife conservation and worked many years for the Worcester County Soil Conservation District. She is a lifelong sportswoman who has a high degree of knowledge pertaining to hunting and fishing and is an active volunteer in conservation programs including serving as an instructor at the Massachusetts Hunter Education Program and serving on the Steering Committee of the Massachusetts Becoming an Outdoors Woman Program. The members of the Board look forward to working with her.

Finally, the Board would like to make note of the generosity of Mr. Calvin Farrell, a Massachusetts resident who passed away last year and left a gift of approximately $375,000 to the Wildlands Conservation Fund. Although Mr. Farrell was from the southeastern part of the state (Easton), he requested that the agency use the donation to purchase an appropriate parcel of land west of East Brookfield and acknowledge his and Annette Farrell's contribution by erecting a plaque at the most suitable location on site. This is by far the largest cash donation the agency has ever received, and the people of Massachusetts should be aware of and grateful for it. The land has been purchased and a dedication ceremony will be scheduled in the near future.

FISHERIES

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

Introduction

Fishing, hunting, and wildlife related recreation are important recreational activities for 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. Freshwater anglers alone contributed more than $270 million in retail sales in Massachusetts. 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 habitat. These habitats include both coldwater and warmwater resources. There are approximately 2,675 lakes and ponds, totaling about 142,681 surface acres. Pond and lake 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 involved several ongoing fisheries projects.

Anadromous Fish Investigations

Project Leader: Caleb Slater, Ph.D.

Overview

In FY 10 the Division hired three, six-month, seasonal workers to stock Atlantic salmon fry, conduct the Atlantic salmon smolt production assessment work in Connecticut River tributaries, and staff the West Springfield fishway on the Westfield River. An additional three, three-month, seasonal workers were hired to staff the Essex fishway on the Merrimack River. Holyoke Gas & Electric, as directed by the conditions of their FERC hydroelectric license, hired seasonal employees to staff the Holyoke fishway and Firstlight Power, and USGS employees from the Conte lab monitored fish passage at the Turners Falls fishways. The project leader supervised these activities.

1,526,166 unfed Atlantic salmon fry from the Roger Reed State Fish Hatchery and the White River National Fish Hatchery were released into 49 tributaries of the Connecticut River in spring, 2010. Stocking took place on 22 days between April 8 and May 5, 2010.

Because 2010 fish passage operations are ongoing at this time, this report summarizes the 2009 fish passage activities. No major malfunctions were experienced at any of the fishways on the Connecticut or Merrimack Rivers in Massachusetts in 2009.

During FY 10 the project leader was actively involved in the FERC relicensing process on a number of projects including: 1) the Woronoco Hydroelectric Project on the Westfield River in Russell, MA; 2) the Glendale Hydroelectric and Willow Mill Hydroelectric Projects on the Housatonic River; 3) continuing consultation with Holyoke Gas and Electric as they prepare to install downstream fish passage protection at the Holyoke Hydroelectric Project on the Connecticut River in Holyoke, MA; 4) commenting on applications for FERC exemptions at the Westfield Paper dam on the Westfield River in Russell, MA; the Ice House dam on the Nashua River in Ayer, MA; the Pepperell Paper dam on the Nashua River in Pepperell, MA; the Alternatives project on the Mumford River in Northbridge, MA; the Byron Weston No. 2 Project on the Housatonic River in Dalton, MA; the Dexter Russell Hydroelectric Project on the Quinebaug River in Southbridge, MA; the Dodgeville Hydroelectric Project on the Ten Mile River in Attleboro, MA; the Shaker Mill Dam Hydroelectric Project on the Williams River in West Stockbridge, MA; and several projects on the Whitman River in Westminster, MA; and 5) with an application for amendment of exemption at Riverdale Mills on the Blackstone River in Northbridge, MA.

The project leader worked with EOEA and DOER to certify hydroelectric projects to qualify for Massachusetts "Green Energy" credits.

Connecticut River

The project leader actively participated in the Connecticut River Atlantic Salmon Commission (CRASC), and continued as the 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. Many telephone, electronic, and written requests for information were also answered by the project leader. The Atlantic salmon egg rearing program (ASERP) continued in 30 schools in the Connecticut River watershed.

Holyoke

The City of Holyoke (Holyoke Gas and Electric Co. - 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 Holyoke fish passage facility operated for 97 days during the 2009 spring season, passing a total of 180,502 anadromous fish and a total of 603 resident species (including adult American eel). No shortnose sturgeon were collected during the spring season. No Atlantic salmon or shortnose sturgeon were collected during fall lifting operations.

The number of days that passage was greater than 1% of the seasonal total was considerably less than 97. The number of days that passage is greater than 1% of the seasonal total, and the percentage of the total run that these days comprise, is a measure of the temporal distribution of the run. The "over-1%-daily-passage" totals were: American shad, 83% of 160,669 in 30 days; blueback herring, 100% of 40 in 13 days; sea lamprey, 96% of 18,996 in 24 days; striped bass, 74% of 668 in 31 days; gizzard shad, 100% of 68 in 32 days; Atlantic salmon, 100% of 61 in 27 days.

Atlantic salmon

Sixty one (61) Atlantic salmon were counted during the spring/summer fish passage season at the Holyoke fishlift. Passage during 2009 was 12.5% of the record passage of 1992, 65% of the previous five year mean, and 88% of the previous ten year mean. Ten Atlantic salmon were radio-tagged and released at Holyoke as per agreement with TransCanada. One of these fish dropped down and entered Rainbow Fishway where it was trapped and then brought to the Cronin National Salmon Station. The most current positions of the remaining nine fish were: one in the Deerfield River, one in the Manhan River, and seven passed through Turners Falls fishways. Positions of the seven fish that passed Turners Falls were: (1) Ashuelot River; (2) West River; (1) Saxtons River; (2) White River; and one passed upstream of Bellows Falls, current location unknown. An additional untagged escapee from Holyoke passed through all fishways up to and including Wilder. A redd was observed in the North Branch of Ball Mountain Brook (a tributary of the West River). There was also a redd in the Manhan River in Massachusetts.

American shad

The total number of shad lifted in 2009 (160,669) was 22% of the record high passage of 1992. 2009 passage was 103% of the previous five year mean, and 75% of the previous ten year mean. Examining the cumulative percent of shad passed at Holyoke, 50% of fish passed this project on the 30th day of passage, May 21. A total of 571 American shad were sampled for biological data on 34 days from May 7 through June 25. Fork length, weight, sex, and scale samples were collected from all individuals. This represents 0.4% of the total American shad passed for the year and between 0.1% and 83% of the daily shad passage at the facility. 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 88%. The weighted sex ratio of American shad lifted at the Holyoke facility in 2009 was 48% males and 52% females.

Fishlift personnel trapped a total of 4,794 shad for restoration efforts. 2,128 were transferred to the Vernon pool on the CT River, 531 to the Turners falls pool, 317 to the Ashuelot River, 155 to the Farmington River, and the balance were transferred out of basin.

Other Anadromous Fish Species

Blueback herring passage in 2009 was 40. This was 0.006% of the maximum passage of 1985, 23% of the previous five-year mean and 1% of the previous ten year mean.

Sea lamprey passage in 2009 (18,996) was 21% of the record passage of in 1998 and was 50% of the previous five-year mean and 48% of the previous ten year mean.

Gizzard shad passage in 2009 was 68. This was 1% of the previous five-year mean and 0.2% of the previous 10 year mean.

Turners Falls

The fishladders at Turners Falls were operated for a total of 59 days from May 9 through July 7, 2009. Operational problems were reviewed as needed on an ongoing basis by agency personnel (Massachusetts Division of Fisheries and Wildlife and United States Fish and Wildlife Service) and by the dam owner (Firstlight Power).

Upstream fish passage counts were made at the Spillway, Gatehouse, and Cabot fishladders by review of recorded passage. Digital recordings were reviewed

by employees of Firstlight Power. All ladders were monitored twenty-four hours each day unless technical problems occurred. All fishladders remained open for passage 24 hours each day.

Anadromous Fish Passage

American shad and Atlantic salmon were identified and enumerated at the Spillway, Gatehouse, and Cabot ladders. Sea lamprey were counted only at Gatehouse.

Atlantic salmon

During the spring/summer migration, ten adult Atlantic salmon were allowed to pass the Holyoke fish passage facility. Nine of these were observed passing the fish ladders at Turners Falls.

American shad

The number of shad passing the Gatehouse fishladder in 2009 (3,814) was 7% of the maximum passage of 1992, 204% of the previous 5 year mean, and 112% of the previous 10 year mean.

The number of shad passing the Spillway fishladder in 2009 (627) was 5% of the maximum passage of 1992, 31% of the previous 5 year mean, and 21% of the previous 10 year mean.

The number of shad passing the Cabot fishladder in 2009 (15,809) was 18% of the maximum passage of 1992, 184% of the previous 5 year mean, and 139% of the previous 10 year mean.

Examining the cumulative percent of shad passed at Gatehouse, 50% of fish passed this ladder on the 34 th day of operation, May 31, 2009.

Examining the cumulative percent of shad passed at Spillway, 50% of fish passed this ladder on the 32 nd day of operation, May 29, 2009.

Examining the cumulative percent of shad passed at Cabot, 50% of fish passed this ladder on the 30 th day of operation, May 27, 2009.

Only 2.5% of the shad lifted at Holyoke (160,669) passed the Gatehouse observation window, well below the restoration goal of 50%.

Other Anadromous Fish Species

8,296 Sea lamprey passed the gatehouse fishway in 2009. This represents 54% of the maximum passage of 2007, 56% of the previous 5 year mean, and 90% of the previous 10 year mean.

Westfield River

In 2009 a fish ladder was operated for the 13th year at the A&D Hydroelectric dam in West Springfield, MA. The fishway and associated downstream bypass facilities were constructed in the fall of 1995.

Five species of anadromous fish and six species of resident fish were identified and enumerated during the spring/summer fish passage season.

An eelway for upstream passage of juvenile American eel was constructed in the lower section of the fishway in August of 2001. The eelway was operated for upstream elver passage from June through mid-July, 2009, when mechanical problems caused its closure. The eelway has been repaired and will be functional for the 2010 season.

Anadromous fish

The West Springfield fish passage facility operated for 89 days in the spring of 2009. The number of days that passage was greater than 1% of the seasonal total was considerably less than 90. The number of days that passage is greater than 1% of the seasonal total, and the percentage of the total run that these days comprise, is a measure of the temporal distribution of the run. The "over-1%-daily-passage" totals were: American shad, 91 % of 1,395 in 21 days; sea lamprey, 91% of 538 in 9 days; Atlantic salmon, 100% of 2 in 2 days.

During the spring/summer season, 2 Atlantic salmon were trapped. All salmon were transported by personnel of the United States Fish & Wildlife Service to the Richard Cronin National Salmon Station, Sunderland, MA.

A total of 1,395 American shad; 538 sea lamprey; 0 striped bass; 0 Blueback herring; 59 American eel; and 0 gizzard shad were passed upstream in spring/summer 2009. The shad passage represents 30% of the record high of 4,720 in 2001.

Resident fish

White sucker, brook trout, brown trout, rainbow trout, tiger trout, and smallmouth bass were documented passing upstream through the West Springfield fish passage facility in 2009

Atlantic Salmon Fry Stocking and Survival

Atlantic Salmon Fry Releases

Atlantic salmon fry from the Roger Reed Hatchery and the White River National Salmon Hatchery were stocked on 22 days from April 8 through May 5, 2010. All fry stocked in 2010 were bulk transported from the hatchery of origin. Water was oxygenated or both oxygenated and aerated. Fry from the Roger Reed Hatchery were transported by Massachusetts Division of Fisheries and Wildlife personnel. Fry from the White River National Fish Hatchery were transported by either Massachusetts Division of Fisheries and Wildlife personnel or United States Fish and Wildlife Service personnel. Fry were enumerated by weight and transferred to plastic pails filled with river water and stocked using the standard scatter-plant method.

Hatchery water temperature was generally similar to stream temperatures so no acclimation time was necessary prior to release. Stocking density was between 30 and 55 fry per habitat unit (100 square meters of stream area). Stocking density was converted to the number of fry to be released per 100 ft. of stream length to aid the stockers in distributing the fry evenly throughout the

section. Fry were scatter-planted from shore throughout stocked sections of all streams.

The Deerfield (563,384 fry) and the Westfield (588,072 fry) River basins were stocked with Atlantic salmon fry for the 24nd and 23rd consecutive years, respectively. Four Mile Brook and Mill Brook (11,628 fry), both in Northfield, were stocked for the 15th time. The Manhan River Basin (57,367 fry) was stocked for the 19th time since 1989 and the Fall River Basin (53,086 fry) was stocked for the 18th time since 1988. The Mill River (48,065 fry) in Williamsburg was stocked for the 14th time. The Sawmill River Basin (59,451 fry) was stocked for the 17th time. The Millers River (78,442 fry) was stocked for the 14th time.

Atlantic Salmon Fry Survival

Selected salmon stocked streams were sampled for juvenile Atlantic salmon in FY10. 69 sites on 46 streams were sampled by personnel from the Massachusetts Division of Fisheries and Wildlife in August and September, 2009.

A single-pass technique utilizing 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 subsequent 'work up', all fish were released back into 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. The area of stream sampled was obtained by measuring the length of the sampled section and multiplying by the mean width for that section.

Population estimates for each age class were obtained by expanding the number of salmon captured by the historical sample efficiency at each site (calculated in past multi-pass depletion samples). 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 2010 smolt production was produced by multiplying the population estimate of 1+ salmon by the estimated over-winter survival (0.5). The 2010 smolt production estimate was 31,702 smolts from Massachusetts waters.

Merrimack River

In FY10 the project leader actively participated in Merrimack River Policy and Technical Committee meetings as well as several working group meetings. The two mainstem fishlifts on the Merrimack River in Massachusetts were operated and monitored for anadromous fish passage during the spring/summer of 2009.

Essex Dam

The Essex Dam fish elevator operated for 89 days between April 20 and July 17, 2009. For the fall season the fishway was operated from September 15 through November 1. During the spring migration period the Essex Dam fish elevator was operated seven days per week. Hours of operation were generally 8:00 a.m. to 4:00 p.m. throughout the season. During the fall four lifts per weekday were completed by personnel of CHI Energy Inc.

Atlantic salmon

78 adult Atlantic salmon were captured at the Essex fishlift during spring 2009. This was 24% of the record passage of 1991. Salmon returns were 96% of the previous 5 year mean, and 83% of the previous 10 year mean. No salmon were captured in the fall. All were trapped for broodstock purposes. The captured salmon were transported to the U.S. Fish and Wildlife Service National Fish Hatchery at Nashua, New Hampshire to be spawned.

American Shad

The total number of shad lifted in 2009 (23,229) was 31% of the record high passage of 2001. 2009 shad passage was 125% of the previous five year mean and 58% of the previous ten year mean. 259 shad were trapped and trucked to the USFWS Nashua Fish Hatchery for spawning, and 5.2 million resulting fry were produced of which 3.9 million were stocked in the Charles River and 1.2 million were stocked in the Merrimack River. 123 shad were trapped and trucked to the USFWS North Attleboro Fish Hatchery for spawning and 622,000 fry were produced. 237,000 of them were stocked in the Charles River and 385,000 million were stocked in the Merrimack River. 1047 shad were transplanted within the Merrimack River Watershed for restoration purposes. A total of 997 were released into the Merrimack River upstream of the Hookset Dam; 50 shad were released in the Souhegan River in Milford (upstream of the McLane and Goldman dams); and 269 shad were collected from Lawrence and transported to the Androscoggin River in ME for restoration purposes. Two hundred fourteen (214) shad were sampled for biological information in 2009.

Other anadromous fish

2009 passage of river herring was 1,456. This was 0.4% of the record high passage of 1991. 2009 herring passage was 42% of the previous five year mean and 25% of the previous ten year mean.

Total number of sea lamprey, striped bass, and gizzard shad passing through the Lawrence fishlift were 2,041; 46; and 0 respectively.

Pawtucket Dam

Operation of the Pawtucket Dam fish elevator began on April 27th, one week after lifting operations began at the Lawrence fishway located approximately 12 miles downstream, and concluded on July 17th. The system was operated seven days per week, generally from 7:00 a.m. to 6:00 p.m. Frequency of lifts varied between 0.5 to 2 hours based on the density of fish observed in the hopper bucket. Estimates of fish passage were made

by CHI employees who observed the hopper bucket during each lift.

Maintenance of the facility was satisfactory throughout the fish passage season.

The estimated total number of American shad passing the Lowell facility in 2009 was 2,799. This represents 12% of the shad passing through the Lawrence fishway this season.

No sea-run Atlantic salmon were seen at the Lowell fishlift. All sea-run Atlantic salmon that enter the Lawrence fishlift, downstream, are captured and removed for 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 fishlift. These fish can legally be harvested in the Massachusetts portion of the Merrimack and its tributaries upstream of the Essex Dam in Lawrence.

Warmwater Fisheries Investigations

Project Leader: Richard Hartley

Esocid Stocking Program

The Division relies entirely on other states (New Jersey, New York, Pennsylvania, and Virginia) for northern pike and tiger muskellunge. In recent years, these states have all either significantly scaled back their production of northern pike and tiger muskellunge or discontinued their programs entirely because of rising production costs. As a result, this is the second year in which the Division has been unable to acquire pike/tiger muskies from these states. The Division also put out an RFP to acquire 9 to 12 inch northern pike from private growers and received only one response at $12.00 per fish (this proposal was rejected).

Freshwater Sportfishing Awards Program

For over 45 years, the Freshwater Sportfishing Awards Program has awarded 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. 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 catch stamped on the back. Beginning in 2005, lower minimum weights were established for young anglers (age 17 and under). This resulted in a near doubling of the number of pins awarded annually. In addition to the bronze pin, the lucky adult and youth angler who weighs in the largest fish of the year in each of the 22 categories is awarded a plaque and gold pin at the Eastern Fishing & Outdoor Exposition held in February at the DCU Center in Worcester. Affidavits are still being received for 2010, so results from 2009 are presented here. A record setting 1,083 pins were awarded in 43 of the 44 categories (524 for youth anglers and 559 for adults) for calendar year 2009. For 2010, we are currently on a pace to award even more pins then the record set in 2009. As in 2008, the only category which had no entries was the state's most elusive – youth entries for tiger muskellunge.

Freshwater Sportfishing Gold Pin Awards for 2009

Species	Number of Adult Pins	Number of Youth Pins	Weight of Gold Pin Adult	Weight of Gold Pin Youth
Broodstock salmon	19	16	16 lb. 5 oz.	13 lb. 7 oz
Brook trout	18	21	4 lb. 11 oz.	2 lb. 15 oz.
Brown trout	13	9	9 lb. 7 oz.	5 lb. 6 oz.
Bullhead	7	31	4 lb. 6 oz.	2 lb. 4 oz.
Carp	38	19	30 lb. 9 oz.	29 lb. 15 oz.
Chain pickerel	35	45	6 lb. 11 oz.	5 lb. 6 oz.
Channel catfish	41	3	20 lb. 16 oz.	9 lb. 1 oz.
Crappie	63	47	3 lb. 0 oz.	2 lb. 13 oz.
Lake trout	16	5	15 lb. 7 oz.	17 lb. 4 oz.
Landlocked salmon	149	26	8 lb. 3 oz.	7 lb. 2 oz.
Largemouth bass	17	68	10 lb. 2 oz.	8 lb. 14 oz.
Northern pike	15	10	22 lb. 11 oz.	19 lb. 11 oz.
Rainbow trout	6	8	8 lb. 6 oz.	5 lb. 12 oz.
Shad	4	1	6 lb. 8 oz.	4 lb. 10 oz.
Smallmouth bass	26	14	5 lb. 15 oz.	5 lb. 8 oz.
Sunfish	28	51	1 lb. 3 oz.	1 lb. 5 oz.
Tiger muskie	1	0	10 lb. 7 oz.	na
Tiger trout	6	8	8 lb. 10 oz.	2 lb. 7 oz.
Walleye	10	7	8 lb. 2 oz.	6 lb. 4 oz.
White catfish	8	2	7 lb. 5 oz.	4 lb. 1 oz.
White perch	26	25	2 lb. 11 oz.	1 lb. 15 oz.
Yellow perch	13	81	2 lb. 4 oz.	2 lb. 3 oz.

The eighth annual Angler of the Year Award (presented to the angler who submits qualifying fish in the greatest number of eligible species) was presented for the third time to Roy Leyva of Plymouth who weighed in award-qualifying fish of 12 different species.

Bass Tournament Creel Analysis

For the past 14 years, the Division has been monitoring the results of black bass (largemouth and smallmouth bass) tournaments to help establish a long term database of variables such as catch rates and average fish size for specific waters. Any organization which requests the use of a facility governed by the Office of Fishing and Boating Access (OFBA) to hold a fishing event must apply for and 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 generate information on tournaments held at non-OFBA facilities. The creel sheets are also available for download on the Division's website. The completed creel sheets are mailed to the Warm/Coolwater Project Leader at Field Headquarters. Information from the creel sheets is entered into a database to allow the Division to detect long term trends in the bass populations in some of the Commonwealth's most heavily fished waters. Creel sheets are still being received for the 2010 tournament season, so results from the 2009 season are presented here.

In 2009, a total of 240 creel sheets were submitted by bass clubs. This represents a voluntary reporting rate of 42% based on the number of Special Use Permits issued by the OFBA (up from 32% in 2008). These 240 tournaments represented 61 different bass clubs fishing on 43 different waters. A total of 7,649 largemouth bass and 1,721 smallmouth bass were weighed in for a catch rate of approximately 1 bass per 3 1/2 angler hours. The average weight of a bass weighed in was 1 lb. 13 oz., and 83% of all anglers weighed at least one bass while 31% caught a limit (5 bass total of either species). 99% 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. For waters with more than four tournaments, Quaboag/Quacumquasit Ponds, Brookfield, yielded the highest number of bass over 5 pounds at 10 of 18 tournaments, while East Brimfield Reservoir, Sturbridge, had the highest catch rate for bass 5 pounds and over. Whitehall Reservoir, Hopkinton, produced the highest percent of anglers weighing bass (100%) as well as the highest percent of anglers who filled their creel limits (63%). A breakdown of the number of tournaments by waterbody revealed that most waters host only a few tournaments a year while the two highest occurrences continue to take place on Congamond Lake in Southwick and the Connecticut River, which hosted 24 and 26 tournaments respectively. Long Pond, Lakeville/Freetown, Manchaug Pond, Sutton, Mashpee-Wakeby Pond, Mashpee, the Nashua River, Groton and Quaboag/Quacumquasit Ponds, Brookfield each hosted 10 or more tournaments for which creel surveys were received in 2009. Over time, this data will aid in detecting any changes to the bass fishery.

Fish Kill Investigations and Environmental Review

Project Leader: Richard Hartley

Fish Kill Investigations

Pursuant to the 1999 Fish Kill Memorandum of Understanding between the Department of Environmental Protection (DEP), the Division of Fisheries and Wildlife (DFW), the Office of Environmental Law Enforcement (OLE) and the Department of Agricultural Resources (DAR), DFW is the lead agency in coordinating fish kill response. In 2009, the DFW received 29 calls relative to incidents which involved dead fish. Of these 29 reports, 8 required field investigations by DFW or DEP personnel to determine the cause of the kill. The final assessment of the 29 calls was that 27 were natural kills, one was a chemical kill, and one occurred because of low flow conditions.

Environmental Review

In 2009, DFW 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 170 requests to review project proposals potentially affecting 205 different waters (153 rivers, streams and unnamed tributaries and 52 lakes and ponds) statewide. Sixty three 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, MassHighways, Riverways, the Department of Agricultural Resources and MWRA (28%); federal agencies such as the Department of the Army and the Federal Energy Regulatory Commission (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 & gun clubs (<1%). Fisheries resources were partitioned as follows: warmwater (23%), coldwater (18%), trout stocked waters (26% of which 7% were hold-over waters), anadromous (10%), rare, threatened or endangered (6%), unknown (13%), marine (<1%), and no fisheries resources (2%). The majority of the projects were bridge replacements/rehabilitations over rivers and streams and road reconstruction (48%). The remaining reviews involved new construction (8%), lake management issues such as drawdowns for aquatic vegetation management, dredging, phosphorus inactivation, and mechanical harvesting (15%); in-stream work such as maintenance, bank stabilization, habitat restoration and culvert replacements (14%); proposed new well sites and/or increased production of existing wells (2%); and issues concerning dams including maintenance and removals (13%).

Fish Culture Program

Project Leader: Ken Simmons, Ph.D.

The Division met its annual trout production goal of 400,000 to 450,000 pounds of trout in FY10. This production 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 permit that each hatchery is issued by the Massachusetts Department of Environmental Protection and the Federal Environmental Protection Agency. The Division's four trout hatcheries produced a total of 451,185 pounds of trout, comprising a total of 593,571 brook, brown, rainbow, and tiger trout in FY2010, which includes both the fall 2009 and spring 2010 stocking seasons (Tables 1 and 2).

A total of 67,899 pounds of trout, comprising 73,425 fish, were stocked in the fall. The fall-stocked fish included 65,425 rainbow and 8,000 brown trout that averaged more than 12 inches apiece. In spring 2010, a total of 383,286 pounds of trout were stocked, which included 295,935 rainbow trout that ranged between 12 and 14+ inches long. More than 229,000 of these rainbow trout averaged 14 inches or longer. The spring stocking also included 66,044 brook trout that ranged between 6 and 18+ inches long, 125,754 brown trout that ranged between 6 and 18+ inches long, and 6,363 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.

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 FY10. Twelve thousand landlocked salmon smolts were produced, of which 10,000 were stocked into Quabbin Reservoir in May, 2010, and the balance given to the state of New Jersey in return for 300,000 brown trout eggs for the Division's trout program. 1.38 million Atlantic salmon eggs were produced by broodstock held at the station, and 995,515 Atlantic salmon fry were reared from these eggs and stocked into rivers and streams in the Connecticut River drainage basin within Massachusetts. In addition, 315 adult broodstock salmon produced at Roger Reed Hatchery were stocked in selected waters across the Commonwealth to provide recreational angling opportunities for these large and beautiful fish. A summary of the numbers of each of the fish species produced by the Roger Reed Hatchery is in Table 3. Roger Reed hatchery staff also continued their participation in the Atlantic Salmon Egg Rearing Program by distributing salmon eggs to 42 schools in

2010 Fish Production

Table 1. Summary of the number trout produced and stocked from each of the Division's four trout hatcheries in FY 10.

(Fall stocking 2009 and Spring stocking 2010)

Species	Size Cat. (inches)	Number of fish				Total No. of Fish
		Bitzer	McLaughlin	Sunderland	Sandwich	
Rainbow Trout	9+	24300	1750	0	0	26050
	12+	0	21731	66703	0	88434
	14+	29050	191029	0	52847	272926
	Sub-total	**53350**	**214510**	**66703**	**52847**	**387410**
Brook Trout	6 - 9	16800	0	0	0	16800
	9+	0	0	38570	0	38570
	12+	3050	0	3232	4018	10300
	18+	0	0	0	374	374
	Sub-total	**19850**	**0**	**41802**	**4392**	**66044**
Brown Trout	6 - 9	0	0	0	0	0
9+	30350	28519	19986	0	78855	
	12+	26600	0	23980	3900	54480
	18+	0	0	0	419	419
	Sub-total	**56950**	**28519**	**43966**	**4319**	**133754**
Tiger Trout	14+	0	0	0	6363	6363
Sub-total	**0**	**0**	**0**	**6363**	**6363**	
	Total	**130150**	**243029**	**152471**	**67921**	**593571**

Table 2. Summary of the weight of trout produced and stocked from each of the Division's four trout hatcheries in FY 10.

(Fall tocking 2009 and Spring stocking 2010)

Species	Size Cat. (inches)	Weight of fish (lbs) Bitzer	McLaughlin	Sunderland	Sandwich	Total Wgt. of Fish (lbs)
Rainbow Trout	9+	10251	612	0	0	10863
	12+	0	20091	41842	0	61933
	14+	29050	193247	0	40859	263156
	Sub-total	**39301**	**213950**	**41842**	**40859**	**335952**
Brook Trout	6 - 9	3253	0	0	0	3253
	9+	0	0	10954	0	10954
	12+	2232	0	2536	3555	8323
	18+	0	0	0	858	858
	Sub-total	**5485**	**0**	**13490**	**4413**	**23388**
Brown Trout	6 - 9	0	0	0	0	0
	9+	9752	13579i	7314	0	30645
	12+	25006	0	24364	3784	53154
	18+	0	0	0	1275	1275
	Sub-total	**34758**	**13579**	**31678**	**5059**	**85074**
Tiger Trout	14+	0	0	0	6771	6771
Sub-total		**0**	**0**	**0**	**6771**	**6771**
	Total	**79544**	**227529**	**87010**	**57102**	**451185**

Table 3. Summary of Landlocked salmon and Atlantic salmon produced at the Roger Reed Hatchery in FY 10.

Species	Size Category (inches)	Number	Weight (lbs)
Landlocked salmon	smolts (8+)	12000	2599
	Sub-total	***1200***	***2599***
Atlantic salmon	green eggs	1383000	-
	unfed fry (1+)	995515	347
	adults (15+)	315	2728
	Sub-total	***2378830***	***3075***

the Connecticut River basin in Massachusetts. Students in participating schools raise the salmon eggs to fry and then stock them in tributaries of the Connecticut River.

Important infrastructure improvements took place at Palmer, McLaughlin, and Sandwich Hatcheries in 2010. Sandwich and Palmer Hatcheries had new septic systems installed. Sandwich Hatchery also had new water pipes installed to improve rearing conditions and fish-waste management in the raceways. At McLaughlin Hatchery, the 42-year-old-diesel fuel tank for the back up generator was replaced with a state of the art tank and new variable frequency drives were installed in the river pumping station and well number four.

Fisheries Survey and Inventory Project

Project Leader: Todd Richards

The FY 10 Stream Survey project involved participation in the following segments:

1. Statewide Fisheries Survey and Inventory
2. USGS Fish and Habitat Study
3. Categorization of Streams and Rivers
4. Stream Habitat Restoration Project – Hamant Brook, Sturbridge, MA
5. Instream Flow Council activities

Photo © Sue Benoit

Dan Marchant during Atlantic salmon spwaning at the Roger Reed Hatchery in Palmer, Massachusetts.

1. Statewide Fisheries Survey and Inventory

Stream Survey and Inventory efforts continued in FY10, sampling 230 sites in 16 watersheds (below) and capturing nearly 20,000 individuals.

Watersheds and number of samples from each watershed sampled in FY 10.

Housatonic	44
Westfield	32
Deerfield	30
French	17
Connecticut	15
Nashua	15
Chicopee	14
Blackstone	12
Quinebaug	12
Hoosic	11
Merrimack	10
Taunton	8
Charles	6
Millers	2
South Coastal	2
Total	230

2. USGS Fish and Habitat Study

The final report, entitled "Preliminary Assessment of Factors Influencing Riverine Fish Communities in Massachusetts" was written, peer reviewed, and published at the following link: http://pubs.usgs.gov/of/2010/1139/

3. Categorization of Streams and Rivers

As part of the statewide Sustainable Management Initiative, the Division took an active role in describing the level of alteration in streams and rivers statewide. Multiple presentations were given during this process, focusing on results of the "Preliminary Assessment" report mentioned in the previous segment of this report. Presentations are available at the SWMI web site at http://www.mass.gov/eea/swm.

4. Stream Habitat Restoration Project – Hamant Brook, Sturbridge, MA

The Division is investigating 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 fluvial species, primarily cyprinids and catostomids, 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 fluvial 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 informational public meetings were held in the town including a walk-through of the property and a presentation at Sturbridge's 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 Millenium Management Team. The concept of a letter of support appeared on the warrant at the annual 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 for repairing the dam (for which no funding is available), the conservation commission voted to provide a letter of support.

FY10 activities focused on the creation of the Hamant Brook Restoration Proposal, which was submitted to the management team seeking approval for funding. The project scored high and was approved for the full amount needed to complete the project.

5. Instream Flow Council activities

Todd Richards was elected to the position of Instream Flow Council President-elect for 2010 to 2012.

Fisheries Section Staff

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Assistant Director of Fisheries

Leanda Fontaine, *Fisheries Technician*
Richard Hartley, *Warmwater Fisheries Project Leader*
Alicia Norris, *Fisheries Biologist*
Todd Richards, *Stream Fisheries Project Leader*
Ken Simmons, Ph.D., *Chief Fish Culturist*
Caleb Slater, Ph.D., *Anadromous Fish Project Leader*

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McLaughlin

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Richard Pecorelli, *Wildlife Technician*

Palmer

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Sandwich

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Heather Hanecak, *Wildlife Technician*
Bill Musiak, *Wildlife Technician*
Edward Siwicki, *Wildlife Technician*
Andrew Ostrowski, *Wildlife Technician*

WILDLIFE

Thomas K. O'Shea
Assistant Director, Wildlife

The Wildlife Section is responsible for the conservation, management, and research of wildlife and game populations within the Commonwealth of Massachusetts; habitat management to maintain and enhance biodiversity on State Wildlife Management Area; responding to human-wildlife conflicts; guiding and supporting the agency's large animal response team; and supporting wildlife-dependent recreational opportunities.

Towards this end, there are over ten professional biologists and foresters engaged in the following programs: forestry, upland habitat management, deer, moose, furbearer, upland game, black bear, wild turkey, waterfowl, commercial game preserves, testing and licensing of problem animal control agents (PAC), wildlife rehabilitators, falconers, and the inspection of commercial deer farms and other wildlife propagators' facilities, the issuance and processing of antlerless deer, turkey, and black bear permits, and the statewide pheasant stocking program.

The Wildlife Section develops science-based, regulatory policy positions and programmatic recommendations for the Fisheries and Wildlife Board. It serves as the wildlife representative on agency's land acquisition committee, directs and coordinates with the University of Massachusetts and the USGS Cooperative Wildlife Research Unit on scientific wildlife research projects within the Commonwealth of Massachusetts, represents the agency on wildlife conservation and management issues in public forums and in partnership with local, state, federal, and private organizations and entities, and serves as the state representative on the Northeast Association of Fish and Wildlife Association's various technical committees as well as the Northeast Association of Wildlife Administrators.

Forestry Program

The Forestry Program is a component of the Division of Fisheries & Wildlife's (DFW) Biodiversity Initiative, which seeks to maintain and restore the native diversity of 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:

1) To build and maintain a forest inventory and property boundary geo-database with GIS land-cover maps, and establish property boundary lines in the field for each wildlife management area (WMA).

2) To 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.

3) To 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 ≤30 years old, 10-15% biologically mature forest habitat ≥150 years old, and 65-75% mid-successional forest habitat 30-150 years old. The Forestry Program Leader and two Management Foresters conduct commercial forest harvesting operations through a public, competitive bidding process in compliance with Division 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, Division foresters consult with District staff to address local access and aesthetic issues, and with personnel from the Division'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.

Forest Certification

During FY 10, DFW completed the two Major Corrective Action Requests (CARs) that resulted from the 2009 Forest Stewardship Council (FSC) re-certification audit. The CARs required DFW to identify all state wildlife lands appropriate for FSC certification, and to make publicly available all biological monitoring data DFW maintains to verify that forest cutting practices employed by the agency are sustainable on an ecological, economic, and social basis. DFW completed a public review of appropriate lands for certification in January

2010 (http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/response_public_comment.htm), and completed a searchable public database of biological monitoring data in June 2010 (http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/bio_monitoring.htm). DFW has requested confirmation from the FSC sanctioned auditor that all preconditions for re-certification have been met.

Forest Inventory & Analysis

Staffing limitations prevented the DFW Forestry Program from completing any additional inventories on lands acquired in the past few fiscal years. The current status of DFW Forestry Program inventory and analysis is available at: http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/forest_inventory.htm.

Boundary Marking

DFW foresters and contractors conducted boundary research, field reconnaissance, and/or marking at multiple properties in FY 10, including: 1) the Hawley Natural Heritage Area (NHA) (1.75 miles of boundary location and marking); 2) the Ashfield-Hawley WMA (2.0 miles of boundary location and marking); 3) the Housatonic River Access Area (reconnaissance); 4) the Fox Den WMA in Worthington (1.0 miles of boundary location and marking); 5) the Eugene Moran WMA in Windsor (0.5 miles of boundary location and marking); 6) the Powell Brook WMA in Cummington (4.5 miles of boundary location and marking); 7) the Hawley NHA (6.2 miles of boundary location and marking); 8) the Rowe NHA (0.5 miles of boundary location and marking); 9) the Westfield River Access Area (1.3 miles of boundary location and marking); 10) the Southampton WMA (located and flagged 3.0 miles of boundary); and 11) the Muddy Brook WMA in Hardwick (field reconnaissance on 0.5 miles of boundary). Overall, some 20 miles of boundary were marked by DFW foresters and contractors in FY 10.

Boundary research includes review of deed and survey records. It also includes field work to locate and assess potential physical boundary markings (e.g., iron pins, stone piles, rail fence, barbed wire, stone wall segments, old blaze lines or paint lines). Boundary marking also includes physical scribing of tree bark and subsequent application of yellow boundary marking paint and DFW boundary signs.

Forest Harvesting Operations & Management Activities

Post-harvest field assessments were conducted at the Stafford Hill WMA in Cheshire (aspen regeneration), the Birch Hill WMA in Royalston (abandoned field white pine regeneration), and the Muddy Brook WMA in Hardwick (abandoned field/white pine regeneration). Post-harvest assessment involves checking condition of water bars on access roads, stability of stream crossings and wetland crossings, and occurrence of ATV trespass activity.

Timber sale preparation occurred at the Whately WMA (old-field/white pine regeneration), at the Southwick WMA (shrubland restoration), at the Patrill Hollow portion of the Muddy Brook WMA in Hardwick (pitch pine/scrub oak restoration in cooperation with the DFW's Ecological Restoration Program), and at the High Ridge WMA in Gardner (old-field/white pine regeneration). Timber sale preparation includes marking trees to be cut and marking 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 habitats, and priority natural communities; layout of temporary access roads, placement of water bars and other erosion control structures, and preparation of Chapter 132 Forest Cutting Plans.

All harvesting operations on DFW lands are prepared in compliance with the agency'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 - ARCs), 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., insure that small diameter, unmerchantable stems are cut to facilitate regeneration of quality hardwoods, insure that retained trees are protected from damage by logging machinery, insure that logging slash is reduced throughout the cut to facilitate public access, and insure 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 generally 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 one 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

Regular monitoring is essential for practicing adaptive natural resource management and typically includes: 1) vegetation sampling to determine the relative abundance of all vascular plants in the forest understory and overstory, and to determine regeneration success of

desired tree species on harvested sites; 2) identification and location of invasive plants for subsequent control efforts; 3) identification and location of rare plants in order to design appropriate mitigation during harvesting activities; 4) photo documentation of pre- and post-harvest conditions; and/or 5) wildlife sampling to determine habitat use (e.g., breeding bird surveys, butterfly/moth surveys).

During FY10, biological monitoring occurred at the Tracy Camp and Mongue Road portions of the Peru WMA (vegetation sampling at a Norway spruce plantation conversion site and an aspen regeneration site, respectively), the Stafford Hill WMA in Cheshire (vegetation sampling at an aspen regeneration site), the Chalet WMA in Dalton (northern hardwood young forest regeneration), the Fox Den WMA in Middlefield (vegetation sampling at an aspen regeneration site), the Hiram Fox WMA in Chesterfield (old-field/white pine regeneration), and the Montague Plains WMA in Montague (vegetation sampling at a pitch pine/scrub oak restoration site). Monitoring results are available at: http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/plant_surveys.htm

Upland Habitat Management Program

The Upland Habitat Management Program (Upland Program) of MassWildlife 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:

1) 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.

2) Implement strategies and techniques to manage and restore declining early-successional habitats to ensure they continue to support native flora and fauna.

3) 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.

4) Identify habitats where Upland Program objectives are complementary with Ecological Restoration Program objectives, and pursue joint endeavors with that program.

Abandoned Field Reclamation Projects:

Staff reclaimed/maintained about 56 acres of abandoned fields, abandoned orchards, savannah, and/or aspen forest across the state using a combination of private machinery operators. Work occurred at the following locations:

Site Name	Town	Habitat Type	Objective	Acres
Eugene Moran WMA	Windsor	Shrubland	Maintain	6.6
Leyden WMA, North	Leyden	Shrubland	Reclaim	9.5
Noquochoke WMA	Dartmouth	Shrubland	Reclaim	40.0
Total				56.1

Eugene Moran WMA: About 6.6 acres of a 43.3 acre maintenance mowing/mulching operation was completed in January 2010. Deep snow prevented further work, so completion was re-scheduled until summer/fall of 2010 (FY 11). Scattered mast-producing trees, den/cavity trees, wild apple trees, and native shrubs were retained within these 6.6 acres.

Leyden WMA, North: A total of 9.5 acres of abandoned blueberry fields were reclaimed using a combination of hand-felling of invading trees and subsequent mulching of woody material with a tracked excavator outfitted with a 'Brontosaurus' rotating drum mower. 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 (no woody material was removed from the site).

Noquochoke WMA: About 40 acres of abandoned fields were reclaimed using a tracked ASV mulching mower to clear invading trees and invasive plants. Native fruit producing shrubs were retained.

Invasive Plant Control:

Staff used selective herbicide and mechanical treatments to control invasive plants on 156 acres of project sites using a combination of private applicators and DFW field staff time. Work occurred across the state at the following locations:

Muddy Brook WMA: A total of 71 acres of reclaimed abandoned fields were treated to control invasive plants by contracted licensed pesticide applicators. Herbicide was selectively applied using powered backpack mist-blowers to control multiflora rose, oriental bittersweet, exotic honeysuckles, autumn olive, and other invasive woody plants.

Dunstable Brook WMA: A total of 38 acres of reclaimed abandoned fields were treated to control invasive plants by contracted licensed pesticide applicators. Herbicide was selectively applied using powered backpack mist-blowers to control multiflora rose, exotic honeysuckles, autumn olive, and other invasive woody plants.

Eugene Moran WMA: A total of 47 acres were treated to control invasive plants by contracted licensed pesticide applicators. Herbicide was selectively applied using powered backpack mist-blowers to control exotic buckthorns and other invasive woody plants.

Invasive Plant Control Treatments FY 2010				
Site Name	Town	Habitat Type	Treatment Type	Acres
Muddy Brook WMA	Hardwick	Shrubland	Initial foliar herbicide treatment	71
Dunstable Brook WMA	Dunstable	Shrubland	Initial foliar herbicide treatment	38
Eugene Moran WMA	Windsor	Shrubland	Foliar herbicide follow-up	47
Total				156

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 2010, breeding bird surveys occurred on about 680 acres across 12 different sites on nine different properties using a combination of independent contractors and DFW field staff time.

Site	District	Survey Type*	Acres
Martin Burns WMA	Northeast	B	50
Frances Crane WMA, North	Southeast	B	100
Frances Crane WMA, South	Southeast	B	70
Muddy Br. WMA, Patrill Hollow	Central	B	100
Muddy Br. WMA, Jackson Road	Central	B	40
Winimussett WMA	Central	B	50
Westborough WMA	Central	B	40
Leyden WMA, North	CT Valley	B	50
Stafford Hill WMA, North	Western	B	50
Stafford Hill WMA, South	Western	B	50
Eugene Moran WMA	Western	B	40
Fox Den WMA	Western	B	40
Total			680

*B = Breeding bird survey

The results from the various monitoring efforts indicated that target species of greatest conservation need benefit from Upland Program management activities. Data continue to indicate that following initial reclamation work, target species abundances peak at 5-6 years following treatment, and therefore maintenance mowing should typically be applied every 8-10 years.

Keystone Program

The Upland Program provided limited funding to fund the Keystone (formerly 'Coverts') Program, a three-day forestry and wildlife habitat conservation workshop for individuals who are in a position to impact conservation in their communities (keystone individuals). These individuals may, for example, serve on local Conservation Commissions and/or Land Trusts, or may own undeveloped property available for wildlife habitat management. The 25 community leaders who participated in the Keystone workshop in the spring of 2010 are responsible for the stewardship and management of more than 1,000 acres of private, land trust, or municipal lands. Dr. David Kittredge, the UMass Cooperative Extension Forester, and Mr. Paul Catanzaro, Extension Forestry Specialist, organize the workshop, and invite knowledgeable speakers to discuss a variety of 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.

Massachusetts National Archery in the Schools Program (NASP)

This program, developed by the National Archery in the Schools Program (NASP), offers international-style target archery training through a national standardized education package. The National Archery in the Schools Program and the Archery Trade Association has partnered with the MDFW and the Massachusetts Outdoor Heritage Foundation to promote student education and lifelong interest and participation in the sport of archery.

NASP has developed a curriculum for grades 4-12 that includes social studies, mathematics, and physical education. Since its inception in 2002, more than 4 million students in 4,900 schools located in 46 different states have participated in NASP. Massachusetts is now the 47th state. DFW selected ten pilot schools statewide to begin the program in the state. These ten pilot schools are:

Brockton High School
Brockton, MA 02301

Lee Middle and High School
Lee, MA 02138

John F. Kennedy Middle School
Northampton, MA 01062

Saugus Public Schools
Saugus, Massachusetts 01906

Westport Middle School
Westport, MA 02790-1160

Douglas High School
Douglas, MA 01516

Mahar Regional High School
Orange, MA 01364-9538

Northeast Metropolitan Regional Vocational H.S.
Wakefield, MA 01880

Waconah Regional High School
Dalton, MA 01226-1355

Burncoat Middle School
Worcester, MA 01606-2405

The Division of Fisheries and Wildlife was awarded $35,000 in grants from the National Archery in the Schools Program and the Archery Trade Association (ATA) to purchase necessary equipment: bows, arrows, targets, safety curtains, bow holders, and curriculum material for the 10 pilot schools and for training kits to be used by DFW staff. The pilot schools selected one to two physical education teachers to participate in a free one-day training program conducted by NASP-certified instructors. This provides a valuable professional development opportunity.

In May, 2010, teachers from the 10 selected school districts received training as Basic Archery Instructors (BAI) certified to teach the NASP curriculum during a one-day course hosted by the John F. Kennedy Middle School in Northampton. Seven teachers and two DFW staff members were also trained there as Basic Archery Instructor Trainers (BAIT).

Studies have shown that the National Archery in the Schools program improved the students' self confidence, motivation, behavior, concentration and focus, and interest in going to school.

For more information about this program, or to view the curriculum, visit www.nasparchery.com If you are interested in being one of the participating schools in Massachusetts, please contact Thomas K. O'Shea, Assistant Director, Wildlife and NASP State Coordinator by telephone at (508) 389-6327 or by email tom.o'shea@state.ma.us.

Youth Pheasant Hunting Program

The **Massachusetts Youth Pheasant Hunt Program** was developed by the Massachusetts Division of Fisheries and Wildlife to provide an opportunity for 12 - 17 year old Hunter Education graduates to practice firearms safety, develop shooting skills, and participate in a special pheasant hunt with a safe, experienced hunter in a friendly environment. The program is run by participating local sportsmen's clubs. Hunter safety is emphasized in all aspects of the program to help build the confidence of young hunters so they can feel comfortable hunting alone or with others in the field.

This program is more than just a day in the field pheasant hunting. It is a comprehensive, three-part recreational program:

1) Shooting Instruction and Practice

2) Pre-hunt Workshop

3) Youth Pheasant Hunt

Part One of the program, shooting instruction and practice, takes place during the summer or early fall. Part Two, the pre-hunt workshop, is held a week or two before the youth pheasant hunt. The actual hunt (Part Three) is scheduled for a Saturday prior to the mid-October start of the regular pheasant hunting season.

Fall 2009 Participating Clubs included:

Club	# of Particip.	Date of Hunt	Location of Hunt
Carver Sportsmen's Club	22	10/3	
Concord Rod & Gun Club	6	10/3	High Ridge WMA
Essex County League (Danvers)	15	9/26	Martin Burns WMA
Falmouth Rod & Gun Club	6	10/3	
Fitchburg Sportsmen's Club	3	9/19	High Ridge WMA
Fin Feather and Fur Club	7	9/26	Poland Brook WMA
Lee Sportsmen's Association	9	10/10	Hop Brook WMA
NORCO Sportsman's Club	5	10/10	
Singletary Rod & Gun Club	3	10/3	Club Grounds
Worthington Rod & Gun Club	6	10/3	Knightville WMA

The Massachusetts Youth Turkey Hunting Program

This program was developed by the Division of Fisheries and Wildlife in cooperation with the Massachusetts Chapter of the National Wild Turkey Federation to provide an opportunity for 12 – 17 year old hunter education graduates to practice firearms safety, develop shooting skills, turkey hunting techniques, and participate in a special one day turkey hunt under the guidance of a safe, experienced hunter.

The program is offered by participating local sportsmen's clubs in partnership with local chapters of the NWTF. It is a comprehensive, three-part outdoor education program in which hunter safety is emphasized throughout to help build the confidence of young hunters so that they will feel comfortable hunting either alone or with others.

The youth turkey hunt program takes place in the spring. Shooting instruction, practice, and pre-hunt workshop take place two or three weeks prior to the day of the hunt. The actual turkey hunt takes place on the Saturday prior to the last Monday in April.

A one-day mentored Youth Turkey Hunt was held on the Saturday preceding the opening of the spring turkey hunting season. A total of 154 youths (sponsored by 10 clubs) completed the pre-hunt training and field exercise, 90 of whom were 12 – 14 years old and 64 were 15-17 years old. Of the eligible 154 youths, 47 (31%) succeeded in harvesting a turkey on the youth day. Previous year Youth Turkey Hunt Program participants (62) returned to participate in the Youth Turkey Hunt Day, but did not need to repeat the pre-hunt training and field exercise. There were 92 new participants in the pre-hunt workshop and the Youth Turkey Hunt day. The following sportsmen's clubs participated in the program in cooperation with the state chapter of the National Wild Turkey Federation (NWTF):

Auburn Sportsmen's Club, Auburn
Barre Sportsmens Club, Barre
Carver Sportsmen's Club, Carver
Cheshire Rod & Gun Club, Cheshire
Conway Sportsmen's Club, Conway
Essex County Sportsman's Assn., Salisbury

Falmouth Rod and Gun Club, Falmouth
Fitchburg Sportsmens Club, Ashburnham
Lee Sportsmen's Club, Lee
NORCO Sportsmans Club, Princeton
Worthington Rod and Gun Club, Worthington

Wild Turkey Survey and Harvest

The 20th modern-day fall either-sex turkey season was held from October 26-31, 2009. The open zone included Wildlife Management Zones (WMZ) 1-9 and 13. A total of 57 turkeys were taken, including 16 in Worcester County (27.6%), 14 in Hampshire County (24.1%), and 12 in Franklin County (20.7%). Overall, there were 30 females and 27 males harvested.

The 31st Massachusetts spring gobbler hunt was held in April and May 2010. The 4-week open zone included WMZs 1-13. A record 16,904 applications were received, and a harvest of 2,745 turkeys was attained, the second highest harvest in the history of spring turkey hunting in Massachusetts. The estimated overall success rate for taking one bird was 13.6, as compared to 14.3% and 15.4% in 2008 and 2009 respectively. Harvest included 2040 adult males, 683 immature males, and 22 bearded hens.

Ruffed Grouse Surveys

In 2010, the 16th year of the annual ruffed grouse drumming survey was completed; of 29 existing random routes, 18 were active and 11 were in constant zero status; 7 subjective routes were surveyed. The average number of drumming events heard per stop (ANDS) per route for all random routes statewide was 0.16, a slight decline from 2009 (0.18). ANDS per route was highest in the Western and Connecticut Valley Districts (0.31 and 0.18 respectively) but slightly below the ANDS computed in 2009 (0.40 and 0.28). ANDS increased slightly in the Central District in 2010 (0.17). ANDS per subjective route (n = 7) was approximately 3X higher (0.53) than random routes (0.16), and remained comparable to the ANDS per subjective route recorded in 2007-2009 (0.51-0.54).

Distance sampling efforts to measure fall grouse abundance were continued in September though mid-October 2009. Transects were completed in Wildlife Management Zones 5 and 4N. Twenty two (22) transects covering 162.7 km were sampled from August 31 – October 14, 2009. Approximately 16 flushes and a total of 17 grouse were recorded, resulting in a flush rate of 0.10 grouse/km.

American Woodcock Surveys

Nine (9) randomized road-side spring woodcock singing-ground surveys were conducted in 2010 from April 20-May 10. The average number of singing woodcock heard per active route in 2010 (2.9) was slightly less than recorded in 2009 (3.3). More than two woodcock were heard on five of the nine active routes. One woodcock was heard on two routes. No woodcock were detected on the remaining two routes. In general, population modeling conducted by the U.S. Fish and Wildlife Service (USFWS) indicates that woodcock populations have remained stable over the past seven years in the Eastern Management Unit (Atlantic Flyway).

The Eastern Cottontail is more delicate in size, bone structure, and ability to withstand cold and snow, and has a finer, shorter coat than its larger snowshoe cousin.

Mourning Dove Surveys

Mourning dove populations, like many other species, are evaluated through a series of roadside breeding call surveys. The average number of mourning doves heard per route on all eight Call Count Survey routes in 2010 was 14.4, slightly lower than recorded in 2008 and 2009 (13.5 and 15.4 respectively), but slightly higher than the 10 year average (14.0).

The USFWS 2010 Dove Population Status report indicated that the breeding population index based on number of doves heard on New England routes was 11.2, a slight increase from 2009 (11.0). Dove populations in New England have demonstrated stable populations over the past 2, 10, and 45 year time periods.

Bobwhite Quail Surveys

Across southeastern Massachusetts in Bristol, Plymouth, and Barnstable counties, nine call count survey routes were completed for bobwhite quail during the first two weeks of July 2009. One quail was detected on each of nine survey routes; however, anecdotal reports of calling bobwhite quail are common. In general, quail call counts have declined substantially over the past 10-20 years across their range. This decline has been particularly evident at the periphery of their range here in southern New England. Loss of suitable agricultural, open, and other early seral habitats are the principle factors influencing quail populations in the northeast.

New England Cottontail Surveys and Habitat Restoration

The Division of Fisheries and Wildlife has begun work in concert with other New England states to help conserve our only native cottontail, the New England cottontail. Throughout the winter of 2009-2010, DFW biologists

surveyed approximately 12-14 sites to collect fecal pellets that will undergo DNA analysis to determine if they came from New England cottontails or eastern cottontails. Results from these surveys and additional GIS analyses will be used to evaluate and prioritize sites on public land where habitat management will occur. Additional pellet collection surveys and habitat management planning will continue over the next several years.

Waterfowl Project

Division personnel continued to conduct nest box checks on 52 sites used to monitor wood duck populations statewide. The spring of 2009 was normal with better than normal nest success. Wood ducks experienced an 87% success rate while that for hooded mergansers was 76%. There were 311 wood duck nest starts in 579 available boxes with 270 successful hatches This is 8 more than last year, but well below the peak of 352 in 1995. In addition, there were 101 hooded merganser hatches from 131 starts, similar to last year and well above the 36 hatches recorded in 1995.

Massachusetts participates in the Atlantic Flyway Resident Goose Banding Program. The goal is to band 1000 geese each year to provide data for the federal database. Geese are captured in round ups conducted during their summer molt period. A total of 1,033 Canada geese were banded at 73 sites in 67 cities and towns. The total included 486 goslings and 547 adults. Crews also captured an additional 261 previously banded geese.

2009 was the fourth year of use for the DFW's new airboat and the first year in which there were no mechanical problems. Remounting the radiator on rubber bushings to reduce vibrations, and adding primary and secondary screens to the radiator that could be cleaned daily, appear to have eliminated the overheating problems experienced in the past.

Staff banded 819 birds in total, with catches ranging from 2 to 164. This was the highest season total since 1999. Among the birds banded were 589 wood ducks, 140 mallards, 7 American black ducks, 42 green winged teal, 32 blue wing teal, 6 hooded mergansers, 2 pied billed grebes and 1 sora rail. In addition, two members of the Western Mass Duck Hunters Association banded 14 mallards, 2 black ducks, and one wood duck in 5 nights of bait trapping.

During September 8 - 25, the DFW authorized a resident Canada goose season with a seven bird daily bag limit. The Migratory Bird Hunter Harvest Information Program (HIP) of the U.S. Fish and Wildlife Service estimated a September season harvest of 4,200 geese. This compares to a harvest estimate of 4,600 in September 2008; 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, though Massachusetts does not allow more than four of any one species. The Canada goose season was 60 days long with a two bird daily bag limit in the Central and Coastal waterfowl hunting zones, and 45 days long with a three bird bag limit beginning October 20 in the Berkshire zone.

The annual Midwinter Waterfowl Survey was flown in January 2010 entirely with USFWS personnel. December 2009 was colder than normal with above average snow fall, but conditions moderated in January. American black duck numbers were 4% lower than in 2009, but 4% above the 10 year average, with 18,599 counted. The mallard count of 2,452 was 29% below the 2009 count and 38% below the 10 year average. Both Canada goose and Atlantic brant numbers were below last year and their 10 year averages (Geese -18%; brant -14%). Seaduck numbers were lower than normal.

Between January 15 and February 15, 2009, Massachusetts held a late, resident Canada goose season in the Central waterfowl zone, while the season in that portion of the Coastal zone north of Cape Cod ran January 18 to February 15 with a 5 bird daily bag in each zone. The USFWS estimated a harvest of 2,900 geese compared to 1,200 in 2009; 2,300 geese in 2008; and 3,100 birds in 2007.

During April and May, Massachusetts participated in the Northeastern states waterfowl breeding survey which is based on sampling randomly selected one kilometer square plots. DFW biologists checked 92 of the 1,485 plots used in the survey. The population estimate for mallards in the Northeast was 321,830 pairs $\pm$ 14%. The estimate for black ducks was 17,823 pairs $\pm$ 33%; wood ducks, 173,898 pairs $\pm$ 18%, and Canada geese, 329,638 pairs $\pm$ 13%. Data from this survey is used to set hunting season regulations tailored to the Atlantic Flyway.

Massachusetts entered its 12th year of the new federal Migratory Bird Hunter Harvest Information Program (HIP). HIP replaced the old survey based on collecting names of duck stamp buyers at post offices, and allows for more specialized surveys of various migratory bird species. Waterfowl and woodcock hunters are required to register each time they buy a new license by calling a 1-800 number. Hunters are also able to register on line through the state's internet registration system when buying a Massachusetts' state hunting or sporting license.

This year we conducted a migratory bird hunter survey using a questionnaire similar to one used in 1997 and 1986. Questionnaires were mailed to 1,083 persons; both resident and non-resident who registered with Massachusetts' HIP survey and/or reported having shot waterfowl in Massachusetts during 2008. A second mailing was sent to non-respondents resulting in an over-all response rate of 65.5%.

Eight percent of respondents indicated that they did not hunt migratory birds and should not have registered with HIP; 68% were active waterfowl hunters; 12% were inactive hunters who did not hunt in 2008 but had hunted migratory birds in at least one of the previous

three years; and 11% did not hunt waterfowl but did hunt woodcock in 2008.

Of responding waterfowl hunters, 7.6% hunted only in the Berkshire Zone, 5.2% hunted both the Berkshire and Central Zones; 41.6% hunted only in the Central Zone; 16.7% hunted both the Central and Coastal Zones; 26.9% hunted only the Coastal Zone, and 2% hunted only for sea ducks.

The ages of migratory bird hunters in Massachusetts reflect the continuing trend of an aging hunter population with the bulk of current hunters aged 45-60 compared to 21-35 in 1974 when the survey was first conducted. The percentage of young hunters aged 15-21 has remained stable over the past dozen years at approximately 3%.

The results indicated strong support for a 2 day youth waterfowl hunt as opposed to a one day hunt. Historically, about half of the young hunters had participated in youth hunts currently or in past years. Nearly 16% of adult hunters had mentored a youth currently or in the past.

There was a strong preference for warm weather hunting in both the Berkshire and Central Zones, but November was the overall choice of Coastal Zone hunters followed by December. Sea duck hunters favored hunting in December and January.

Seventy percent of waterfowlers indicated they hunted specifically for Canada geese now, compared to 64% in 1997 and 55% in 1986. Thirty two percent of waterfowlers hunted for sea ducks, now up from 27% in 1997 and 17% in 1986. However, in both cases the total number of goose and sea duck hunters has declined as the number of total waterfowl hunters has declined.

Woodcock hunters hunted primarily early in the season and were satisfied with current season dates.

The project leader attended the technical section and Council meetings of the Atlantic Flyway Council in Prince Edward Island and Florida.

Massachusetts began issuing egg addling permits for resident Canada goose control under a new federal program begun in March, 2007. In 2009 the DFW issued 36 such permits, from which 29 reports were returned. The permittees reported addling 1,276 eggs in 252 nests. In addition, Wildlife Services with the USDA addled 598 eggs in 70 nests under the general permit we issued to them. Permittees who did not return their annual reports were ineligible to receive a permit in 2010.

Black Bear

Black Bear Distribution and Harvest Investigations

A record total of 7,065 bear hunting permits were issued for the 2009 hunting season. A total of 169 bears (100 in 2008) were taken during the 35-day season, including 140 during the 17-day September segment and 29 during the 18-day November segment. Seventy-six males, 92 females and one unknown were taken in Berkshire (n=61), Franklin (n=42), Hampden (n=27), Hampshire (n=35), Middlesex (n=1) and Worcester (n=3) counties. There were 11 additional mortalities in FY 10, including 7 road kills, 2 depredation kills (1 crop damage and 1 campground) and 2 unknown mortalities. A total of 60 problem bear complaints were received in from July 1 –Dec. 31, 2009, primarily including 4 depredations on bird feeders, 21 residential complaints, 15 trash/garbage complaints, and 19 depredations or attempted depredations on poultry or livestock, agricultural crops, or beehives. Additional untallied complaints were received by the Office of Law Enforcement and local officials. A new report collection system was put into place beginning in April, 2010, and reports will now be tallied for the calendar year. The number of problem bears reported in calendar year 2008 was 118.

Black Bear Cub Production and Survival

Eight of 11 radio-collared sows were successfully handled or observed during the winter of 2010 or during barrel trapping in the spring/summer of 2010. Five yearlings and three incidental sows were captured in dens, urban situations, or in barrel traps (trapping ongoing through July). In 2009, a pilot habitat study began in conjunction with the Massachusetts Cooperative Fish & Wildlife Research Unit. Of the eight dens that were visited, cubs (8 male and 2 female) were handled in five dens. Three GPS collars were deployed in 2009 which were removed during 2010 and sent to the manufacturer to be refurbished. Five GPS collars were deployed in 2010 and 8 additional collars will be available for winter den work in 2011.

Furbearer Program

Overview

The furbearer program is responsible for the management and research of 14 species. 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 extremely 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 furbearers.

Harvest and Population

These activities provide recreational and economic opportunity for citizens and households in the state. A total of 2,939 furbearers were harvested in the 2009-2010 season. The harvest (a combination of hunted, trapped, and/or salvaged) by species was: 508 beaver, 53 bobcat, 598 coyote, 262 fisher, 78 river otter, 53 red fox, 46 gray fox, 186 raccoon, 34 mink, 1 weasel, 16 skunk, 30 opossum, and 1,074 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, and to reduce negative interactions associated with high wildlife populations. 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 Problem Animal Control (PAC) agents.

The Massachusetts DFW carefully regulates the harvest of furbearing animals. The Commonwealth has complex laws and regulations that govern 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

The bobcat harvest quota of 50 animals was removed during the 2009-2010 hunting season following a review and subsequent regulatory changes. The requirement to check bobcats "within four working days of harvest" was changed to "within four working days of the end of the season."

Research Efforts

Questions related to furbearer hunting were added to the DFW annual hunter survey. Twenty percent of hunters responded that they hunt furbearers in Massachusetts. Thirteen percent of hunters responded that they hunted furbearers during 2009. Of the people that hunted furbearers in 2009, they reported targeting the following species (hunters could choose multiple species): 7.3% targeted bobcat, 61.0% targeted coyote, 14.1% targeted red fox, 9.3% targeted gray fox, 4.7% targeted raccoon, 1.4% targeted opossum, 1.4% targeted skunk, and 0.8% targeted weasel. Coyote hunting accounts for the majority of furbearer hunting in Massachusetts.

Bobcat sighting questions were added to the annual hunter survey in order to calculate a bobcat sightability rate by town and by wildlife management zone. Of the 5,192 hunters that responded to the bobcat questions, 398 stated that they had observed at least one bobcat while hunting deer. Sightability rates are currently being calculated based on this response data.

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 2009-2010 harvest season, the DFW sealed 1,632 pelts.

Wetland/Beaver Management

Between 1996 and 2000, the beaver population tripled in size as a result of a ban on certain types of traps enacted through a referendum in 1996. Complaints about flooding have 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 947 beaver from April 16, 2009 through April 15, 2010. There may be minimal overlap from some PAC reports of beaver taken during the season which may have been tagged at Division check stations; however, this number is likely a minimum estimate of the true number of beaver taken. This estimate does not include the number of beaver removed by PAC agents during 2010 because their permits operate on the calendar year and 2010 reports will not be available until January 2011.

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 "Moving Wildlife is Illegal" handout/poster was also developed and made available on the DFW website.

Wildlife Welfare and Disease Program

Division biologists field calls from the public regarding various wildlife diseases including rabies. The Furbearer Project Leader represents DFW as a member of the interagency Zoonotic Disease Advisory Committee (ZDAC) and regularly attends ZDAC meetings. Through these ZDAC meetings during 2009, the Furbearer Project Leader assisted MDPH in creating guidelines for which wildlife species should always be tested for rabies, which species require approval for testing, and species for which rabies testing is not appropriate.

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, 2010, 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 September 1992 - December 2009, 5,431 animals including 2,919 raccoons, 1,592 skunks, 446 bats, 155 foxes, 166 domestic cats, 91 woodchucks, 15 cattle, 10 domestic dog, 10 coyote, 4 otter, 2 fisher, 3 bobcat, 1 deer, 1 muskrat and 16 others have tested positive. In 2009, 2,468 animals were submitted to the State Laboratory Institute (SLI) for rabies testing. Of these specimens, 128 tested positive (in 2008: n=154 positives). Raccoons, skunks, and bats accounted for 78% (n=100) of all positive animals. Currently, rabies is confirmed in all counties in Massachusetts, except Nantucket and Dukes.

Statewide, bats continue to test positive for rabies. In 2009, of 698 bats tested, 21 (3.0%) tested positive for rabies. This strain of rabies has been present in Massachusetts since the 1950s.

Deer Project

Harvest and Population

The statewide 2009 harvest of 10,581 deer represents the 10th highest harvest reported in Massachusetts since 1966 (Table 1). The 2009 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 7% decrease in harvest from the 2008 hunting season, although the 2009 archery harvest was the 2nd highest on record, falling slightly below the 2008 season. Many hunters noticed a large acorn crop in 2009, which often results in fewer deer being sighted, as deer are not forced to travel extensively for food. Also, as deer populations have begun to reduce and approach deer management goals, fewer antlerless deer permits are issued and fewer deer are ultimately harvested. The 2009 deer harvest by season and wildlife management zone is in Table 3.

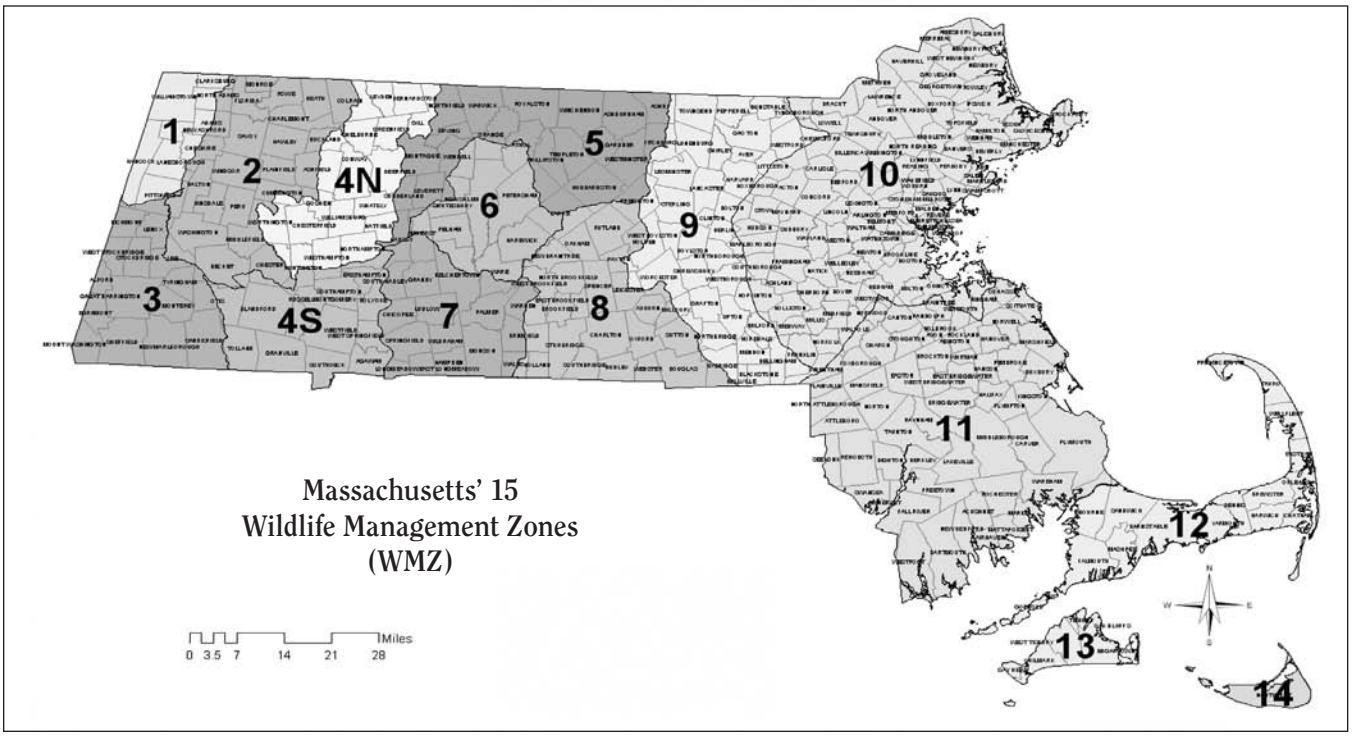
As in previous years, the antlerless deer permit system requires a hunter to have an antlerless deer permit to harvest an antlerless deer in any deer season. This permit system increases hunter opportunity statewide while regulating deer harvest across all WMZs. The DFW has achieved its recommended deer density goals in 10 of the state's 15 WMZ (1, 2, 3, 4N, 4S, 5, 6, 7, 8 and 12) in mainly western and central Massachusetts. Challenges still remain in eastern zones because of hunter access issues and high deer densities.

Currently, the deer population statewide is estimated to be between 90,000 and 95,000. Densities range from 10-12 deer/mile^2 in some areas of western and central Massachusetts to over 50 deer/mile^2 on the islands of Martha's Vineyard and Nantucket in eastern Massachusetts.

The antlerless deer permit (ADP) allocation for 2009 was 37,950 permits, an 8% decrease from 2008, while 33,647 permits (88%) were actually issued. Of these permits, 23,516 (70%) were issued through the regular drawing process, 7,380 (22%) were issued over the counter at MassWildlife Offices and on the islands, and 2,751 (8%) were issued over the counter through the MassOutdoors website. These additional permits sold over the counter resulted in a bag limit increase in the WMZs where these permits were available.

Chronic Wasting Disease

In accordance with the USDA-APHIS guidelines for Chronic Wasting Disease (CWD) Surveillance, the DFW continued with its surveillance program. Deer heads were collected from each deer management zone to obtain the required samples to generate a statistically valid stratified sample for Massachusetts. During 2009, Massachusetts collected 489 samples from hunter-harvested, road-killed, and targeted deer from across the state for CWD monitoring and testing. This was the eighth year of sampling in Massachusetts as part of a nationwide CWD monitoring and surveillance program. Results indicated that CWD was not detected. We will continue surveillance efforts in the 2010 deer harvest



Massachusetts' 15 Wildlife Management Zones (WMZ)

season with funding provided by the USDA-APHIS, especially in the WMZs that border New York and/or have captive deer facilities.

Moose Project

Traditionally, the Division of Fisheries and Wildlife (DFW) has collected data concerning moose sightings from the public, from reports of moose found dead, and from moose vehicle accidents (MVA). These indices are used for determining population trends and for estimating the moose population in Massachusetts. There have been 1,350 reports submitted to DFW concerning moose since 1924. In 2009 there were 29 reports made to DFW concerning moose which included 15 MVA, 4 sightings, 2 moose found dead, 1 illegal kill report, 2 LART responses, and 4 reports of sick or injured moose. The trend in moose sightings reported to DFW continues to decline, although there was a slight increase in reported vehicle collisions from 2008.

Figure 1 shows the average number of moose vehicle accidents per month from January 1980 through December 2009. Moose vehicle accidents 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 334 MVA in Massachusetts from 1980 to 2009 (Table 4) reported to DFW. Figure 3 shows the number of MVAs by town from 1980 to 2009. The MVA rate for 2009 was 1.25 moose per month, which is a 25% increase from the 2008 (Figure 2). The 2009 MVA rate is below the 5 year MVA average of 1.93 per month, and the 10 year average of 2.13 per month. This is a minimum number since the MVAs are not always reported to DFW or to the Environmental Police, and we learn about some MVAs indirectly through newspaper reports.

The current moose population in Massachusetts is estimated to be between 850 and 950 animals. The DFW uses a basic population model that incorporates sighting rates from the deer hunter survey and available moose habitats in the 12 Wildlife Management Zones (WMZ) that have potential as moose habitat. Cape Cod and the islands are not included in the estimate, as they do not have potential moose habitat.

Moose were included in Chronic Wasting Disease surveillance and monitoring for 2009. Chronic Wasting Disease was not detected in any moose.

In 2009, the DFW worked with USGS Cooperative Fish and Wildlife Research Unit using GPS collars to evaluate movement and habit use in Massachusetts at a detailed level. Moose were captured during the fall and winter of 2009, which was one of the most successful capture seasons. A total of 34 moose have been captured since the start of the project in 2006, including 20 males and 14 females. Twenty one of the moose were free-ranging. They were stalked, darted, and fitted with GPS collars. Three moose were successfully approached and darted with the aid of VHF radios on GPS collars that had previously been placed on the animals; the moose were then recollared with new GPS collars. Ten moose have been captured and transported from urban problem areas and fitted with GPS collars.

Full or partial datasets have been downloaded from 25 animals since the beginning of the project in 2006, and the project is increasingly focused on compiling and analyzing that data. The collars performed well and obtained between 1000 and 9000 locations per animal. Capturing efforts have ceased at this time and will not occur in the fall of 2010. Graduate student Dave Wattles is currently analyzing the collected moose data in collaboration with the Division as part of his graduate research.

Table 1. The 2009 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	0	2	1	1	4	0.04%
Archery	2322	983	156	31	3492	33.00%
Shotgun	2424	2049	440	14	4927	46.56%
Muzzleloader	684	1100	152	22	1958	18.50%
Sub-Total	5430	4134	749	68	10381	98.11%
Quabbin*	66	115	19	0	200	1.89%
State	**5496**	**4249**	**768**	**68**	**10581**	**100.00%**

Controlled hunt in cooperation with DCR – Limited Access

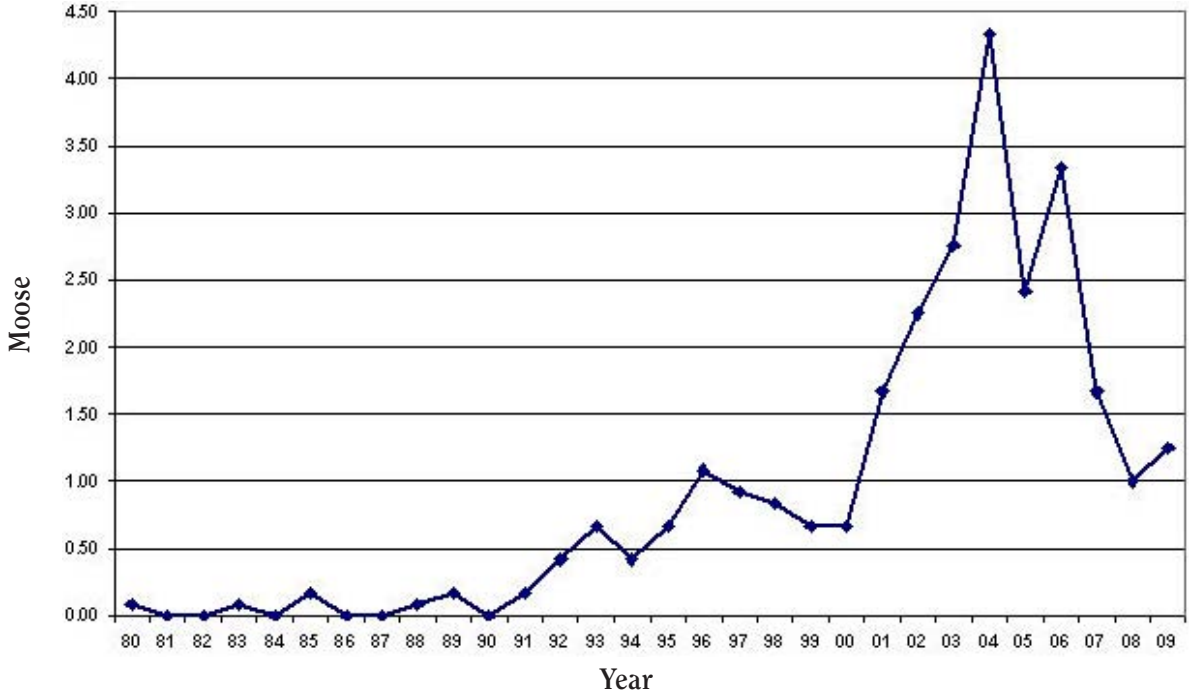
Table 2. The 2010 White-tailed Deer harvest by deer sex/age and the number of antlerless deer permits allocated and issued by Wildlife Management Zone for Massachusetts.

WMZ	Adult Male	Female	Male Fawn	Sex Unknown	Total Harvest	Goal	ADP Allocation	ADP Issued
1	118	66	19	1	204	Stabilize	750	722
2	244	34	2	0	280	Stabilize	200	193
3	331	242	25	0	598	Stabilize	2250	2146
4N	275	90	10	1	376	Stabilize	400	375
4S	159	44	6	0	209	Stabilize	300	278
5	399	200	25	1	625	Stabilize	1450	1414
6	112	61	3	0	176	Stabilize	450	431
7	346	235	44	1	626	Stabilize	2400	2273
8	549	360	39	0	948	Stabilize	2900	2761
9	512	369	83	13	977	Stabilize	4000	3759
10	797	855	154	23	1829	Reduce	8500	8182
11	1067	898	182	5	2152	Reduce	8400	8024
12	124	71	6	0	201	Stabilize	550	522
13	220	339	69	0	628	Reduce	2700	1377
14	190	270	83	7	550	Reduce	2700	1189
Unknown	1	0	0	1	2			1
Statewide	**5444**	**4134**	**750**	**53**	**10381**		**37,950**	**33,647**

Table 3. The 2009 deer harvest by wildlife management zone and season.

WMZ	Paraplegic	Archery	Shotgun	Muzzleloader	Unknown	Total
1	0	40	127	37	0	204
2	0	78	139	63	0	280
3	1	151	329	117	0	598
4N	0	109	182	85	0	376
4S	0	71	80	58	0	209
5	0	186	299	140	0	625
6	2	35	98	41	0	176
7	0	186	324	116	0	626
8	0	226	518	204	0	948
9	1	357	429	190	0	977
10	0	826	640	363	0	1829
11	0	878	945	329	0	2152
12	0	44	104	53	0	201
13	0	157	372	99	0	628
14	0	148	340	62	0	550
Unknown	0	0	1	1	0	2
Statewide	**4**	**3492**	**4927**	**1958**	**0**	**10381**

Figure 1. Moose vehicle accidents (MVA) reported in Massachusetts from 1980 to 2009.



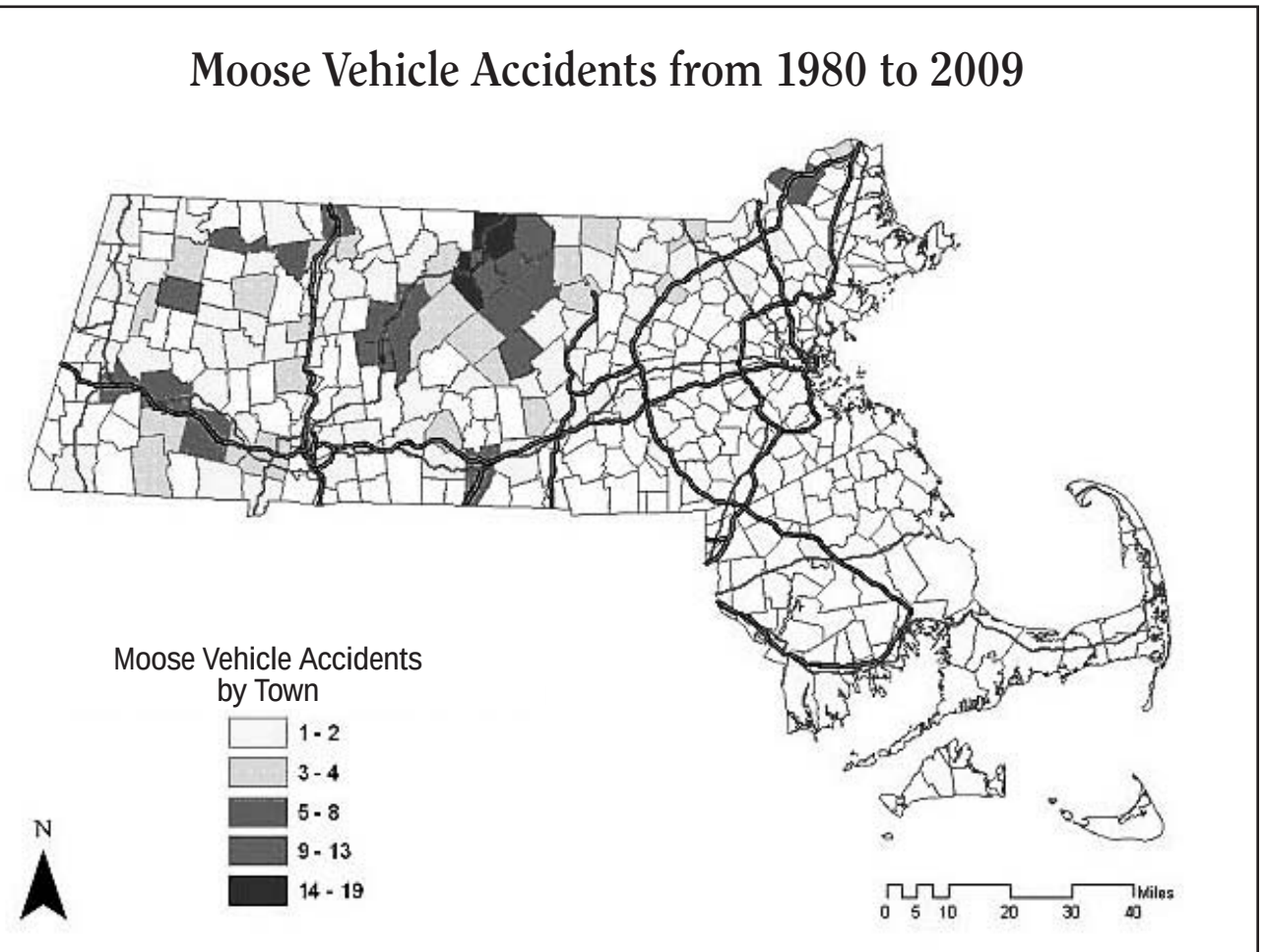


Figure 2. The number and location by town of the moose vehicle accidents reported from 1980 to 2009 in Massachusetts.

Table 4. The moose mortality reported in Massachusetts from 1980 to 2009.

Total MVA is the sum of roadkill and collisions, while 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
2009	15	0	15	8	23
Total	280	54	334	164	498

Human-Wildlife Conflict Trends in Mass.

A study related to human-wildlife conflicts and reports was initiated in 2010 as part of a graduate study through the USGS Cooperative Wildlife Research Unit at the University of Massachusetts. The goal of this study is to analyze wildlife report data generated through unsolicited phone calls and emails received from the public at each of the six MDFW field offices regarding a variety of wildlife related issues. This allows us to compile information that can be used to develop proactive management strategies effective at resolving human-wildlife conflicts. We intend to (1) determine the effectiveness of the current reporting form in providing appropriate information for investigating trends in human-wildlife conflicts and trends in the public's perception of human-wildlife interactions; (2) develop a new data collection system designed to capture objective information about human-wildlife interactions that can be analyzed more efficiently and more effectively; and (3) analyze trends of human-wildlife interactions and the associated concerns (public perception of interactions with wildlife) both spatially and temporally.

This new animal report data form was developed and tested at the Northeast Wildlife District Office and Westborough Field Headquarters from January to March 2010. After various iterations and revisions, the final version of the form was distributed to all District offices and officially replaced the old data form in April 2010.

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PRIVATE LANDS HABITAT MANAGEMENT

John O'Leary, Supervisor

Overview

Eighty percent of the land base in Massachusetts is privately owned, and many species classified as Special Concern, Threatened, or Endangered occur on private lands. Two of the programs administered by the Division of Fisheries & Wildlife (DFW) to enhance species habitat on private lands are the Landowner Incentive Program (LIP) and the DFW's Technical Assistance to the Natural Resources Conservation Service (NRCS). Where possible, these programs work with other DFW or Natural Heritage & Endangered Species Program (NHESP) staff when conducting site visits and providing technical assistance. The programs are designed to partner with private landowners to provide both financial and technical assistance for the benefit of Massachusetts's declining species, including Species in Greatest Need of Conservation as defined by the State Wildlife Action Plan; Massachusetts List of Endangered, Threatened, and Special Concern species as published by the Natural Heritage & Endangered Species Program; and Massachusetts LIP at-risk Species as identified by the Landowner Incentive Program.

Landowner Incentive Program

Tracy E. Grazia, *LIP Coordinator*

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 these goals. LIP is a cost-share program designed to assist landowners with limited financial resources to obtain funds and guidance that will help them to 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 performed to complete the project; the landowner provides the remaining percentage in either funds or in-kind labor or equipment.

In awarding grants, the LIP Coordinator and other LIP staff focused on the management of private lands identified by the BioMap project as being essential for the conservation of declining species. Since its inception in 2005, LIP has played an integral role in restoring and conserving wildlife habitat on a diverse array of private lands across the state with goals to:

Enhance Habitat for Species.at-risk; Identify and reclaim sites appropriate for the management of declining habitats (especially open land: old field and early-successional forest, wetlands, coastal habitat, and pine barrens); and 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 each year they were available until 2007 when federal funding for this program ceased. However, LIP was able to continue providing financial assistance through FY 10 with funds carried over from previous years.

During the FY 10 application period, LIP received 55 proposals for habitat improvement/restoration projects on about 1,200 acres of private lands. Of these applications, 22 were selected for funding (Figure 1). The DFW partnered with these private landowners on 1,265 acres, providing $413,982 in financial assistance.

Of the 22 projects awarded, nine went to land trusts, seven to conservation organizations, none to sportsmen's clubs, and six to other private landowners (Figure 2). Of the 1,265 acres involved in the projects awarded, 507 acres were in upland forests, 277 acres were in coastal habitats, 279 acres were in grasslands, 56 acres were in early successional wetlands, 73 acres were in herbaceous/shrubland, 37 acres were in riparian areas, 8 acres were in sandplain grassland, 16 acres were in rock outcroppings, and 12 acres were in oak savanna or oak barrens (Figure 3).

Of the projects awarded, all lands had some form of protection: 91% had permanent protection and 14% were enrolled in Chapter 61. Of the projects awarded, 45% applied for manual restoration, 77% applied for invasive/exotic plant removal, 36% applied for seeding or planting in the project area, and 5% applied for a prescribed burn.

At least 132 species of statewide importance have been identified as benefiting from this year's projects including 64 plants, 23 invertebrates, and 45 vertebrates (Table 1).

During FY 10, LIP staff continued to assist private landowners by providing on-site technical assistance, responding to information requests over the phone, and participating in informational outreach events.

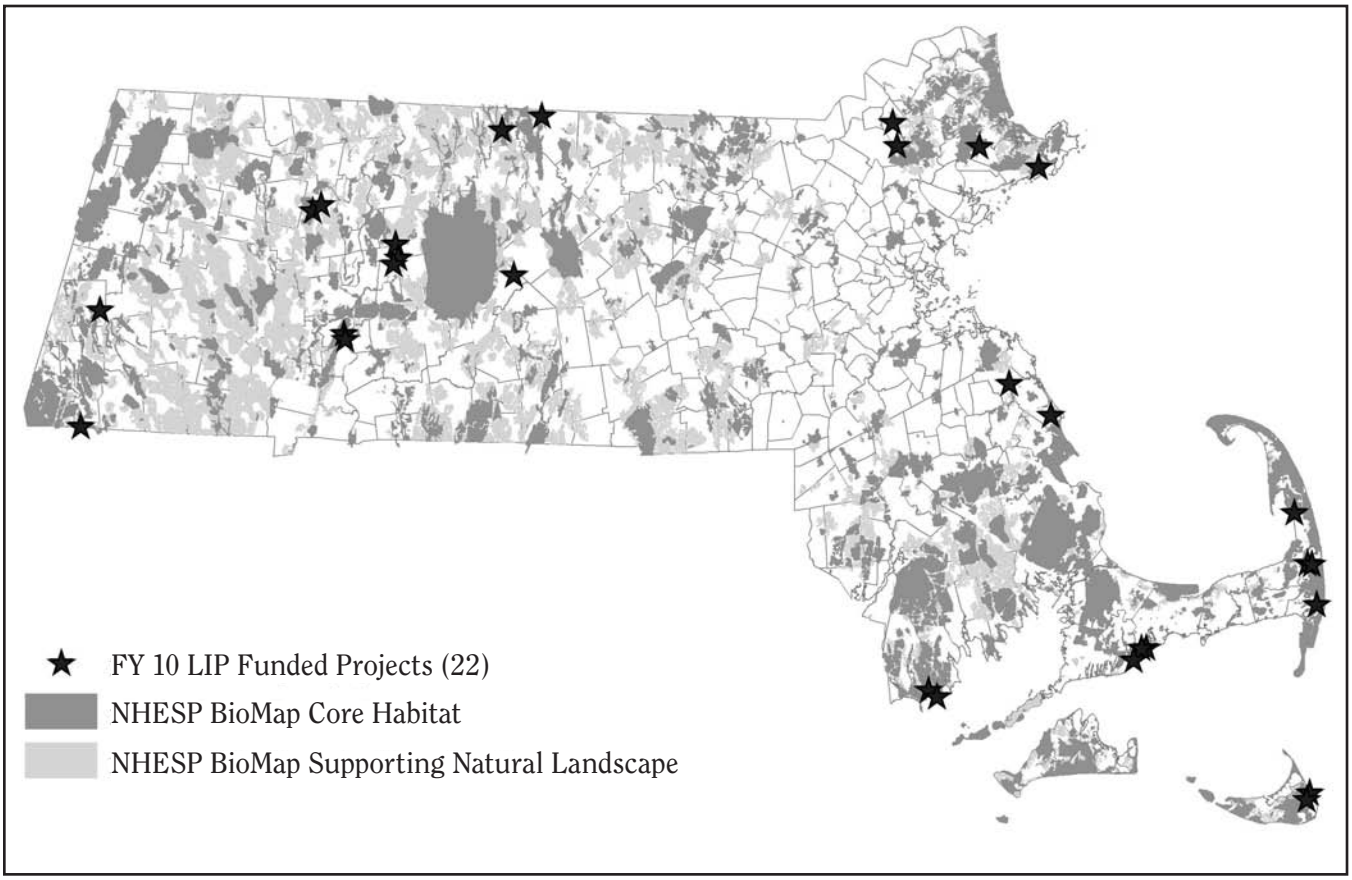


Figure 1. FY 10 LIP Projects

Figure 2. FY 10 LIP Projects by Ownership

	Funded FY 10	Applied FY 10
Land Trust	9	18
Conservation Organization	7	12
Sportsmen's Club	0	2
Private Landowner	6	23
	22	55

LIP staff conducted 15 site visits to landowners not receiving LIP funding and provided habitat management recommendations to these landowners. Three of them subsequently applied for and were awarded funding through the Natural Resources Conservation Service Wildlife Habitat Incentive Program. Additionally, LIP program staff also created and distributed to the public the annual LIP newsletter, *MassHabitat*, and the LIP Coordinator wrote an article for *Massachusetts Wildlife* entitled, *Persistence is a Virtue*,(issue #2, 2010.)

The LIP has continued to promote the Active Habitat Management Database, which will allow DFW program staff to share data about ongoing and previous management activities on private and state lands throughout Massachusetts. Two presentations on the database were given at the USFWS Regional Office, Hadley, MA. In addition, a presentation was given at The Wildlife Habitat Diversity Technical Committee and NE Habitat Technical Committee Joint Meeting, Lewes, DE. As a result of the positive feedback from these talks, the MDFW is pursing the creation of a regional habitat management database.

To date, DFW has funded 157 LIP projects and has provided technical assistance to private landowners from Cape Cod to the Berkshires. Through this program DFW has contributed close to $3.5 million for the conservation of declining species on private land over the program's 5-year history.

Figure 3. Types of Habitat in Awarded Projects

Barrier Beach	277.43	22%
Calcareous Rock Outcropping/Cliff	16	1%
Early Successional Forest	0.62	0%
Early Successional wetland	56	4%
Grassland	279.09	22.03%
Herb/Shrubland	72.85	6%
Oak Barrens/Savannahs	12.01	0.95%
Riparian	36.95	2.92%
Sand Plain Grassland	8.82	1%
Upland Forest 40%	507	40%
Total Acreage	1266.77	

Table 1. Species-at-risk that benefited from LIP FY10 projects.

Taxonomic Group	Species
Invertebrates	Gerhard's Underwing Moth, Northern Brocade Moth, Orange Sallow Moth, Pink Sallow, Purple Tiger Beetle, Sandplain euchlaena, Skillet Clubtail, Spartina Borer Moth, Spine-crowned Clubtail, Straight Lined Mallow Moth, Stygian Shadowdragon, Water-willow Stem Borer, Waxed Sallow Moth, Zebra Clubtail
Reptiles	wood turtle, eastern box turtle, diamondback terrapin, spotted turtle, and three sensitive species
Birds	American bittern, American kestrel, American woodcock, Artic tern, blue-winged warbler, bobolink, brown thrasher, chestnut-sided warbler, common moorehen, common tern, eastern meadowlark, eastern towhee, grasshopper sparrow, gray catbird, killdeer, king rail, least bittern, least tern, long-eared owl, northern harrier, orchard oriole, piping plover, prairie warbler, roseate tern, ruffed grouse, savannah sparrow, sharp-shinned hawk, short-eared owl, upland sandpiper, vesper sparrow, whip-poor-will, willet, and Yellow-breasted chat
Amphibians	Blue-spotted salamander, four-toed salamander, Jefferson salamander, and marbled salamander,
Plants	Andrew's bottle gentian, autumn willow, back's sedge, balsam-poplar, bog willow, bristly foxtail, brook-lobelia, bur oak, comb water-milfoil, Davis's sedge, dwarf bulrush, false pennyroyal, fen cuckoo flower, fen sedge, few-flowered spikesedge, Fogg's goosefoot, foxtail sedge, Frank's lovegrass, Gray's sedge, great blue lobelia, green rock-cress, hemlock parsley, Hill's pondweed, Hitchcock's sedge, hoary willow, intermediate spike-sedge, kidney-leaf violet, Labrador bedstraw, large whorled pogonia, large-bracted tick-trefoil, lesser bladderwort, long-styled sanicle, moonseed, mossy-cup oak, mud sedge, narrow-leaved spring beauty, New England blazing star, one-flowered pyrola, oysterleaf, panicled sedge, pink pyrola, purple clematis, river birch, rock knotweed, salt reedgrass, saltpond grass, sandplain flax, seabeach knotweed, showy lady's-slippers, slender cottongrass, small bur-reed, small yellow lady's-slippers, smooth rock-cress, swamp birch, swamp dock, swamp red currant, sweetbay magnolia, Torrey's beak sedge, Tuckerman's sedge, upland white aster, variegated scouring rush, vetchling, wall-rue spleenwort, wapato, water sedge, and yellow oak

Table 2. Species in Greatest Need of Conservation that will benefit from WHIP projects assisted by DFW in FY 10.

Taxonomic Group	Common Name
Lepidopteran	Dion Skipper (T)
Amphibian	Four-Toed Salamander
Reptile	Eastern Ratsnake (E), Eastern Box Turtle (SC), Black Racer
Mammal	Silver-haired Bat, Eastern Red Bat, Hoary Bat, New England Cottontail
Bird	American Bittern (E), American Kestrel, American Woodcock, Blue-winged Warbler, Bobolink, Broad-Winged Hawk, Brown Thrasher, Eastern Meadowlark, Eastern Towhee, Field Sparrow, Northern Bobwhite, Prairie Warbler, Ruffed Grouse, Savannah Sparrow, Whip-poor-will, White-throated Sparrow, Wood Thrush

Table 3. State listed plant species that will benefit from WHIP projects assisted by DFW in FY 10.

Taxonomic Group	Common Name
Plants	Small Yellow Lady's-slipper (E), Swamp Birch (E), Smooth Rock-cress (T), Fen Cuckoo Flower (T), Hemlock Parsley (SC), Water Sedge (WL), Panicled Sedge (WL), Mud-sedge (WL)
Natural Communities	Black Ash-red Maple-tamarack Calcareous Seepage Swamp, Calcareous Basin Fen

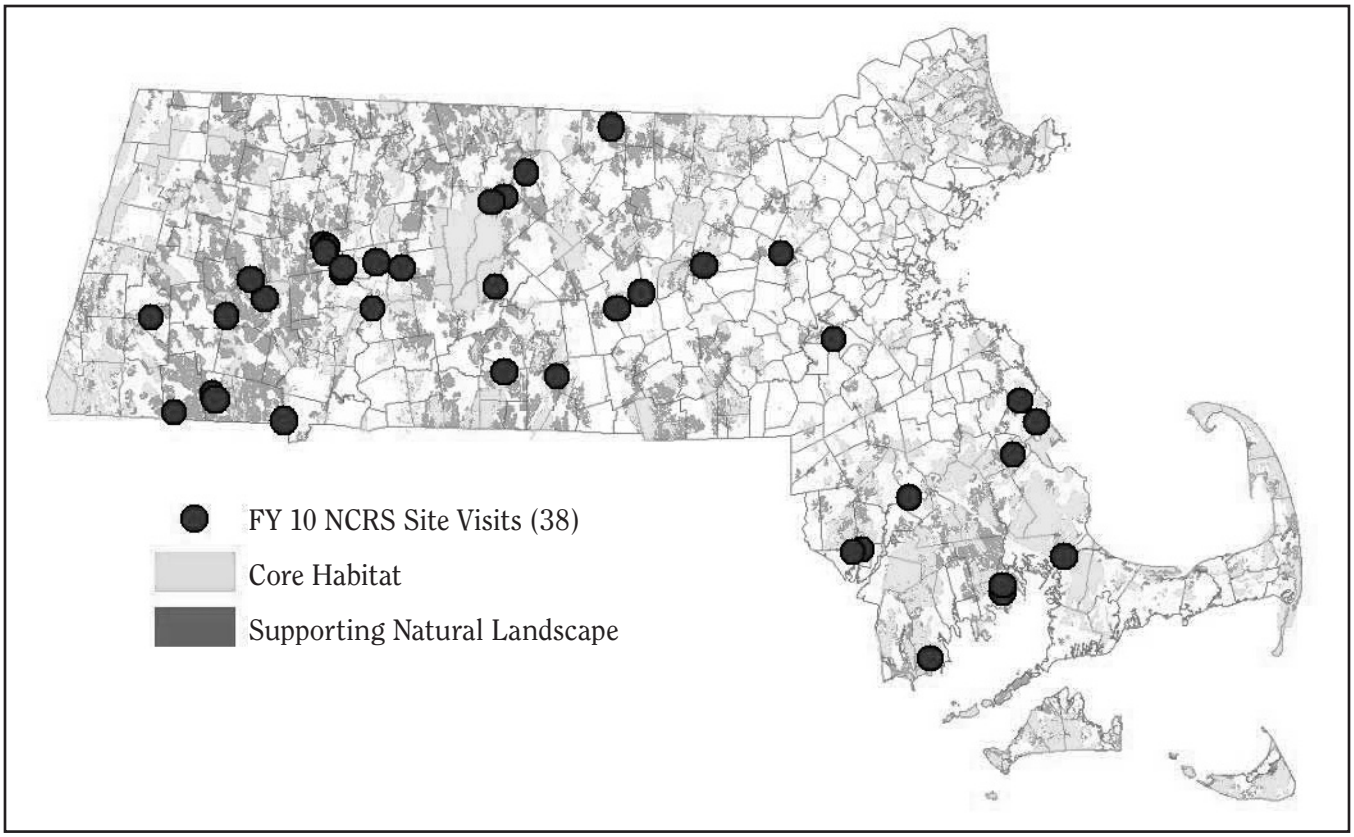


Figure 4. Locations of NRCS site visits attended by the DFW Habitat Management Biologist in FY 10.

Technical Assistance Program to the Natural Resources Conservation Service

Marianne Piché, *Habitat Management Biologist*

The DFW and the Natural Resources Conservation Service (NRCS) have completed a second year of participating in a Memorandum of Understanding whereby a DFW staff person will provide wildlife technical assistance to NRCS for three Farm Bill Programs that offer cost-share funding for habitat restoration and management on private lands: the Wildlife Habitat Incentive Program (WHIP), the Environmental Quality Incentives Program (EQIP), and the Wetlands Reserve Program (WRP). The NRCS will annually allocate $500,000 of WHIP, EQIP, and/or WRP financial assistance dollars, as authorized and appropriated by Congress, to eligible participants for the sole purpose of implementing practices that match the goals and objectives of the DFW Biodiversity Initiative and the Massachusetts 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 SWAP-identified species depend. The 2008 Farm Bill includes private non-industrial forestland as eligible for funding under EQIP, providing additional opportunities for the DFW-NRCS partnership to benefit Species in Greatest Need of Conservation. WRP promotes the protection and restoration of wetlands through the purchase of easements and enhancement activities potentially resulting in DFW-NRCS coordination in long term protection and restoration of habitat for SWAP species.

During FY 10, the Habitat Management Biologist participated in 38 site visits with NRCS staff (Figure 4) and provided written habitat management recommendations for 25 WHIP applications. Eighteen resulted in contracts; three in Berkshire County, four in Hampshire County, four in Hampden County, four in Worcester County, one in Bristol County, and two in Plymouth County. In addition, wildlife technical assistance was provided for two existing WRP cranberry bog restoration projects: the 34 acre Grassi Bog in Marion and the 14 acre Barro's Bog in Bourne.

Wildlife Habitat Incentive Program projects assisted by the DFW in FY 10 will result in $374,284.00 of federal funding for wildlife habitat management activities on 289.3 acres of private land in Massachusetts. Practices to be implemented will result in the creation or maintenance of critical wildlife habitat for SWAP species, including 170.2 acres of young forest or shrubland, 50.2 acres of grassland, 44.7 acres of upland forest, 21.3 acres of marsh or wet meadow, 1.7 acres of pollinator habitat, and 1.2 acres of turtle nesting sites (Figure 5). A total of 26 Species in Greatest Need of Conservation will benefit from the WHIP projects: a lepidopteran, an amphibian, three reptiles, four mammals, and 17 birds (Table 2); and both WRP bog restoration projects will benefit the Eastern Box Turtle which is a Species of Special Concern. While the Massachusetts WHIP State Plan focuses on animal species identified in the SWAP, WHIP projects assisted by DFW in FY 10 will also benefit eight NHESP state and watch listed plant species and two natural communities (Table 3).

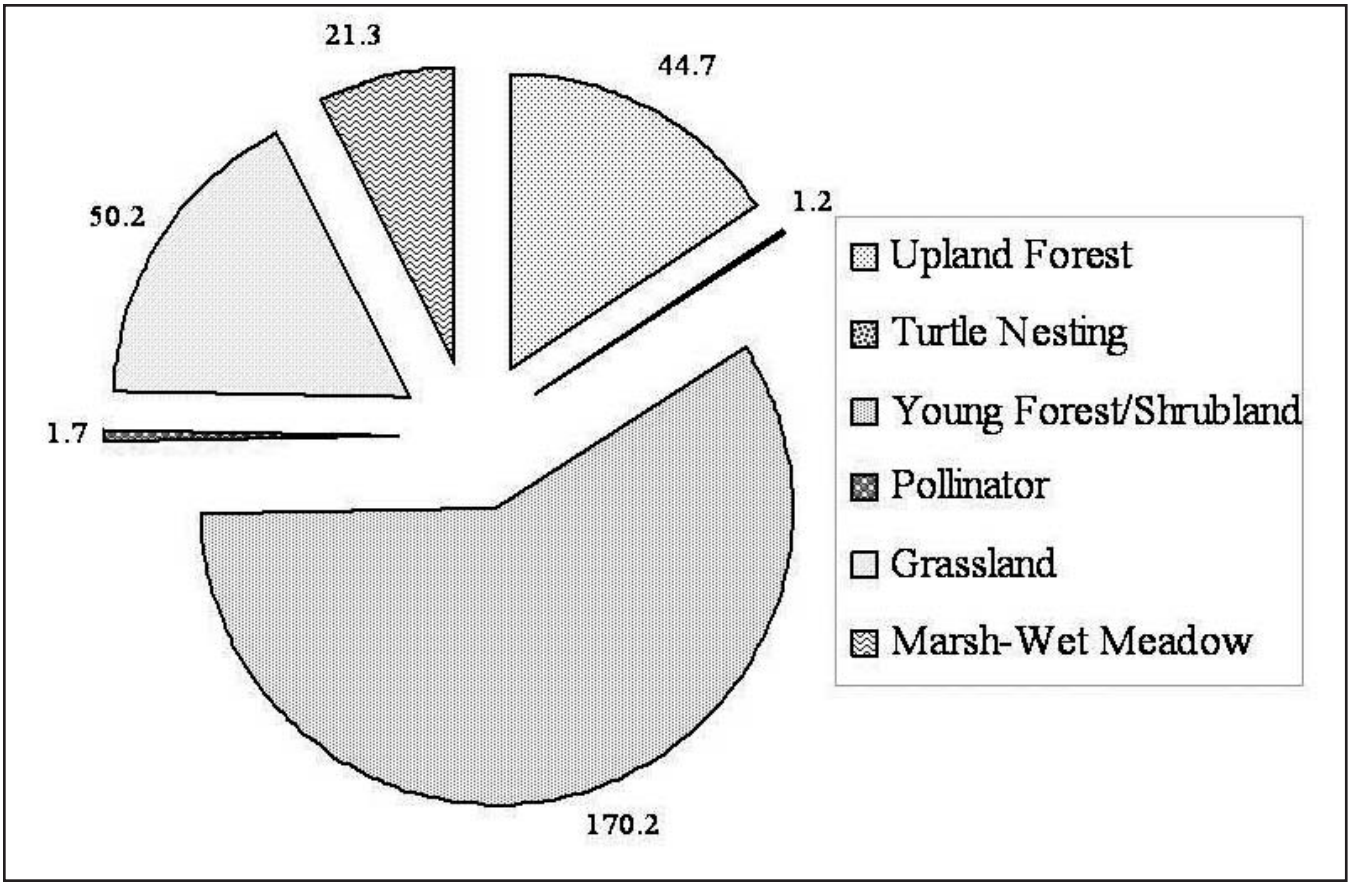


Figure 5. Acreage of habitat types that will be managed through WHIP projects assisted by DFW in FY 10.

During FY 10, the DFW-NRCS partnership has continued to ensure that Farm Bill Program projects meet the goals of the SWAP. In particular, DFW's written wildlife habitat management recommendations identify SWAP species likely to benefit through specific activities designed to meet their habitat requirements. In addition, the partnership enables the NRCS to modify proposed management practices and to rank projects that may have had negative impacts on SWAP species, due to their size, location, timing, or other factors.

DFW promoted Farm Bill Programs at a number of events during FY 10. This included delivery of the workshop Managing Early Successional Habitat for Wildlife at the Massachusetts Land Conservation Conference where attendees were encouraged to apply for NRCS funding, and a presentation at the 2010 Northeast Fish and Wildlife Conference Farm Bill Workshop where the DFW-NRCS partnership in MA was detailed. Information about Farm Bill Programs was also communicated to private landowners at two meetings held by the Massachusetts Department of Conservation and Recreation Forest Stewardship Program.

In the upcoming fiscal year, the DFW will continue participating in NRCS site visits, providing written wildlife habitat management recommendations, and promoting Farm Bill Programs. The Habitat Management Biologist will also focus attention on identifying appropriate sites and conducting targeted outreach to private landowners, encouraging them to manage habitat for New England Cottontail, a candidate for federal endangered species act protection. DFW plans to gather data to assist NRCS in expanding management practices in grassland habitat. In addition we will work with NRCS to develop or refine practices, ranking criteria, and habitat assessments.

NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM

Dr. Thomas W. French
Assistant Director, Natural Heritage & Endangered Species Program

Rare Species Habitat Mapping

In FY10 the Natural Heritage & Endangered Species Program (NHESP) continued to delineate and revise habitat "footprint" polygons for each new observation record for the 435 rare plant and animal species listed under the MA Endangered Species Act. The NHESP also revised and updated existing habitat maps based on new information including new aerial photography and the results of new research on individual species' habitat requirements and utilization. These species-specific habitat areas will be used to create the 14th Edition of the Natural Heritage Atlas. Species-specific habitat areas were also extensively utilized during the early development of *BioMap 2*. This is an update of the Program's original *BioMap* conservation plan published in 2001, and it will also include aquatic habitat areas delineated as part of NHESP's *Living Waters* conservation plan published in 2003. *BioMap2* is a collaborative project with The Nature Conservancy and utilizes a variety of spatial mapping models and other tools to delineate the areas of highest priority for conservation in the state of Massachusetts. An online and printed version of a spatial representation of *BioMap2* and its associated report is slated to be published in the fall of 2010.

2009 Field Season Summary

Mammals

Bats

The largest hibernaculum for bats in Massachusetts is the Old Mine in Chester, Hampden County, MA. This mine, acquired in 1974 to protect bats, includes about 2,300 feet of tunnel on two remaining levels. The third and lowest level is completely flooded. Since 1976 the agency has conducted 13 bat surveys, but most of these have been confined to the uppermost level of the mine. The lower level includes two sections of tunnel that can be reached only by rappelling into each of two 92 foot holes, so the entire mine has only been surveyed twice in past years (1986 & 1999).

As far as is known, the bats at this site were healthy until the winter of 2008/09 when the neighbors at the bottom of the hill (1,250 feet away) reported bats flying around their yards in early February 2009. DFW biologists visited the area on February 15th which was a sunny day above freezing with temperatures expected to fall into the teens that night. One bat was seen flying around town about half a mile away, several bats were flying up and down the road in front of the three houses nearest the mine, about 15 bats were seen gathered and grooming in the sun on a gently sloping roof of one of the houses, and about 20 dead bats were picked up around the foundations of the three houses that had apparently died over previous freezing nights. Some of these carcasses were sent to the National Wildlife Health Lab in Madison, WI. One bat that landed in the road and could not take off again was examined and its wings were found to be so dehydrated and brittle that they could not be fully extended without tearing the membrane. On the way to the mine a bat was found dead in the woods on the snow. Since concerns were expressed that the bats not be disturbed and that entering the mine could risk contaminating other sites, it was agreed that DFW biologists would not conduct a survey.

In FY 10, DFW biologists did not enter the mines to survey the few bats that might have remained. In order to provide further protection from disturbance, the agency applied for a federal matching grant from the USFWS to install custom-made iron gates just inside the entrances of the three mines that have historically held the greatest number of bats. Two of these mines are owned by DFW and one by the town of Chester. These gates will be installed in FY 11.

Birds

Piping Plover

A coast-wide network of cooperators reported breeding pairs of Piping Plovers at 125 sites in Massachusetts during May and June 2009. An additional 95 potential nesting sites were surveyed, but no breeding pairs were detected. The *Index Count* (statewide census conducted June 1-9) was 574 pairs, and the *Adjusted Total Count* (total number of breeding pairs statewide estimated over the entire season) was 593 pairs. Two regions harbored 62% of the total breeding pairs in the state: the Lower Cape (40 %) and the Upper Cape (22 %). Individual sites with the largest numbers of pairs (*Total Count*) were South Beach, Chatham (51 pairs), South Monomoy Island, Chatham (32 pairs), Sandy Neck, Barnstable (28 pairs), Crane Beach, Ipswich (25 pairs), Plymouth Long Beach, Plymouth (24 pairs), Nauset Spit, Orleans (22 pairs), Parker River National Wildlife Refuge, New-

bury and Rowley (15 pairs), and Dead Neck-Sampson's Island, Barnstable (15 pairs). Although the 18 largest sites, i.e. those with ≥ 10 pairs, supported 54.1 % of all pairs in the state, the 78 smallest sites (1-3 pairs) were also important, collectively accounting for 21.6 % of all pairs. Overall productivity for the Massachusetts breeding population was only 0.91 chicks fledged per pair, based on data reported for 589 of 593 (99%) pairs. By comparison, overall productivity in 2008 was 1.41 chicks fledged per pair.

We extend our sincere thanks to the many biologists, seasonal shorebird monitors, beach managers, landowners, and volunteers who participated in conservation efforts on behalf of Piping Plovers, American Oystercatchers, and other coastal waterbirds in Massachusetts in 2009. We also thank the more than 30 state and federal agencies, local municipalities and county governments, private conservation organizations, and universities that supported their efforts. We especially thank all the individuals who participated in population monitoring and submitted the data that are summarized in this report.

American Oystercatcher

Observers reported totals of 382 adults and 178.5 pairs of American Oystercatchers at 87 sites in Massachusetts in 2009, from a total of 229 sites surveyed. The discrepancy between total number of adults and number of adults comprising pairs is due to observations made during or near the time of the census period of single adults and groups of 2 to 5 adults that appeared to be unpaired or for which pairing status could not be determined. The "0.5 pair" contained in the statewide total of 178.5 pairs resulted from the disappearance, likely to predation, of a member of a breeding pair at Eel Point on Nantucket, and the subsequent repairing of its mate with a third oystercatcher.

The largest numbers of breeding pairs in 2009 were reported from Nantucket (39.5 pairs exclusive of Tuckernuck and Muskeget islands), Martha's Vineyard (35 pairs exclusive of Nomans Land Island), Lower Cape Cod (33 pairs), and the Boston Harbor Islands (20 pairs). Individual sites with the largest numbers of pairs were the Coskata-Coatue area of Nantucket (26 pairs), Tuckernuck Island (10 pairs), North Monomoy Island, Chatham (8 pairs), South Monomoy Island, Chatham (8 pairs), Eel Point, Nantucket (7.5 pairs), Minimoy Island, Chatham (6 pairs), Ram Island, Mattapoisett (6 pairs), Penikese Island, Gosnold (6 pairs), and Snake Island, Winthrop (5 pairs).

American Oystercatcher

Statewide, at least 69 American Oystercatcher chicks were reported to have fledged from 154.5 pairs for which productivity could be determined, for an overall productivity of 0.45 chicks fledged per pair in 2009.

Terns, Laughing Gulls, Black Skimmers

Cooperators in Massachusetts surveyed 138 coastal sites in 2009 for the presence of breeding Roseate Terns (*Sterna dougallii*), Common Terns (*Sterna hirundo*), Arctic Terns (*Sterna paradisaea*), Least Terns (*Sternula antillarum*), Laughing Gulls (*Larus atricilla*), and Black Skimmers (*Rhynchops niger*). Seventy-eight sites were occupied by nesting birds of one or more of these species. Roseate Terns decreased 5.0% to 1,339 pairs. Common Terns were stable at 15,978.5 pairs, but there was substantial redistribution around the state. Least Tern numbers decreased 5.5% to 3,569 pairs. Laughing Gulls increased 3% to 1,629 pairs, the highest recorded since careful record-keeping began. Four pairs of Black Skimmers nested during the peak of the season; two additional pairs nested late. Six-and-a-half pairs of Arctic Terns nested during the peak; one additional pair nested late. Plymouth Beach continued to distinguish itself as a major coastal waterbird nesting site. Norton Beach, Edgartown also emerged as a very important and diverse nesting site.

Buzzards Bay Tern Restoration Project

The overall number of Common Terns jumped 36% due mostly to an increase at Ram Island. Roseate numbers were down slightly. Collectively, Bird, Ram, and Penikese islands supported 1,339 "peak season" pairs of Roseate Terns (*vs*. 1,379 in 2008; -2.9%) and 6,904.5 "peak season" pairs of Common Terns (*vs*. 5,060.5 in 2008; +36.4%).

Bird Island: Common Tern numbers rose to 1,805 pairs (*vs*. 1,576 pairs in 2008; +14.5%), fairly typical of most recent years. Productivity (1.14 fledglings/pair *vs*. 1.44) was very good. Roseate Tern numbers declined a bit, from 747 pairs in 2008 to 708 pairs (-5.2%) this year. Roseate productivity was excellent at 1.44 fledglings per pair (*vs*. 1.12). No major predation events were recorded in 2009.

Ram Island: Common Tern numbers were up 68.3% to 3,961 pairs (*vs*. 2,354), the most ever recorded at this site. (The previous record was 2,938 pairs in 2004.) These extra pairs are thought to have come from Monomoy National Wildlife Refuge which experienced a large drop in numbers. Common Tern productivity was very good, 1.11 fledglings/pair (*vs*. 1.34). Roseate numbers were up slightly (588 *vs*. 566 pairs; +3.9%), and productivity was very good at 1.04 fledglings per pair (*vs*. 1.25). For the first time in several years, there was no Great Horned

Owl predation, but there was a moderate amount of gull predation on tern chicks.

Penikese Island: Common Tern numbers were essentially the same as in 2008, 1,138.5 pairs (*vs*.1, 130.5). (One Common Tern again was paired with an Arctic Tern, accounting for the 0.5 pair.) Productivity was very good (1.55 fledglings/pair), though not as stellar as last year (2.47). Roseate numbers dropped to 43 pairs (compared to 66; -34.8%). Productivity was an unimpressive 0.73 fledglings/pair (compared to 1.42 fledglings/pair) due to poor hatching success, an unresolved problem that has plagued the colony in all years but 2008. Two-and-a-half pairs of Arctic Terns again nested. We do not think any "pure" Arctic chicks survived, but two hybrid Arctic-x-Common chicks fledged. Predation on chicks by a Northern Harrier and gulls was moderate in 2009.

Bird Island Habitat Restoration

The agency continues to partner with the U. S. Army Corps of Engineers – New England District to restore the eroding tern nesting habitat on Bird Island under the federal Section 206 Aquatic Ecosystems Restoration Program. A good salt marsh mitigation site has finally been identified at Apponagansett Bay, Dartmouth, and the restoration idea met with approval by the property owner (Town of Dartmouth). The project is now in the Plans and Specifications phase, but further work has stalled until a Project Cooperation Agreement between the Corps and the state has been signed. Uncertainty about a portion of the state's funding share for the project is delaying progress in this area.

Ram Island Habitat Restoration

Habitat restoration on Ram Island is a three-phased project: (1) controlling *Phragmites*, (2) filling low spots on the island, and (3) revegetating.

Phase I: In Fall 2006, the control of *Phragmites* began. Treatments were repeated in 2007 and 2008. *Phragmites* is now nearly gone.

Phases II and III: During the winter of 2008-2009 the construction portion of the project was put out to bid and a contract was awarded to the lowest bidder. Subsequent to the award, a dispute arose regarding the manner in which the work was to be completed. As a result, MDFW terminated the contract in March 2009 with the intention of re-bidding the project as soon as possible.

Public Outreach

The agency partnered again with Burr Brothers Boatyard and the Town of Marion to have a live "tern cam" on Bird Island (*www.birdislandterns.org*). The Buzzards Bay Tern Restoration Project website was also updated. (*http://www.mass.gov/dfwele/dfw/nhesp/conservation/birds/tern_restoration.htm*).

Common Loon

In 2009, personnel from the DFW and the Department of Conservation and Recreation monitored Common Loon (*Gavia immer*) activity in central Massachusetts throughout the summer months. Thirty territorial loon pairs took up residence on eleven water bodies. This is a slight decrease from 2008 when thirty-two pairs were observed on fourteen water bodies. The number of nesting pairs was also slightly lower than last year (fifteen pairs compared to eighteen in 2008). There was a significant increase, however, in the number of fledged chicks: fourteen chicks were presumed to have fledged in 2009, compared to five in 2007 and eight in 2008. This resulted in a productivity estimate that was over double that of the previous year (0.93 fledglings per nesting pair in 2009, compared with 0.44 in 2008). The number of fledglings per territorial pair was 0.47, compared to 0.25 in 2008.

Bald Eagle

During the summer of 2009 there were 27 known territorial pairs of Bald Eagles in Massachusetts. Of these, 22 pairs laid eggs and 21 pairs successfully fledged 37 chicks. In 2007 and 2008 there were 25 and 26 territorial pairs, respectively, which produced 32 and 33 fledged chicks. This is the 20th year that Bald Eagles have raised young in Massachusetts since their restoration. During these 20 years, 337 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, 13 in 2005, 13 again in 2006, 14 in 2007, 15 in 2008 and 19 in 2009. Of these 19 pairs, 17 are known to have laid eggs and 16 successfully fledged 39 chicks. This is compared to the 10 successful pairs that fledged 10 chicks in 2008 and 11 successful pairs that fledged 25 chicks in 2007. The huge increase in the number of chicks fledged this year was probably due to very little rain in the early spring. By the time the rain began, the eggs were hatched and the chicks were old enough to stay warm.

Reptiles and Amphibians

Northern Red-bellied Cooter

In 2009, a total of 52 nests of this state and federal Endangered Species were located at the primary nesting pond by contractor, John Crane. These nests contained 705 eggs (average 13.6 eggs/nest), of which 476 hatched, 9.2/nest). A total of 122 eggs were found with dead embryos (2.3/nest) and 107 eggs did not develop (2.0/nest). Of the 476 hatchlings, 123 were kept for headstarting and 353 were released directly into the wild where they hatched. An additional 11 nests were found to have been subjected to predation, before they could be caged. Only one nest that was not discovered when it was laid in the spring, successfully produced hatchlings.

Spring 2009 was very cold and wet. From early June through mid July there was far more rain than usual. These cool conditions delayed egg laying and lengthened incubation time. About a dozen eggs were found in shallow water near the most frequently used nest areas, suggesting that some delayed turtles laid eggs

directly in the water rather than coming out to nest. In most years, incubation times range from about 75 to 90 days, but this year they were generally around 110 days and even up to 130 days. Undoubtedly, the cold wet weather was responsible for the low number of nests found, and probably for the higher than usual mortality of eggs and hatchlings due to fly larvae.

Plants

Rare Plant Inventory

During the 2009 field season, 797 plant records were updated with designated plants being sought or discovered.

Housatonic

In preparation for proposed PCB remediation on the main stem of the Housatonic River, known occurrences of state-listed plant and animal species are being updated and precisely mapped, and surveys to find undiscovered sites are being conducted so that the locations of state-listed species and their habitats along the river will be better known. NHESP contracted two field botanists to continue field inventories in 2009. A total of 240 field forms were submitted; among the results were the discovery of 29 previously undocumented rare plant populations, and significant expansion of the extents of several known rare plant populations. Discoveries of note from this project include at least two populations of Purple Cress (*Cardamine douglasssii*), a species previously thought extirpated from its one known location; Rich Woods Sedge (*Carex oligocarpa*), not seen since 1912 in Massachusetts; and Cat-tail Sedge (*Carex typhina*), not seen in Berkshire County since 1913.

Habitat Management of State-listed Plant Habitat on State Land

Management of high priority plant habitats on four state-owned properties is being continued. These sites are known to support 13 state-listed plants. Management actions included working with partners (DCR, TTOR, and USFWS) to control pale swallowwort at Mount Tom State Reservation and adjacent lands; controlling several invasive plant species at Maple Hill WMA; to reduce competition and over-shading at Mount Sugarloaf State Reservation; and to erect deer fencing at Green River WMA.

Habitat Reserve Surveys

Two areas within Worcester County that have been identified as possible areas for conservation land acquisition were surveyed for rare species. Two botanists were contracted by NHESP to conduct the investigations. A total of 11 rare plant populations were updated or discovered.

Updated Massachusetts County Checklist for Plant Species

A contract botanist has been working in collaboration with DFG GIS personnel to develop a database for the revision of this 1999 publication. The database is being updated to follow more current taxonomy and will be populated with the most up-to-date county distribution of all Massachusetts plant species. The revised version is scheduled for completion in 2010.

Flora Conservanda

NHESP botanists collaborated with the New England Wild Flower Society and the five other New England heritage programs to review and revise the list of regionally rare plants that was originally published as "Flora Conservanda" in a 1996 issue of the journal *Rhodora*.

Invasive Plant Early Detection and Rapid Response

Public outreach in cooperation with DCR, DAR, and the New England Wild Flower Society resulted in the early detection of four new populations of Mile-a-minute (*Persicaria perfoliata*) a highly invasive plant. Control efforts were implemented at all four locations.

Globally Rare Plant Conservation

Over 150 update, historic, and *de novo* surveys were conducted for globally rare plant species, resulting in the discovery of seven new globally rare plant occurrence records and numerous new subpopulation records. Fifty-four surveys of globally rare plants were conducted by NHESP botanists and about 100 were conducted by contractors. Vegetation management projects (i.e., control of competing exotic and aggressive native plants) were conducted at five globally rare plant population locations. Lastly, species conservation plans were developed for six globally rare plant species; these plans prioritize conservation actions for each species.

Federally-listed Plant Conservation

In collaboration with DCR, NHESP inventoried two Small Whorled Pogonia populations; and in cooperation with Sheriff's Meadow Foundation, The Nature Conservancy, The Trustees of Reservations, and DCR, NHESP inventoried seven Sandplain Gerardia populations.

Contracted Plant Research Projects

NHESP continued to fund research on the intricate relationship of the hemiparasitic state-Endangered plant 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.

Regulatory Review

The following table summarized the environmental reviews conducted during FY 10.

Review Type	Count
Conservation & Management Permits	24
Data Releases	155
MESA Information Requests	323
Forest Cutting Plans	100
MESA Project Reviews	707
MEPA Reviews	124
Notices of Intent	780
Scientific Collection Permits	106
Other	190
Total Reviews	**2509**
Vernal Pools Certified	452

Data Management and Data Products

FY 10 Totals	New Records	Updates to Existing Records
Vertebrates	78	354
Invertebrates	110	210
Plants	87	567
Communities	61	42

Land Protection

In FY 10, MassWildlife spent about $10.5 million to protect 6,160 acres of land across the state, bringing the agency's total land holdings to approximately 186,760 acres. Several of this year's acquisitions were of particular relevance to protection of rare species and exemplary natural communities, as noted below.

Northeast District

Acquisition of 223 acres in four locations in Townsend added to protection of Blanding's Turtles (Threatened), Wood Turtles (Special Concern), and two rare aquatic invertebrates.

Southeast District

A Coastal Plain Pond and Pitch Pine/Scrub Oak Woodland, along with 11 rare species, were protected with the acquisition of 245 acres on the Wareham/Plymouth line.

Central District

One hundred sixty-five acres were added to the Bolton Flats WMA in Lancaster, protecting Blanding's Turtles (Threatened), Blue-spotted Salamanders (Special Concern), and four rare moths. Along the Quaboag River in West Brookfield, acquisition of 51 acres extended protection of two endangered marsh birds.

Valley District

Protection of a Bald Eagle (Endangered) nest on the Connecticut River in West Springfield was completed with the acquisition of 12.5 acres on the shoreline.

Western District

Acquisition of 278 acres along the Swift River in Hawley and Ashfield added to protection of an excellent Wood Turtle (Special Concern) population along the river. In Hinsdale and Washington, habitat for two endangered marsh birds was protected with the addition of 60 acres to the Hinsdale Flats WMA. In Egremont, protection of a Calcareous Sloping Fen and its eleven associated rare species was enhanced with 81.5 acres of additional land.

Natural Heritage and Endangered Species Advisory Committee

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 Finton, Timothy Flanagan, Wayne Petersen, Mark Pokras, Bryan Windmiller

During FY 10 the committee held eight scheduled meetings. August has been a traditional vacation month for the Committee. The committee went on a Field Trip to Burrage Pond WMA in Plymouth County during July 2009 and to the Housatonic River in the Berkshires in October 2009. The February 2010 meeting was cancelled due to bad weather. All of the eight meetings were held at the Westborough Field Headquarters.

The Committee heard presentations from their members on the following issues:

Monitoring Rare Plant Species in New England - Bill Brumback, Conservation Director, New England Wildflower Society

Rat Poison and Raptors - Mark Pokras, Associate Professor, Tufts School of Veterinary Medicine

Sixty Years of Documenting Biodiversity on a Hundred-acre Farm (Wolf Trap Hill) – Kathleen Anderson

Presentations from Agency staff:

Assessment of Non-MESA SWAP Birds for Inclusion in BioMap 2, - James DeNormandie, BioMap 2 Project Coordinator & NHESP staff

BioMap 2: Conserving Massachusetts' Biodiversity in a Changing World – Henry Woolsey, NHESP Program Manager and Andy Finton, Director of the Nature Conservancy in Massachusetts

Development of Target Fish Communities for Massachusetts Mainstem Rivers - Todd Richards, DFW Fisheries Biologist

Draft Ocean Management Plan – Thomas W. French, Assistant Director

NHESP and NRCS: A Conservation Partnership – David Paulson, NHESP Consulting Biologist

Zebra Mussels – Thomas W. French, Assistant Director

Results of Natural Heritage's Rare Species and Natural Community Housatonic Surveys, 2008-2009 – Patricia Swain, Community Ecologist, NHESP

Other presentations to the Committee included the following:

Kestrels and Cranberries - Joanne Mason

Natural Heritage and Endangered Species Program Staff

Thomas French, Ph.D., *Assistant Director*
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*
Karen Dolan, *Finance and Projects Administrator*
Lori Erb, *Turtle Conservation Biologist*
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 (part year)*
Tim Simmons, *Restoration Ecologist*
Patricia Swain, Ph.D., *Natural Community Ecologist*
Amanda Veinotte, *Regulatory Review Administrator*

Seasonal Tern Project Staff

Joanna Hatt
Ezra Lencer
Tyler Maikath
Christopher McClellan
Kimberley Scantelbury
Sarah Schulwitz
Sarah Woodward

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

Each year new pages are added to the DFW's website and many existing pages are revised.

During FY 2010 the following pages were added:

July – Check stations for all game species
Living with Wildlife sheets – Deer, Skunks, Raccoons, Suburban Wildlife

August – Outdoor Recreation safety pages (tree stand, boat safety new, revamped fall outdoor, ice safety, wildlife viewing planning); Zebra mussel pages

September – Wildlife ID lesson Plan for Hunter Education
Links to alternate versions of the 2010 Hunting, Fishing and Trapping Guide

November – Bobcat FAQ; Growing Up Wild

March – Youth Turkey Hunt page with application forms

May – Photo contest entry form; Moving Wildlife is Harmful; Hunter Education Independent Study

June – Climate change page and reports; Biomonitoring information pages (created by Daniel Koch and Brian Hawthorne)

Expansion of Webpages already in existence:

July – Beavers; Bat mortality

October, December, January – Green Forest Certification page for Public Comment

May – Moving Wildlife; Hunter Education Independent Study Course format explanation

Email Inquiries

Outreach Coordinator Marion Larson and I&E staff responded to 4,739 agency email queries. Spring and fall are usually when the most emails are received due to fishing and hunting season related inquiries. July and August email counts were high this year due to an influx of inquiries about zebra mussels.

MassWildlife News

Ms. Larson and staff issued 13 issues of the newsletter during this fiscal year. The mailing list for hard copies is around 1,100. The electronic distribution list is growing; there were 6438 subscribers in June 2009 and 6603 on June 30, 2010.

MassWildlife Advisories

These advisories are sent out as "stand alone" items over the MassWildlife News email list to alert various publics to new regulations, special events or other events to which the public is invited. The following advisories were sent to the 6400+ email addresses on the news list during this fiscal year:

July: Forestry Forum in the Berkshires

September: Wood Turtle Event, Amherst

September: Winning Waterfowl Stamp Contest Artists

October: Stafford Hill WMA event with Mass. Outdoor Heritage

December: Forest Visioning (for DCR)

January: Forest Forum (for DCR)

April: Assist EEA on Zebra Mussel Forum in Pittsfield Advisory

As in the past, many of the items sent out in the e-news and in Advisories have been reprinted and further disseminated in the newsletters and Journals of other conservation organizations.

Media Services

This year, pursuant to a request by I & E Chief Ellie Horwitz to the EEA Press Team for reports of media inquiries, we have found a way to track media inquiries to the agency. The EEA Press Office puts out an End of Day Report that summarizes media inquiries and reports on the status of pending calls. This information is passed on to the Commissioner's office and subsequently to the DFW Outreach Coordinator. A total of 277 inquiries came through the EEA Press Office which is nearly 5

times the number of inquiries documented for FY 09. EEA Press Team members contact DFW staff directly when they receive inquiries from the media. The following media interviews were arranged in conjunction with the EEA press office:

TV and Radio Interviews

July 2009 – Moose immobilization in Worcester with Bill Davis for Channel 3 (Worcester local access), WHDH Channel 7 and WTAG Radio

October 2009—Beaver issues in Lawrence, Channel 5, Marion Larson

June 2010—Fox attack on dog in Westborough, Laura Hajduk and Marion Larson (TV interviews--WBZ Channel 4, Channel 5, WHDH Channel 7, Channel 3 (Worcester local access)

Newspaper Clippings

There were 2,399 news clippings that came in from the clip service. Last year, 2,414 clippings were sent in from the clip service. Thanks to an intern information on where and when articles appeared is now available in an Excel spreadsheet

News Clippings Summary by Month

July 2009	209	**January 2010**	124
August	253	**February**	194
September	166	**March**	184
October	212	**April**	227
November	148	**May**	228
December	191	**June**	263

Social Media

As electronic communications are clearly replacing print and video as communications channels of choice, especially for individuals aged 35 or under, the Section explored options within the Social Media including Facebook, Flickr, Shutterfly, and Twitter. In November of 2009, the EEA Press Secretary's office inaugurated a Great Outdoors Blog which was posted on the Secretary's website. Website is: http://environment.blog.state.ma.us/. The idea behind the GOB is to promote different outdoor opportunities on state properties, state outdoor related programs, reports from staff in the field and other outdoor related items. Staff from DAR, DCR, DFG and other environmental agencies submit blog posts and images to EEA which posts the information. During the fiscal year DFW submitted posts on salmon fry stocking assistance needed, learn to fish, spring trout stocking, turkey brood survey assistance needed, deer aging class for biologists, winter wildlife tracking, Christmas bird count, midwinter eagle survey, and ice safety tips. Pilot pages were designed for a potential DFW page on Facebook and the Chief spent many hours learning about the Commonwealth's Guidelines and regulations for participation in these areas.

Promotion

In FY 09 the DFW hired Promotions Specialist, Susan Beloit who spent most of that year becoming acquainted with DFW programs and operations. Building on this in FY 10, she worked with DFW staff to develop a campaign to showcase and translate DFW programs, land conservation, and management for the agency's constituents, including sportsmen, naturalists, and other outdoors-people, as well as for the general public. The initial presentations and print products that were developed were designed to 1) maintain and increase the engagement and activity of current constituents by offering them valuable resources and information and (2) establish new connections with a wider audience of citizens who have not traditionally contacted the agency or taken part in its programs, but are now turning to the DFW for information, particularly about the wildlife they are encountering in Massachusetts and for programs and publications that will help them and their children reconnect with the outdoors. Current promotion efforts are directed to two principal channels: the Wildlife Districts (working through staffed displays at regional fairs and trade shows) and agency publications, which provide information in the most professional and engaging manner possible.

Special efforts were made to standardize district signage at minimal cost and so the promotions specialist worked with Northeast Wildlife District staff to develop a simple, roofed information kiosk. Five prototype kiosks have been erected and now display notices, maps, and other helpful information at Wildlife Management Areas in that district. This design is being shared with the other districts and adapted for use at the various agency installations around the state. State-of-the-art maps and attractive notices are being developed for display in the kiosks.

New displays were developed to demonstrate the high level of professionalism and the breadth of work provided by the agency. These displays were first shown at the Eastern States Sportsmen's Show but have had extensive use since then. Public response to the new display components has been extremely favorable, and staff working the shows indicate that the new design makes it easier to engage visitors and draw them into conversation about agency programs and publications. These display components were used at many one day events, conferences, and programs which were identified as promotional opportunities for the agency throughout the year. As one particularly fruitful example, the Boy Scouts of America celebrated its 100th anniversary in 2010, and the Mohegan (Worcester) Council held a "New England Scout Show" at the Worcester DCU Center in January. The Scout Show drew over 5,500 visitors from around New England. Approximately 1,500 people came to the DFW booth to build bluebird boxes with help from Millbury's Boy Scout Troop 110 and agency staff; to examine models of, and take home plans for, bluebird, wood duck, kestrel, and bat houses; ask questions; and learn

about the work that the Wildlife Districts do to create and conserve wildlife habitat across Massachusetts.

The agency also test-targeted some potential new audiences with the display equipment later in the spring. The principal criteria for selecting test venues were 1) the potential for hundreds of conversations over 2-3 days and 2) visitors who represent a cross-section of the general public that may not be aware of, but would potentially benefit greatly from, knowing about the work and programs of the DFW. The regional home and garden shows in Fitchburg and Worcester offered the potential for 20,000+ visitors; people who spend or intend to spend significant amounts of time and money on their yards and gardens and thus need to understand wildlife behavior and know how to control and discourage the various species they will encounter before the animals become a nuisance. Examples of the Living with Wildlife series of fact sheets were handed out and visitors had opportunities to ask questions about the wildlife in their yards and neighborhoods.

Exhibits & Displays

This year, promotions specialist Susan Benoit took on many responsibilities related to exhibits. As in past years the DFW provided staff, displays, and/or handout materials in a variety of venues.

Of the 28 public events in FY 10 that the DFW either sponsored or participated in, 16 involved agency staff and its display equipment. Two of these events were directly sponsored by the DFW, the Final Waterfowl Stamp Reception at the Peabody Essex Museum and the Northeast Fish and Wildlife Conference (4 days); the rest were produced by other entities: the Marshfield Fair (9 days) , the Mass. Outdoor Expo (The Big MOE), the Mass. Ducks Unlimited Convention, the Franklin County Fair (4 days), the Topsfield Fair (9 days), the Southeastern Mass. Sportsmen's Show (4 days), the Mohegan Council's Centennial Scout Show, the Eastern Fishing and Outdoor Expo (4 days), the Springfield Sportsmen's Show (4 days), the Central Mass. Home and Garden Show, the Mass. Association of Conservation Commissions' (MACC) Annual Conference, the Flower and Patio Show -- Outdoor Living Expo, the Mass. Land Conservation Conference, the Westfield River Symposium, and the New England Outdoor Writers' Conference.

There were four smaller events to which agency staff brought printed handouts and were on hand to greet the public and answer questions: the Veterinary Medical Association Fall Conference, the Town of Sandwich's Peter Rabbit's Day, the Tower Hill Botanic Garden Celebration, and the Urban Ecology Institute's Career Day.

Finally, there were seven events that the agency supported by providing information handouts, but no staff presence was required. Those events were the Mass Tree Wardens and Foresters' Conference, the Mass. Wildlife Rehabilitators' Conference, the Amherst Historical Society's Rural and Wildlife History display, the Eastern States Exposition (the Big E), the Trailblazers Event of the Cape and Islands Boy Scout Council, the Cape Ann Birding Weekend, and the Western Mass. Camping and Outdoor Show.

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 extremely 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, and "how to" articles for the hunter, fisherman and nature observer. Specific subjects of articles included predator hunting (coyotes and foxes); mega-sharks (with the most spectacular aerial photos of whales and sharks we have ever featured), cottontails and snowshoe hare (natural history and research); raptor use of highway medians; the loss of hunting access and its many implications (with many useful charts and graphs); radiotelemetry research on moose; airboating memories (a nostalgic look at capturing ducks for banding); ecological impacts of deer (widely reproduced throughout the region); hunting for dropped antlers; how to see a moose; introducing the saltwater fishing permit; wood turtle (natural history and research); use of exclosures in research to study impacts of deer and moose; turtle habitat creation; and getting kids outdoors (environmental education). Also included were a number of short pieces involving youth hunting opportunities, photo features, editorials on various current events, and the announcement of our first photo contest with the winners to be featured in the #4, 2010 issue.

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. These small publications (trout stocking lists, waterfowl abstracts, annual report, PAC handbook) were updated and reprinted. Five "Living with Wildlife" sheets were updated and revised: Living with Suburban Wildlife, Living with Raccoons, Living with Squirrels, Living with Skunks, and Living with Deer. A poster was created to remind people that **Moving Wildlife is Ineffective and Illegal** was published and a brochure was prepared for visitors to the DFW's four trout hatcheries. One new publication, a brochure for the Youth Turkey Hunts, was prepared but not printed; In addition to this a staff group convened to identify documents to be provided to landowners on a CD. This too is still in process.

Because of the new format selected for the 2010 "Abstracts of Fish and Game Laws" a great deal of staff time and effort was spent in writing/editing/proofing the new "magazine format" publication.

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 Leominster; the recently established Youth Turkey Hunt at which a limited number of participants and their mentors were photographed for possible use in MassWildlife publications or on the Division website; the Waterfowl, Archery, and Primitive Firearms stamp awards; and the 13th annual Massachusetts Outdoor Exposition ("The Big MOE") in Sturbridge where despite inclement weather over 1500 youngsters turned out to have fun participating in outdoor activities.

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.

Special Projects:

Bill continued efforts to photograph amphibians for upcoming publications. In addition to this he covered some aspects of Bald Eagle and Osprey nesting, as well as Wood Turtle research, all for upcoming articles in *Massachusetts Wildlife* magazine. One notable event covered was the installation of a protective gate inside the upper Chester mine, a traditional bat wintering cave. This is one of three major bat caves in the Western District, all owned by the Division of Fisheries & Wildlife, that have been protected with custom built, bat friendly, gates.

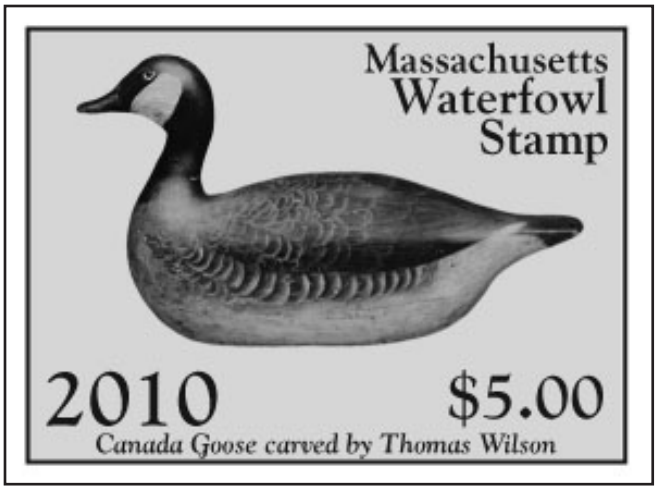
Three in house projects involved making specific large volume photo collections for documents and or presentations: Climate Change, BioMap II, and CT Valley District Activities.

In addition to these tasks, Bill attended a two day training session which enhanced his digital photography, editing, and file management skills.

***Massachusetts Wildlife*:**

Four issues of Massachusetts Wildlife were produced and published this year covering many in depth subjects ranging from New England cottontails and whalesharks, to hunting access , 4 years of moose telemetry research, air boat waterfowl research, effects of deer browsing on some forest flora, and shed antler hunting, to name a few. In addition to these subjects Bill spent time gathering images for upcoming articles on wood turtle research, osprey encounters, and forest fencing exclosures for deer and moose.

This of course is a huge amount of work on the part of a few talented staff members that results in a consistently professional DFW publication. Once the photos are taken, or submitted by authors, the photographer provides meticulous photo edits, color proofing and press checks.



Noted artist Janice Sexton won the contest for the 2010 waterfowl stamp with her rendering of a Canada Goose decoy carved by Thomas Wilson.

Production of Annual Materials

Licenses and Abstracts

The Abstracts of Fish and Wildlife Laws and Regulations (Abstracts) which had been expanded to 40 pages in 2009, was further expanded into a full-color, glossy stock, 60 page booklet which, in addition to laws and regulations, contained articles of interest to sportsmen, a guide to Massachusetts freshwater fish and much more. The expansion and upgrading was underwritten by the sale of advertisements managed by the J.F. Griffin Publishing Co. and was thus effected at no cost to the Commonwealth.

As in the past, Section Chief Ellie Horwitz 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 be by an artist who has not won the competition during the past 3 years. It 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 entries submitted for the 2010 waterfowl stamp in July 2009 in a day-long process. The judges selected a painting of a Canada Goose carved by J. Thomas Wilson (formerly of Ipswich, MA) and submitted by artist Janice Sexton of Westport, MA. Following the competition, all of the qualifying artwork was exhibited at the Springfield Science Museum in Springfield, MA. 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 2010 Archery and Primitive Firearms stamps was also selected through blind judging processes in open competition. For this year, the judges selected a painting of a whitetail buck running through the woods by Jeffrey Klinefelter of Etna Green, IN for the Archery Stamp. Artwork chosen for the Primitive Firearms Stamp depicted a whitetail buck standing in a snowy field and painted by Judy Yates of Liberal, KS.

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 your back yard, endangered species, tracking, living with wildlife, etc.), public appearances at conferences, community reading day, and workshops we reach out to urban youth, scouts, early childhood educators, department of youth services secure treatment residents, pre-service teachers, undergraduate and graduate college students, formal and non-formal students, and other adult audiences.

Formal or School-based Education Programs

Pam Landry: Coordinator

Project WILD: Eighteen Project WILD facilitators offered twenty-six (4 WILD, 6 combination WILD/Aquatic WILD, 15 Growing Up WILD, and 1 cancelled workshop due to under enrollment). These workshops reached a total of 481 grade preK-12 statewide educators. Workshop participants included under-graduate & graduate college students, formal & non-formal educators, nature center natural history guides, homeschooling parents, librarians, early childhood educators, Montessori, student conservation alliance volunteers, scout leaders, and summer camp staff.

Growing Up WILD: Exploring Nature with Young Children – This new Project WILD early childhood education program is in full swing in Massachusetts. The program builds on children's sense of wonder about nature and invites them to explore wildlife and the world around them through a wide range of activities and experiences. Growing Up WILD is a tool for helping fish and wildlife agencies meet their conservation goals by recognizing that children start developing attitudes towards wildlife and nature at an early age, providing knowledge and skills to early childhood educators so they may teach about nature, providing suggestions for outdoor nature-based recreation, providing conservation suggestions for each activity, providing activities that families can do together, and laying the foundation for acquiring increased scientific knowledge and problem-solving skills.

Twelve Project WILD facilitators were trained to offer Growing Up WILD workshops. Statewide workshops were provided for over 350 early childhood educators with participants representing Family Child Care, Child Care Centers, Mass. Association for the Education of Young Children (Mass AEYC), Head Start and Early Head Start, Mass. Department of Early Education and Care, Montessori Schools, Regional Library Systems, YMCA's, State & Community Colleges, Self-Help/Community Partnership for Children, and Child Care Resource & Referral Agencies.

Junior Duck Stamp Program (JDS) – Connecting Children with Nature Through Science and Art: Students in grades K-12 from across the Commonwealth submitted 413 pieces of artwork to this *"Conservation through the Arts"* program. Entries were received from public, private and home schooled students; scouts; individuals; and private art studios. Participation rates have fluctuated greatly over the years due in large part to the discontinuation of art programs in public schools statewide. The judging, by a panel of five wildlife artists, took place at the USFWS Great Meadows National Wildlife Refuge, Sudbury. Artwork depicting a watercolor of a Trumpeter Swan by Jenna Richards, Golden Hill Studio, Haverhill, 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. Combinations of the top 100 pieces of art were part of a statewide traveling exhibit appearing at 12 different venues. Supporters of the JDS program include Division of Fisheries and Wildlife (MassWildlife), U.S. Fish & Wildlife Service, Massachusetts Waterfowlers, Inc., and Massachusetts 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 (Groundwater Protection), and attending the competition and through Susan Benoit's involvement as coordinator of volunteers. The 2010 Envirothon was held at Otter River State Forest in Baldwinville.

Environmental Education Initiatives and Training

Secretary's Advisory Group on Environmental Education: Section Chief Ellie Horwitz represents the DFW on the Secretary's Group for Environmental Education (SAGEE), an advisory group that serves the Secretary of EEA. During this year, Mrs. Horwitz worked with a subcommittee 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 in a position to apply for it.

This group also issues annual awards for Excellence in Environmental Education and Ms. Horwitz was involved with the review of materials submitted for this competition.

Association of Fish and Wildlife Agencies: The Section Chief served as one of the Northeast representatives to the Education, Outreach, and Diversity 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 2004. 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 (2005) and spent 2008 and 2009 working toward *The North American Conservation Education Strategy: A Tool Kit for Achieving Excellence*, under the leadership of Dr. Judith Silverberg of New Hampshire. By the close of FY 10 these materials had been completed and ancillary materials on Field Investigations and on the North American Wildlife Management Model were in the works. Once these materials are published, AFWA will address the issues involved in placing these concepts and materials in service through training, funding, and other mechanisms.

Skills Programs

Hunter Education Program*

Susan Langlois, Administrator

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 through Susan Langlois, Administrator. 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 4,709 students participated in the Hunter Education Program in FY 10. The participation level increased from FY 09 (4,559 students), and is consistent with the 5-year average of 4,226 students. The following is a summary of course offerings and statistics on student participation in FY 10.

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.

- 80 courses were offered. Courses were 12-19 hours in length. A total of 3,459 students participated, 3,214 successfully completed the course, 15 failed and 230 did not complete the course. Students are asked to volunteer information on age, gender, and ethnic background on their registration forms: 529 students were minors (10-14 years old), 436 were 15-17 year old minors, and 107 identified themselves as minority. Four hundred and forty two 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.

- 28 courses were conducted. Course length ranged from 8-12 hours. A total of 770 students participated; 761 successfully completed the course; 9 did not complete the course. One hundred and six students were 10-14 years of age and 56 were 15-17 years of age. Sixteen minorities and 65 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.

- Five courses were offered, with a total of 231 participants. Courses were 10-12 hours in length. Two hundred and seven participants successfully completed the course; 3 failed and 21 did not complete the course. Six 10-14 year-old minors, six 15-17-year-old minors, five minorities and fourteen 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.

* Because of its size and importance the Hunter Education Program stands alone in the organizational structure of the DFW. It is incorporated into this section of the Annual Report because of its close functional relationship to the I&E Section's skills programs.

- Three courses were conducted. Course length ranged from 10-15 hours. Fifty-one students participated. Forty eight successfully completed the course. Seven women, two minors (10-14 years old), and four older minors (15-17 years old) attended.

Map, Compass & Survival: This one 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 (one in Pittsfield, three in Westminster and four in Westborough). Courses range from 8-10 hours in length. A total of 157 students participated; six did not complete the course. Six minorities, 13 minors (10-14 year old), 6 minors in the 15-17-year-old age range and 36 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.

- Two courses were held with 41 students participating. Thirty four students successfully completed the course and seven did not complete the course. Three women, 2 minors (10-14 year old), and 3 minors in the 15-17-year-old age range participated.

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 $50,000 was made available to clubs for Shooting Range Maintenance and Enhancement projects in FY 10. A total of three clubs responded with 5 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

The Angler Education Program is an outreach/education program within the Information and Education section of the Massachusetts Division of Fisheries and Wildlife (*MassWildlife*). It is the main component of the Aquatic Resource Education Program. The other component is Aquatic Project WILD. *MassWildlife's* Education Coordinator oversees Aquatic Project WILD. The Angler Education Program has several components set up to introduce people to fishing and the outdoors, including Family Fishing Festivals, Fishing Clinics, and our own Fishing Tackle Loaner Program.

The Angler Education Program is staffed by a Coordinator and a cadre of 123 established volunteer instructors as well as 14 Instructors in Training (instructors that have completed the training course during this segment, or are apprenticing instructors). These instructors are divided among 12 workshop groups. Of the 137 certified instructors, 82 or 60% were active during the year. During FY 10, the Angler Education Program staffed booths at the Worcester Sportsmen's Show, and the Springfield Sportsmen's Show. These venues are important to the program as it solicits instructors through press releases, through these sportsmen's shows, and from positive publicity by word of mouth. New instructors are trained either through an intensive one day Instructor Training Class, or by apprenticing within the program. In FY 10 the one day training was held at the Southboro Rod and Gun Club in Hopkinton.

Family Fishing Festivals and Derbies: There were a total of 23 larger, mostly weekend, fishing events for the segment. Included here are our family fishing festivals, fishing derbies and other weekend fishing events we assist with. In FY 10 these events ranged in size from approximately 50 people to as many as 700. The fishing festivals are set up as an introduction to fishing where rod and reel combinations, terminal tackle, and bait are made available to participants without cost, and where, when the manpower allows, basic instruction is provided in casting, fish identification, and knot tying. Also in this category are fishing derbies and events for anglers with special needs. At these events the program provides volunteer instructors and equipment. Total estimated participation for Festivals and Derbies for FY 10 was approximately 4,500 people.

Basic Fresh-Water Fishing Courses: This component of the Angler Education program is being phased out as there has been a steady decline in participation over the past ten years. During FY 10 there was only one course which served approximately 35 participants. With the steady decline in demand for courses and the steady

A young angler at the Big MOE.

increase in demand for clinics we will focus instructor effort on fishing clinics and on weekend fishing festivals but we will continue to offer these courses on a limited basis.

Fishing, and Fishing Related Clinics: Fishing clinics, while short in duration, are very popular. These clinics are generally two hours long. They involve a short lecture on fish and fishing followed by hands-on casting instruction, and a healthy dose of actual fishing. Educational handouts are provided and classes are kept small enough to allow the instructors to work with participants one on one. Other presentations included in the category are trout stocking programs, casting programs, and angler education talks given to school or scout groups. During FY 10 a total of 80 fishing clinics were offered in various parts of the Commonwealth by the coordinator, and by numerous volunteer instructors. Approximately 1,475 people (mostly children) participated. There were two "casting only" programs offered during the year, including a two day casting program at the DCU Center for the 1st Centennial NE Scout Show. Over 1000 people participated in these casting programs. There were also 11 trout stocking programs for the segment involving 442 students, and 5 Angler Education Program talks given to approximately 220 people.

Tackle Loaner Program: The Angler Education Program maintains fishing equipment at the Westborough Field Headquarters for loan to various groups throughout the state. Equipment was loaned out on 20 separate occasions for a total of 515 rod and reel combinations loaned to various groups/agencies including the Massachusetts Department of Conservation and Recreation, U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, various sportsmen's clubs, scout troops, and others. Along with the rod and reel combinations, these collaborators received the necessary terminal tackle, and a variety of fishing education materials.

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 the people 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 2010 is the 15th 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. Because the change in venue from Lenox to Becket in FY 09 resulted in a reduction in participation, the coordinator spent considerable time this year researching possible alternate sites. None proved suitable and the summer weekend was again scheduled for Camp Chimney Corners in Becket. However, with the cooperation of camp administrators, many of the problems encountered in 2009 were resolved.

BOW Events held in FY 10

Date	Topic	Number of Participants
July 2009	Geocaching	14
September	Shooting Sports	40
September	Quabbin Day (History & Fishing)	18
November	Deer Hunting Seminar	13
December	Deer Hunt	20
January 2010: Women's Wellness Weekend		42
Winter Tree ID		12
Winter Wildlife –Tracks and Signs		20
Being Safe Outdoors		10
February	Winter Workshop	24
March	Maple Sugaring & Geocaching	17
April	Turkey Hunting Seminar	5
May	Turkey Hunt	9
May	Striper Fishing	14
June	BOW Weekend	49
Total Attendance		**265**

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. One program graduate, who began hunting with the Mass. BOW program, made national headlines when she took a 1,025 lb. alligator in South Carolina.

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. Because of this interest, notes were sent to sportsmen's clubs with very positive results.

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 2009, the Massachusetts Junior Conservation Camp held its seventh session, at the Chesterfield Boy Scout Reservation. A total of 120 youngsters attended the two-week program. As in the past, DFW staff assisted by providing instructors and coordinating arrangements with other 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

Uniforms

No uniform items were purchased during this fiscal year. Caps and shirts were made available to staff as supplies allowed.

Tourism

Many tourism centers closed during this year due to the poor economy. This is the first year in at least 5 in which we did not send Hunting and Fishing Guides to centers across the state, but only to the Visitor's Centers in Lancaster, Adams, and Marshfield. Some information was also provided to the Sturbridge Chamber of Commerce station.

Special Projects

During this year the Massachusetts DFW hosted the Northeast Fish and Wildlife Conference at the Newton Marriott Hotel. This conference drew more than 600 wildlife professionals from 13 northeastern states and from the northeastern Canadian provinces. The conference featured intensive fisheries, wildlife and information-education program tracks. All Section staff were fully engaged in this venture in capacities ranging from program planning to the setup of video equipment for speakers.

Also, because of staff retirements, the responsibility for care and maintenance of the Cardoza Library was transferred to the Section Chief. As part of this transfer, Ellie conducted a staff survey of publications needed. She also checked into the availability of publications in electronic format. Since that time she has advised staff as publications have become available.

In an effort to make the entry to the DFW Field Headquarters more attractive to visitors, reception staff overhauled the display of the ever-popular Pond and Wildlife Management Area maps. Bulletin Boards were given a fresh look and a special bulletin board was emplaced in the front hall adjacent to the fish tank display. This Board highlights the Sport-fishing Awards Program providing a description of the program, 2010 list of minimum qualifying weights, and a list of current "pin fish" leaders. The Board also provides colorful, descriptive plates of the species of fish in the adjacent tank displayed at kids' eye level.

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*

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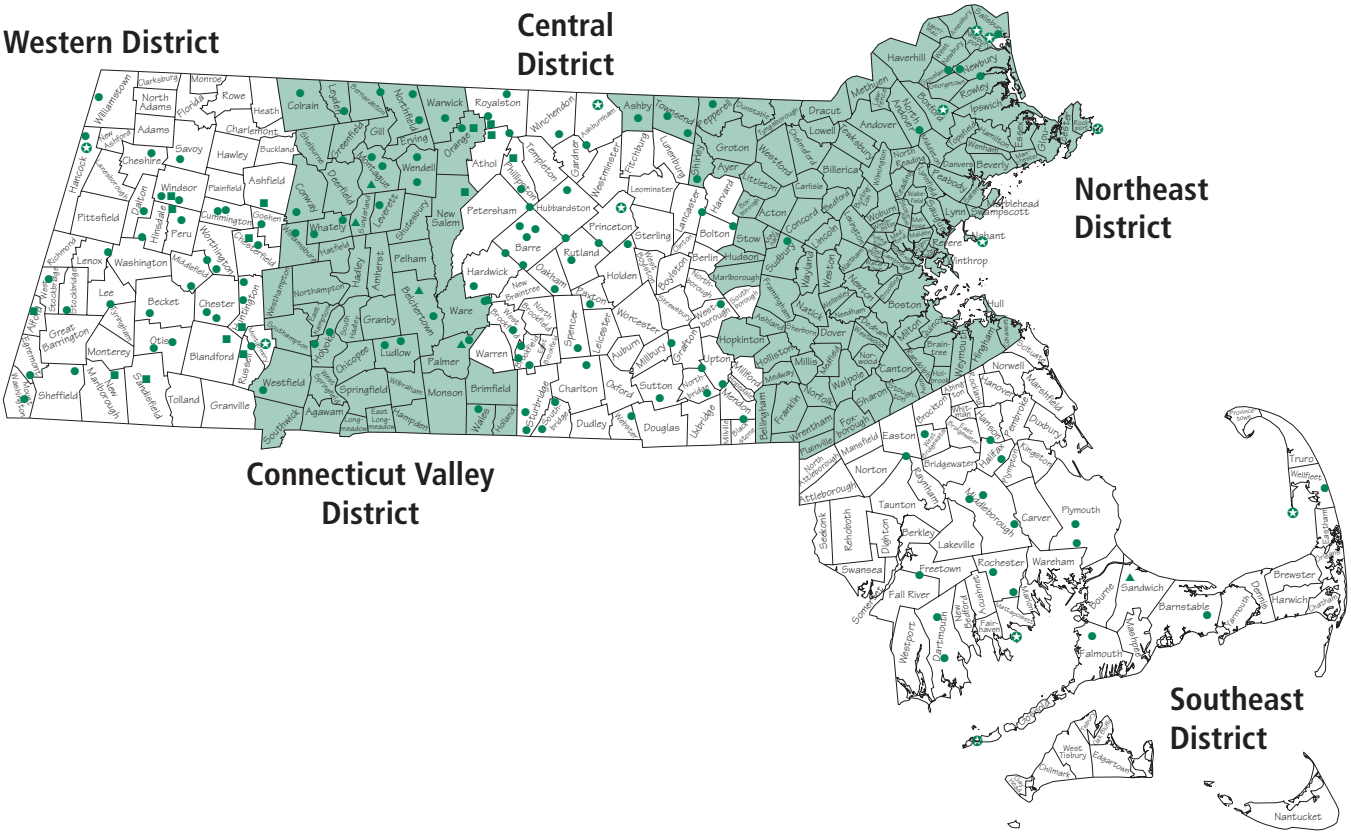
DISTRICT REPORTS

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, as well as related stamps and selected permits. They distribute licenses, Hunting, Fishing and Trapping Guidebooks (formerly known as the "Abstracts of Laws and Regulations"), 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.

Staff from all of the Districts conducted these administrative activities. They 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. Prior to releasing trout, they monitor the water quality of the designated lakes and streams. They release pheasants on Wildlife Management Areas (WMAs) and in open covers (suitable habitat on public land). 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 co-operative 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

There were no personnel changes during this fiscal year. Moving the District Office from Acton to Ayer required significant time and effort from the entire Northeast District staff. The amount of research and conservation work that the Northeast District staff could accomplish this fiscal year was impacted by the office move. All oversight of contract work, interior renovations, packing, moving, painting, and set-up were skillfully managed by staff biologists, technicians and the District Supervisor.

Staff members attended a variety of meetings, programs and training sessions. Training sessions were held on diversity in the workplace, fish identification, climbing for bald eagle banding, ARCview GIS Database, and the new telephone system. Staff members also attended meetings and programs of the Parker River Clean Water Association, Nashua River Watershed Association, and local conservation breakfasts. They attended meetings that dealt with the Mt. Watatic Reservation license agreement; meetings with the West Newbury selectmen dealing with the landfill at Crane Pond WMA; meetings with the Ayer Conservation Commission dealing with suburban deer management issues; meetings with Wrentham Selectmen regarding Lake Pearl; meetings with the board of the Vernal Pool Assoc. and with the Essex County League of Sportsmen's Clubs, and more.

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

Research and Conservation

Wildlife

District staff conducted springtime waterfowl surveys in the Northeast and Central Districts where six waterfowl breeding plot surveys were checked, (five in the Northeast and one in the Central District), and banded waterfowl from the airboat in August and September. District staff conducted dove, grouse, and woodcock census routes for the Annual Breeding Bird Surveys, and checked 154 wood duck boxes. Staff also scouted for potential Canada goose banding sites throughout the month of June.

The District Wildlife Biologist and Wildlife Technicians assisted with deer farm checks. In June, staff baited for red deer that had escaped from the nearby Pearson deer farm and that had been seen at the Martin Burns WMA. The deer eventually returned to the farm on their own.

Black duck banding work occurred in January and February at sites in Essex County, most importantly at Parker River National Wildlife Refuge. Swim-in bait traps were used effectively on the salt marsh, and 33 black ducks were captured and banded. This work was conducted in support of the national five-year experimental population modeling study.

A first for the Northeast District: a black bear with cubs was tagged in Townsend, to the delight of about 20 onlookers. This coordinated effort with bear experts from Central District successfully achieved a safe immobilization of the sow which was denned up under a rock outcrop within a tangle of mountain laurel in the middle of about 90 acres of woodland. Newly trained District staff also helped with bear tagging at a site in the Connecticut River Valley.

The Right of Way (ROW) which bisects the 1,600 acre Martin Burns WMA is no longer under consideration as a possible location for a bike trail proposed by the Border to Boston Trail Committee. Thanks to the work of dedicated sportsmen and women and concerned conservationists, the Martin Burns WMA, an ecological and recreational gem, will remain whole.

The Ox Pasture Brook dam removal project on the William Forward WMA (Rowley and Newbury) was completed over the winter with assistance from the Essex County Mosquito Control District, and the Nor'east Chapter of Trout Unlimited. The MA Division of Ecological Restoration handled all permitting and oversight of work. Rocks from the dam were used for streambank restoration at the location of an eroding trail crossing, to shore-up a muddy woods road, and to block illegal ATV use.

The Division issued a License Agreement to the town of Pepperell for the Prudence Wright Memorial Overlook on the Nashua River Access Area. Planning occurred

over the winter, with the installation of the monuments, signage, and native plantings for wildlife, in June.

The second year of the Dunstable Brook WMA turtle work continued with 20 state-listed turtles documented so far. Sixteen of these turtles are being tracked using radiotelemetry, and data indicates significant over-wintering on Division property. Additional expenditures from the Charles George Landfill Natural Resource Damage funds went towards the creation of three turtle nesting structures strategically placed based on turtle research findings. Over 30 acres of shrublands were restored during the winter months. A small parking lot was added along with an information kiosk.

Division staff worked on removal of the invasive water chestnut at the Delaney WMA. Mute swans continue to be documented here. Dog complaints have been significantly reduced since posting Delaney WMA with "leash only" and "pick-up after your dog" signs.

Fisheries

Staff assessed 11 brooks in three drainages: Charles River (4 sites, 3 brooks), Ipswich River (3 sites, 2 brooks), and the Merrimack River (10 sites, 6 brooks). One new native Eastern brook trout stream was documented within the Merrimack River drainage.

Permitting for the Gulf Brook Trout Habitat Restoration Project at Pepperell Springs Conservation Restriction area was completed with successful application filings, hearings, and meetings with the Pepperell Conservation Commission, MA Environmental Policy Act staff, and MA Department of Environmental Protection. The project includes replacement of two substandard culverts to facilitate fish passage.

Natural Heritage and Endangered Species Projects

Springtime herpetological assessments at Martin Burns WMA were conducted by seniors from Masconomet High School in Topsfield under the supervision of their teacher, Norm Clark, and DFW staffers Erik Amati and Pat Huckery. This is the first year of a cooperative effort through which the students learn field assessment techniques and the Division receives important data about amphibians and reptiles. The students identified and collected data on over 20 vernal pools and collected morphometric data on spotted turtles and painted turtles. This project will continue next year, expanding into other parts of the Martin Burns and Crane Pond WMAs, and will include other animal and plant studies. Beaver continue to cause flooding and damage to the internal road system, and we continue to manage the problem through seasonal removal of some of the beaver population.

The number of bald eagle nests in the Merrimack River watershed doubled this year, from 2 to 4 nests, in the towns of West Newbury, Salisbury, Methuen, and Tyngsborough. Media interest was high in the triplets at the West Newbury bald eagle nest site. On the day of banding, staff found one dead eaglet on the ground. This young bird was likely out-competed for food by its two stronger siblings. One feisty chick was banded in Salisbury, one in Methuen, and one in Tyngsborough. The District had a successful year participating in the Merrimack River Eagle Festival, sponsored by the Massachusetts Audubon Society (MAS), where DFW is stationed at Deer Island in Newburyport, a favored location for viewing eagles. The mid-winter bald eagle survey was conducted along the Merrimack River on January 8th.

A pair of peregrine falcons took to a Division nesting box that staff installed in February in the New Balance building clock tower in Lawrence, and they brought forth four healthy chicks. Staff assisted Dr. Tom French in banding another four peregrine chicks at UMass in Lowell, where the UMass "peregrine cam" airs their minute-by-minute growth.

Two historic breeding sites for the threatened piping plover were monitored starting in April and continuing through mid-July. Breeding was not detected.

Turtle nesting areas were added to the Bellerman parcel at the Squannacook River WMA through the efforts of the MA Department of Conservation & Recreation which trucked in sand reclaimed from one of their nearby beaches.

Enhancement of Outdoor Recreation

Twenty (20) sportsmen applied for waterfowl permits at the Delaney WMA, vying for eleven waterfowl blinds that are maintained by District staff. Fifty-six (56) field trial permits, 1 camping permit, and 300 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. Six hunters took part in the paraplegic hunt held at Devens, at which one deer was taken.

Clean-up and maintenance of the range at Martin Burns WMA continued this year with help from the US Coast Guard, who regularly train at our range. Five (5) WMA signs were made and installed to facilitate public recreation. Boundary work was completed at a new property at Ashby WMA.

The Danvers Fish and Game Club ran a successful Youth Pheasant Hunt at Martin Burns WMA, with nine youngsters participating. District Supervisor Pat Huckery 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.

The trespass case at Mulpus Brook WMA in Shirley is on-going with some progress toward resolution, but with many of the major encroachments still to be removed. A proposed road on William Forward WMA was discovered during the Rowley Zoning Board of Appeals process.

Outreach and Education

Information kiosks were installed at Dunstable Brook WMA, Martin Burns WMA, Townsend Hill WMA, Squannacook River WMA, and the Nissitissit River WMA.

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 and Worcester Sportsmen Shows, and contributed their services to the annual Massachusetts Outdoor Exhibition ("The Big MOE"). Six talks/workshops were presented by the District Supervisor.

Technical Assistance

Staff fielded phone calls from the general public on everything from groundhogs to the growing bear population in the Northeast District. Many hours were spent listening to and helping the public with questions about wildlife they see around their houses, in their yards, and woodlands. A fox complaint was resolved for a State Representative living in Wilmington, and staff helped out in the case of a black bear that excited residents of Methuen when it passed through and hung out with a pig for several days.

Southeast District

Administration

There were several changes in the Southeast District personnel during FY10. In January 2010, Wildlife Technician Ed Kraus retired following a lengthy recovery from major back surgery. Ed began working for the agency in February of 1967, providing nearly 43 years of outstanding service to the Commonwealth. His knowledge, skills and companionship will be missed. In February 2010, Clerk Camie Marsh also retired after more than 15 years of service to the Commonwealth with both the Division and the Department of Conservation and Recreation. In June 2010, Technician Steve Wright transferred into the vacant Technician position from the Northeast District. The Southeast District Clerk position remained vacant through the end of the fiscal year.

Staff members received prescribed fire training in FY10 including S130 Firefighter Training, S190 Introduction to Wildland Fire Behavior, S131 Firefighter Type 1 Training, S133 Look Up, Look Down, Look Around Training, S290 Intermediate Wildland Fire Behavior, and S211 Portable Pumps and Water Usage. The training courses improve our ability to safely and effectively utilize prescribed fire to manage and improve wildlife habitats on our lands. District staff also attended climbing training led by Kurt Palmateer to prepare them for conducting American bald eagle and peregrine falcon banding activities. Staff also completed conflict of interest and diversity training.

Several significant equipment additions were completed in FY 10 including parts and labor to retrofit a 200 gallon slip-in water tank for our pickup trucks to be utilized during prescribed fires; new knee boots, hip boots, and chest waders for field staff to be utilized during stream surveys; and boundary marking and flume maintenance, among other District operations. The District also purchased batteries and other parts to maintain the PIT (passive-integrated-transponder) tagging antennae used in ongoing research on wild salter brook trout populations in Red Brook, the Quashnet River, and the Childs River.

As has been reported in previous years, the Southeast District continued to work very closely with the Sandwich State Fish Hatchery staff throughout the year. Both facilities benefit greatly from this relationship. District staff assisted the Hatchery with various projects including unloading shipments of trout feed, assisting with trout spawning, assisting with the movement of fish within the Hatchery, brush cutting, tree work, and snow removal. Hatchery staff assisted the District crew on a number of fish and wildlife projects including operating biological deer and turkey check stations, and assisting with the operation of Otis/Camp Edwards controlled hunting opportunities.

Research and Conservation

Wildlife

District staff assisted 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.

The District continued its efforts to complete and submit a grant application to the USFWS under the North American Wetlands Conservation Act small grants program for a project on the Burrage Pond Wildlife Management Area. The final grant proposal was submitted in October 2009, and we were notified that the proposal had been approved in March 2010. The grant will allow the Division to move forward on a major habitat restoration project that will convert nearly 250 acres of former cranberry bog into a mosaic of emergent wetland habitat types, benefiting a wide range of waterfowl and other wetland-dependent wildlife and plant species.

The District also began work in FY 10 to lead and coordinate another major habitat restoration project on the newly acquired "Century Bog" property, which added 245 acres to the DFW's Red Brook WMA. The Century Bog acquisition represented the final piece of the puzzle in protecting Red Brook, one of the state's best known and productive salter brook trout streams, from its headwaters to Buttermilk Bay. Early in this process, the Division set up a "stakeholder meeting" to present restoration concepts for the property, to begin to collect feedback on the project, and to move forward

through the planning, fundraising, and permitting aspects of the project.

District staff completed many habitat improvement projects in FY 10. They participated in several prescribed burns on the Massachusetts Military Reservation; monitored and managed water levels on the Burrage Pond WMA, Rochester WMA, and West Meadows WMA; installed, monitored, and maintained nesting boxes/structures for wood ducks, eastern bluebirds, osprey and peregrine falcons; removed and treated invasive plant species at several WMAs including Burrage Pond and Frances A. Crane; and maintained and/or enhanced early-successional and open field habitats at Burrage Pond WMA, Frances A. Crane WMA, Myles Standish State Forest, and Hockomock Swamp WMA, among other activities.

District staff continued to maintain wildlife habitat and public safety on our properties by removing illegally dumped trash and other debris and working to block illegal ORV trespass points onto Division land. The District worked closely with the Massachusetts Environmental Police to identify problem ORV areas and to direct enforcement to particular households where illegal trails onto DFW properties originated. Significant flume and other water control structure repairs and maintenance were also completed in FY10, including major repairs to the Rochester WMA flume on the Mattapoisett River where District staff worked closely with Town officials to replace the wooden flume boards and install a new wooden bottom to the structure that had rotted out over time.

The District Supervisor administered many different license agreements on Division lands that provide a net benefit to wildlife and/or wildlife-dependent recreation, in strict compliance with Division policies. Notable agreements include a Cooperative Management Agreement with the Massachusetts Environmental Police to utilize a house and storage barn at the Burrage Pond WMA, as their presence has been excellent at deterring illegal ORV activity at this sensitive site, and also promoted wildlife-friendly farming operations at Dartmoor Farm WMA, Hockomock Swamp WMA, Burrage Pond WMA, and Taunton River WMA. He also established a Little Bluestem seed collection agreement at the Frances A. Crane WMA that annually provides the Division with native seeds for planting on this and other WMAs.

District staff completed breeding surveys for ruffed grouse, mourning dove, and various waterfowl species as assigned by Wildlife Section biologists. District staff also conducted American Black Duck trapping and banding under the direction of H Heusmann as part of a five-year pilot study to evaluate movements and survival of black ducks in the Atlantic flyway. The District successfully operated trapping/banding sites in Plymouth, Bristol, and Barnstable counties, and banded a total of 344 black ducks. District staff also operated biological check stations for white-tailed deer and wild turkeys throughout southeastern Massachusetts and conducted Chronic Wasting Disease sampling. They also performed routine inspection and tagging of furbearers. District staff also assisted with the annual Canada Goose banding effort. The District Supervisor inspected captive deer held at the DCR Blue Hills Trailside Museum in Milton and provided technical advice relative to their diet and condition.

Fisheries

Under the supervision of the District Fisheries Manager, a summer internship was completed by student Jamie Whiddon, who assisted in field surveys and created a field guide to Little Sandy Pond in Plymouth. Stream temperatures were monitored every 15 minutes using continuous data loggers at a variety of former and present brook trout streams. Summer temperature and dissolved-oxygen profiles were conducted at five stocked trout ponds, as well as Long Pond Brewster/Harwich. In response to requests, fisheries surveys were made on Osborne Pond in Bourne on the Massachusetts Military Reservation (MMR), Skinequit Pond in Harwich, Pine Brook Reservoir in Kingston, and Leonard's Pond in Rochester. A fish survey was also conducted at Great South Pond in Plymouth. A large kill of freshwater mussels due to an algae bloom in Mystic Lake in Barnstable was investigated in August 2009. Stream surveys were conducted on ten streams in the Taunton, South Coastal, and Buzzards Bay watersheds using the standardized statewide sampling protocol. A total of 100 tiger trout were tagged with dart tags and released into Scorton Creek in Sandwich on May 5, 2010 as part an experiment on sea-run tiger trout.

The District's PIT tagging program of salter brook trout populations continued in Red Brook and the Quashnet River and was expanded to the Childs River. Over 1,200 wild brook trout have been tagged in the three rivers and over 22,000 tag detections have been made by the six fixed antennas now operating. Inter-river movement of PIT tagged brook trout through the marine environment of Waquoit Bay was documented for both a transplanted Quashnet River trout as well as a wild trout from the Childs River. This tagging study is gathering valuable information on brook trout movements and growth rates in coastal streams. In June, 2010, brook trout were captured by electrofishing in Red Brook and ten acoustic tags were implanted by researchers from UMASS-Amherst, the Conte Anadromous Fisheries Laboratory, and the Maine Cooperative Fisheries Research Unit. A total of nine acoustic receivers were deployed in Red Brook and Buttermilk Bay. Southeast District staff provided field sampling and logistic support for this research study.

Early success was noted in restoration of brook trout to the Childs River through transplants of wild brook trout from the nearby Quashnet River. Over 100 young-of-the-year brook trout were PIT tagged in the Childs River in the fall of 2009 and one of these fish was documented traveling through Waquoit Bay to the Quashnet River. The capture of young-of-the-year brook trout in spring

2010 documented two successful spawnings in the Childs River and hinted at great potential for the successful restoration of a wild brook trout population. A total of 37 adult brook trout were moved from the Quashnet River to the Childs River in spring 2010, completing three years of transplant efforts.

FY 10 was an exciting year for the protection and restoration of Red Brook, fulfilling the legacy of Theodore Lyman III, one of Massachusetts's first Commissioners on Inland Fisheries. The Southeast District fisheries manager provided field and technical assistance in removing old cranberry bog flumes and lowering an old road bed crossing in Red Brook in cooperation with the Division of Ecological Restoration, the A.D. Makepeace Company, InterFluve Inc., The Trustees of Reservations, and Trout Unlimited. Century Bog, at the headwaters of Red Brook, was purchased from the A.D. Makepeace Company and added to the Red Brook Wildlife Management Area, and planning was started on future habitat restoration which will begin at the end of the five year cranberry bog lease period. District staff was heavily involved in support for the purchase and lease negotiations. This brook and its salter brook trout population has established and strengthened partnerships and relationships between a consortium of federal, state, town, and private conservation groups, as well as private organizations such as Trout Unlimited and educational institutions such as the Massachusetts Maritime Academy and the University of Massachusetts at Amherst.

Natural Heritage and Endangered Species Program

District staff worked closely with the Natural Heritage and Endangered Species Program on a variety of projects during this fiscal year. As in previous years, District staff worked with Carolyn Mostello to help meet the goals of the Tern Restoration Project, assisting with boat and equipment maintenance, habitat improvements on Bird, Ram and Penikese Islands, installation of nesting structures on Bird Island, and nest/chick monitoring.

District staff coordinated efforts to protect piping plover nesting habitat on the DFW's Fox Island Salt Marsh property in Wellfleet. Symbolic fencing and signage was installed at the site and once a nest was established, a schedule was completed to station a Division employee on site to serve as a vehicle escort for shell fishermen accessing their oyster grants nearby. Unfortunately, the nest was predated by a fox just prior to the expected hatching date and the pair did not attempt to re-nest.

The District Wildlife Manager installed signage and floats to protect the active Bald Eagle nest at Pocksha Pond in Middleboro. District staff participated in the annual mid-winter bald eagle census, covering portions of Middleboro, Lakeville, Fall River, Westport and Dartmouth. District staff also monitored our three known eagle nesting territories; however the nest at North Watuppa Reservoir in Fall River was the only nest that was successful in FY 10. The District staff safely and successfully banded two healthy eaglets at this nest for the first time using our own staff for climbing and ground operations. District staff also monitored our two known peregrine nesting sites; however the Braga Bridge pair abandoned their eggs and we were unable to band the New Bedford pair due to local site conditions although two healthy peregrine chicks were fledged. Technician Aaron Best constructed a new nesting box for the Braga Bridge pair. It can be utilized as a safe location to move chicks during banding, as they often select dangerous nesting sites under the bridge.

District staff continued the rare turtle survey and research at Burrage Pond WMA in an effort to better document and understand the distribution, habitat use and movement patterns of Blanding's and Spotted Turtles. An internship was completed by University of Massachusetts at Amherst student Dan Forand, who conducted the vast majority of the turtle trapping activities. He also assisted with a wide range of other District field activities including Canada Goose banding, trails mapping, and identification and blocking of illegal ORV access points. District staff also assisted with the New England cottontail project by repairing rabbit traps for use on the Massachusetts Military Reservation, assisting with rabbit pellet surveys, and assisting with field surveys for suitable N.E. cottontail habitat on Division lands.

Enhancement of Outdoor Recreation

The staff provided birds for another safe and successful upland game bird hunting season, stocking 7,956 pheasant and 3,500 quail on seven Wildlife Management Areas and over 12 open covers throughout the District. District personnel maintained quail pens at the District facility and provided food and water throughout the season. Eight-week old pheasants were delivered to the Samoset Rod & Gun Club, a continuing participant in the club bird program. These birds are raised by members of the club and stocked on open covers during the pheasant season. The District also provided pheasants to the Carver Sportsmen Club and Falmouth Rod & Gun Clubs for use in the Division's Young Adult Pheasant Hunt. District personnel were on hand to assist with both hunts.

District staff stocked its fall 2009 allocation of trout into 25 ponds and stocked its spring 2010 allocation of trout into 46 ponds and 38 streams. The Southeast District stocked a total of 440 salmon from the Palmer Salmon Hatchery and the National Fish Hatchery in White River Junction, VT in October and December 2010. District staff also monitored and maintained many boat ramps and fishing access areas throughout the District this fiscal year.

In preparation for hunting seasons, District personnel mowed and maintained roads, trails, parking areas, and fields within WMAs to provide safe and effective access and hunting opportunities to the general public. Signage was installed or maintained at Burrage Pond WMA and

the Popponesset Beach Fishing Access. Parking lots were created, maintained or improved at Burrage Pond WMA, Church Homestead WMA, Clapps Pond Access, Dartmoor Farms WMA, Erwin Wilder WMA, Hockomock Swamp WMA, Frances A. Crane WMA, Haskell Swamp WMA, Hyannis Ponds WMA, Noquochoke WMA, Popponesset Beach Access, Rochester WMA, Rocky Gutter WMA, Taunton River WMA, Cooks Pond NHA, Old Sandwich Game Farm WMA, West Meadows WMA, and at the Myles Standish State Forest and Freetown-Fall River State Forest Cooperative WMAs. The District also negotiated with the Town of Plymouth to install a small parking area at our Plymouth Pine Hills WCE.

District staff installed new safety zone signs at our Frances A. Crane WMA following the completion of habitat work (tree cutting and shrub mowing) to ensure the safety of a major abutter to the property. Boundaries were marked at many properties including the East Sandwich Fish Hatchery property, Halfway Pond WMA, Maple Springs WMA, Peterson Swamp WMA, Red brook WMA, Burrage Pond WMA, and the Back River Access in Weymouth. A significant illegal encroachment was found while conducting boundary marking at the Peterson Swamp WMA, which the District Supervisor addressed and resolved with the assistance of the Massachusetts Environmental Police.

District staff issued permits for eight winter pheasant hunts, two at the Erwin Wilder WMA and six at the Frances A. Crane WMA, under the Division's Special Winter Pheasant Hunting program which provides sportsmen with additional 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 eight hunting dog field trials 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-tail deer, wild turkey, and coyotes on the Massachusetts Military Reservation, however there was no archery deer season on the base this year due to a conflict with military training. This effort provided 1,090 days of recreational deer hunting opportunity and 118 days of recreational turkey hunting opportunity on roughly 9,500 acres of land on the MMR. A total of 54 and 3 deer were killed during the 2009 shotgun and primitive firearms deer seasons, respectively. Fourteen gobblers were taken during the spring 2010 turkey season. Combined, these two controlled access hunting opportunities provided a total of 1,208 days of recreational hunting opportunity. Further, FY10 marked the first year that the District worked with the military to allow a youth turkey hunting program at the MMR on April 24, 2010, with four youths participating in the hunt, two of whom harvested birds.

Outreach and Education

Outreach and Education continue to be an important part of District activities. The District Fisheries Manager provided a presentation on the fisheries of the Three Mile River watershed to a planning group, several talks on brook trout restoration to teachers taking part in a professional development course, a presentation to the annual Plymouth County League Banquet, another to the 7th annual State of Wellfleet Bay conference, and one to a stream symposium in Wareham.

District personnel continued to provide information and educate the general public, as well as a wide variety of other agencies and organizations, through publications, presentations and attending meetings and events throughout the region. District personnel prepared and staffed displays for the Thornton Burgess Animal Day, Waquoit Bay National Estuarine Research Reserve Watershed Block Party, Freetown State Forest Fun in the Forest Day, the Monument Beach Sportsman's Club Show, and Standish Sportsmen's Association Show. The District worked with Susan Benoit, DFW's promotions specialist, to create a display at the Marshfield Fair and, at the request of Fair officials, began plans to establish a permanent display for the Fair that would be staffed by DFW personnel each year. The District Fisheries Manager provided presentations on trout ecology and management to the Town of Westport, and two specific presentations on the restoration of wild brook trout within the Childs River.

Other requests for assistance dealt with suburban wildlife and conflicts with humans, and with other public health and safety concerns related to fish and wildlife. The entire staff assisted with the many calls received this (and every) year, particularly in the spring and early summer, pertaining to coyotes, foxes, fisher, Canada Geese, and other common suburban species. The "Living with Wildlife" publication flyers and educational messages were provided to many individuals and organizations to assist in dealing with these human-wildlife conflicts.

Technical Assistance

Technical assistance and a fish rescue were provided to the Town of Plymouth and their contractors in the restoration of former cranberry bogs on the Eel River in Plymouth. In summer 2009, the District assisted the Massachusetts Department of Environmental Protection on several Cape Cod stream surveys and in developing sites for stream temperature monitoring. A report of the invasive aquatic plant *Hydrilla* in Marshfield was investigated. Findings were confirmed and the DCR Lakes and Ponds Program was notified for future control efforts. Severe flooding in March of 2010 resulted in high lake levels in Long Pond and Assawompset Ponds in Lakeville and the District Fisheries Manager attended several public meetings called to investigate the causes and seek remedies.

Technical assistance was provided to a new advocacy group, the Sea Run Brook Trout Coalition (*www.searunbrookie.org*), formed to conserve salter brook trout. Technical assistance was also given for proposed Cape Cod pond alum treatments, a potential stream restoration at Fresh Brook in Wellfleet, a potential dam removal on the Sippican River in Rochester, and a dam removal and restoration plans for a coldwater stream in Plymouth (Wellingsley Brook). Technical assistance was provided to the Town of Scituate on a water management plan for the First Herring Brook system.

District staff provided technical advice and support to many local Animal Control Officers, Police Departments, Boards of Health and Conservation Commissions, as well as to the Environmental Police on issues dealing with fish, wildlife, and their habitats. Many of these issues relate to the review of the potential impacts of proposed development projects on fish and wildlife.

Staff assisted with a number of nuisance/problem and injured wildlife calls. The District Supervisor and Wildlife Manager investigated several reported bear sightings, with only a single report proving to be an actual bear, which had traveled through the Mansfield, North Attleborough, and Attleborough area before heading off into Rhode Island in July 2009. The District Wildlife Manager also captured an injured Great Horned Owl and delivered it to the Cape Wildlife Center in Barnstable for evaluation. The District Wildlife Manager rescued an injured Red-throated Loon and transported it to the Cape Wildlife Center for rehabilitation. The District Supervisor tagged two pre-release coyotes being held at the Cape Wildlife Center in September 2009. The District Supervisor and Wildlife Manager picked up a dead sika deer from a deer farm in Westport and conducted a necropsy to assist in determining the cause of death.

Other Activities

The District Supervisor attended monthly meetings of the Barnstable, Bristol, and Plymouth County Leagues of Sportsmen, and also attended an event held by the Martha's Vineyard Rod & Gun Club. In April, 2010, the District Supervisor and Fisheries Manager attended The 66th Annual Northeast Fish and Wildlife Conference held in Newton.

The District Supervisor continued to assist the Town of Marshfield in reviewing hunting on town –owned lands, with the ultimate outcome being that they voted to continue to keep Conservation land closed, but to open all Board of Selectmen-controlled properties. Further, a Town Meeting warrant article to ban hunting in the Town was defeated by a wide margin. The District Supervisor cooperated with Tim Simmons from NHESP and DCR Fire Control staff to evaluate habitat conditions and fire hazards at a cottage community abutting our Hyannis Ponds WMA, making recommendations for future work that would benefit wildlife while at the same time reduce fire hazards in the area. The Fisheries Manager also provided technical assistance to the Westport Rivers Estuaries Committee, A.D. Makepeace River Restoration Project, First Herring Brook Water Management Group, and during review of the Santuit Pond dam, and also worked with the District Supervisor to assist in the review of repair or reconstruction of the Chandler Pond dam in Marshfield.

The District Fisheries Manager served as the Division representative on the Santuit Pond Preserve Management Team and the Assawompset Pond Complex Management Team. The District Supervisor served as the Division representative on the Southeastern Massachusetts Bioreserve Management Team, Cape Cod Rabies Task Force, Mashpee National Wildlife Refuge Management Team, Nantucket NWR Comprehensive Conservation Plan (CCP) Planning Team, and the Monomoy NWR CCP Planning Team. The District Supervisor and Fisheries Manager both served on the No Mans Land Island NWR CCP Planning Team. The Fisheries Manager was actively involved in monitoring Massachusetts Military Reservation cleanup activities as a member of the Plume Containment Team (PCT). Annually, 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 Massachusetts Military Reservation (MMR) cleanup.

The District Fisheries Manager also served as the Secretary/Treasurer for the Fisheries History Section of the American Fisheries Society.

Central District

Administration

There were no personnel changes at Central District during the fiscal year.

Research and Conservation

Wildlife

Some 317 Wood Duck nesting boxes were checked and 66 new boxes were erected at various wetland sites. Donations of wood duck boxes and rough cut lumber were accepted from sportsmen and the general public.

Radio telemetry studies focused on tracking collared deer, moose, and bear were continued. One sow black bear retained her radio collar and was tracked to an open den in New Braintree. She produced two cubs. The second collared sow in the District was killed by a motor vehicle. A report of a denned bear in Townsend was investigated. The bear was immobilized in cooperation with NE District and ear-tagged. The sow had two young cubs.

Nuisance animal reports were addressed and recorded. A new reporting system was implemented. Technical assistance was provided and site visits conducted where necessary. The majority of reports related to beaver, coyote, bear, fisher, bobcat and fox. Reports of suspected illegal activity were forwarded to the Environmental Police.

Several moose/vehicle and bear/vehicle collisions were documented and data collected from specimens which could be salvaged. Large animal responses were undertaken by District staff for moose or bear in multiple towns in cooperation with the Environmental Police.

License Agreements were renewed with one snowmobile club and three groups of model airplane hobbyists regarding permitted uses of WMAs. Other agreements were maintained with 17 central Massachusetts farmers, primarily for hay and corn. Five acres were put out to agricultural bid at the Moose Brook WMA in Barre.

Six boat ramps were visited and trash removed. Assistance was provided to the Office of Fishing and Boating Access for improvement and maintenance projects at Fort Pond in Lunenburg and Big Alum Pond in Sturbridge.

Multiple trespass, motor vehicle, and illegal cutting of trees incidents were investigated on District WMAs. Wetlands and other violations committed by an abutter to the Natty Pond Access area in Hubbardston were addressed through settlement agreements between MEP, DEP, DFW, and abutter Larry L. Nelson. Nelson agreed to repair damages to wetlands and other terms of mitigation.

A timber trespass that was committed by David Nardone on the Five Mile River Area in North Brookfield was resolved in East Brookfield District Court following charges filed by the Environmental Police.

The District participated in Lands Committee and Parcel Ranking meetings.

Fisheries

Central District staff surveyed 78 sites on streams to assess fish populations and water conditions focusing on the Nashua, Quinebaug, French, Blackstone, Millers and Chicopee River basins. Baseline water quality data on acidity/alkalinity, conductivity, and temperature were recorded. Additional surveys were conducted to follow up on an impacted stream in Lunenburg and at the request of the Army Corps of Engineers in Leominster.

The District assisted with continuing research on bass survival at Congamond Pond in Southwick.

Sampling studies were conducted on two 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.

Natural Heritage and Endangered Species

Peregrine falcons nested successfully in downtown Worcester. Four chicks fledged but were not banded due to their advanced development.

The bald eagle nesting territory at Wachusett Reservoir in Boylston was active and produced two chicks. Both chicks were banded by District staff with assistance from Assistant Culturist Kurt Palmateer of the McLaughlin Hatchery. The Quaboag Pond eagle pair was observed on territory but never confirmed as incubating. The Lake Shirley pair produced a single chick which was banded. A local photographer installed a remote camera which enabled people to view the nest via the Internet.

Active osprey nests were documented at two sites in Sturbridge, both on cell towers. The known nests in Westborough and Grafton were also active, producing three and two chicks respectively. The Westborough pair continued to use a nest pole installed by District staff. Plans were formulated with the town of Oxford and National Grid to install a nest pole at a town recreation field where ospreys had shown in interest in nesting on a light tower.

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

Enhancement of Outdoor Recreation

Hatchery raised trout were stocked in 36 ponds and lakes as well as 23 rivers and 27 streams in Central District. Stocking participants included Cub Scouts, school groups, youth groups, New England Fly-tyers, Trout Unlimited, and local sporting clubs.

Broodstock salmon were stocked in Comet Pond and Quinsigamond, Whalom, Wallum, and Webster lakes. Salmon were obtained from the Roger Reed hatchery in Palmer, MA and the White River National Fish Hatchery in Bethel, VT.

The Tags 'n Trout program was sponsored at Pratt Pond, Upton; Lake Quinsigamond, Worcester; and Mill River, Blackstone.

Potential public access sites were investigated together with representatives from the Office of Fishing and Boating Access.

Outreach and Education Activities

District personnel set up the new DFW exhibit and helped staff the Eastern Fishing and Outdoor Expo at the Worcester DCU Center.

Technical Assistance

Reported fish kills on Coal Mine Brook in Worcester and Manchaug Pond in Sutton were investigated and technical assistance provided to DEP regarding a diesel fuel spill in Charlton. Additional waterbodies checked were located in Barre, Rutland and Sterling.

Other District Activities

A 300 seedling chestnut orchard was maintained at the District in cooperation with the American Chestnut Foundation and DCR.

District staff assisted staff of the Hunter Education Program in moving their offices from Westminster to Ayer.

The District Manager attended meetings and functions of the Worcester County League of Sportsman Clubs. The District Manager, Biologists and Technicians attended meetings with various federal, state and local agencies, and private organizations including the U.S. Army Corps of Engineers, DCR, DEP, Audubon Society, Fisherville Redevelopment LLC, Blackstone River National Heritage Corridor Commission, the American Chestnut Foundation, Ecotarium, MidState Trail Committee, Wachusett Greenways, East Quabbin Land Trust, Northboro Trails Committee, Central Mass. Regional Planning Commission, Westboro Trails Committee, Princeton Land Trust, and Friends of the Upton State Forest

The District Manager continues to represent the agency on the Board of Trustees of the Worcester County Horticultural Society.

Connecticut Valley District

Administrative

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

Boundary Marking

Boundaries were marked for the Leyden WMA, Wendell WMA, Facing Rock WMA, Southwick WMA, Southampton WMA, Whately Swamp WMA, and Montague Plains WMA.

Employees Conference

The Connecticut Valley District Headquarters hosted MassWildlife's Employee's Conference for the second consecutive year.

Research and Conservation

Wildlife

Wildlife Surveys

Valley District staff completed Ruffed Grouse drumming routes and line transect surveys, assisted with the resident Canada Goose survey, the mid-winter Bald Eagle survey, and the wild turkey brood survey.

Black Bear Project

Staff monitored the survival and reproduction of 14 radio-collared female bears during the reporting period. An adult female bear dropped its collar. Two adult females were shot during the hunting season. Three of eleven females remained active throughout the winter because of mild temperatures, heavy rains, and leftover abundant fall mast crops. Eight females were checked in their den during February and March to determine reproductive success and first year cub survival. Four bears had newborn cubs (5M:1F and 2 unknown). Of the 5 females expected to have a total of 14 yearling cubs, only one mother failed to raise its entire litter; she lost one cub. Five GPS collars were affixed to female black bears to monitor locations every 90 minutes. This is a cooperative study with the University of Massachusetts. Staff trapped 17 bears (7M:7F) during the spring and summer of 2010 to increase the sample of radio-collared female bears and to replace collars on bears missed during the den season.

Moose Project

UMASS graduate student Dave Wattles continues to monitor moose collared in previous years.

Wood Duck Program

Staff maintained 180 wood duck nesting boxes at 48 sites. Bird and kestrel nesting boxes were maintained at several Wildlife Management Areas, as well.

Early Successional Habitat Management and Invasive Plant Control

District staff cleared a total 12 acres of woody invasive plants to enhance field habitat (6 acres at Southwick WMA and 6 at Herm Covey WMA). An additional 80 acres of fields were mowed to maintain grasses and forbs (25 acres at Southwick WMA, 30 at Herm Covey, 3 at Leyden WMA, and 22 acres at Southampton WMA).

Fisheries

Survey and Inventory

In conjunction with Westborough staff, the Valley District conducted stream surveys throughout the Valley District. The data was used for stream inventory, and several streams of special interest to Natural Heritage were investigated.

Natural Heritage and Endangered Species

Eagle Project

The Valley District monitors all breeding territories and bands all eaglets in trees that we can climb safely from the Quabbin Reservoir area west to the New York state line. District staff assisted the research effort by climbing to 21 eagle nests and banding 30 chicks. A new pair of eagles successfully hatched one chick at a nest on the banks of the Connecticut River just north of the Rt. 202 bridge in Holyoke. We believe this is the same pair that was housekeeping a nest just below the "dinosaur tracks area" during 2009. Another new pair was found nesting on Quabbin Reservoir just south of Boat Area 3 in Hardwick. Their nesting attempt failed sometime during May.

Peregrines

Staff banded a total of 6 peregrine chicks in the District: 3 at the UMASS Library, Amherst, and 3 at Mt. Sugarloaf, Deerfield. Staff also checked the nest at Mt. Tom in Easthampton which produced at least two chicks that were not banded. One juvenile at Mt Tom was recovered by the District Wildlife Biologist after a hiker on the M&M Trail reported an adult bird in distress trying to assist the juvenile which had been caught above the talon in a new style lightning arrestor on a microwave tower.

Enhancement of Outdoor Recreation

Pheasants

As in other Districts, staff of this District stocked pheasants on town covers and on selected Wildlife Management Areas during the six week pheasant hunting season. Six Sportsmen Clubs within the District participated in the Club Pheasant Rearing Program. District staff distributed 1496 seven-week-old pheasants to these clubs in July. Pheasants were also provided for the Fins, Feather and Fur Club in Orange for their youth pheasant hunt.

Ludlow Controlled Waterfowl Hunt

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

Outreach and Education

Fishing Festivals

District staff participated in fishing festivals at Fivemile Pond, Springfield; Heritage Pond, East Longmeadow; Dean Pond, Brimfield; the USFWS Open House, Hadley; and Piper Brook Pond, West Springfield.

Fairs and Exhibits

The Valley District staff worked with I & E Staff from Westborough staffing the DFW's exhibit at the Franklin County Fair Grounds, where they responded to public inquiries, concerns, and issues. District staff also worked the Springfield Sportsmen's Show.

Public Presentations

Information was provided to County League Meetings of Sportsmen's Clubs, the Athol Bird and Nature Club, the Whately Grange, the Orange Grange, and the Bernardston Kiwanis Club

Technical Assistance

Nashawannuck Pond Assistance

The District Fisheries Biologist coordinated with Westborough Fisheries staff, town officials, and the U.S. Army Corps with a drawdown, dredging, and restocking effort at Nashawannuck Pond in East Hampton, MA.

Source-to-Sea Clean Up

The District Manger coordinated efforts with the Source-to-Sea cleanup committee and participated in the clean up by providing a 30 yard disposal container. The District also identified and provided GPS locations of dumped trash sites, and assisted with the cleanup of a site which contained asbestos roof shingles, and another that involved the removal of more than 30 commercial propane containers.

Western District

Administration

The Western District relocated headquarters in FY10 from Pittsfield to Dalton. The Dalton facility is a dramatic improvement in office capacity and greatly enhances our ability to serve the public. District staff completed most of the renovations and accomplished the move within three months of the acquisition of the building. The headquarters property also includes a 17 acre Wildlife Management Area. The District will continue to utilize the buildings in Pittsfield for workshop space and storage of vehicles and equipment. Improvements made to the new Western District facility in FY10 included energy efficient modifications to the heating system and replacement of light fixtures.

Research and Conservation

Wildlife

White Nose Syndrome (WNS) continues to be a major conservation issue for the District. Work related to WNS included technical presentations, public advice, and follow up to reports of bats found dead or alive. In addition, bat friendly gates were installed on three of the largest hibernacula in the state. A first for Massachusetts, these gates allow for adequate airflow and the movement of bats while excluding humans from the site. Although all three of the sites are WNS positive, any remaining bats will have increased protection from human disturbance.

District Staff conducted surveys for woodcock, grouse, doves, and waterfowl. Staff also cleaned, constructed, and installed nest boxes for bluebird, wood duck and kestrel. The District Wildlife Manager and Wildlife Technician Morris-Siegel participated in the 25th annual Hiram Fox WMA Bird Count.

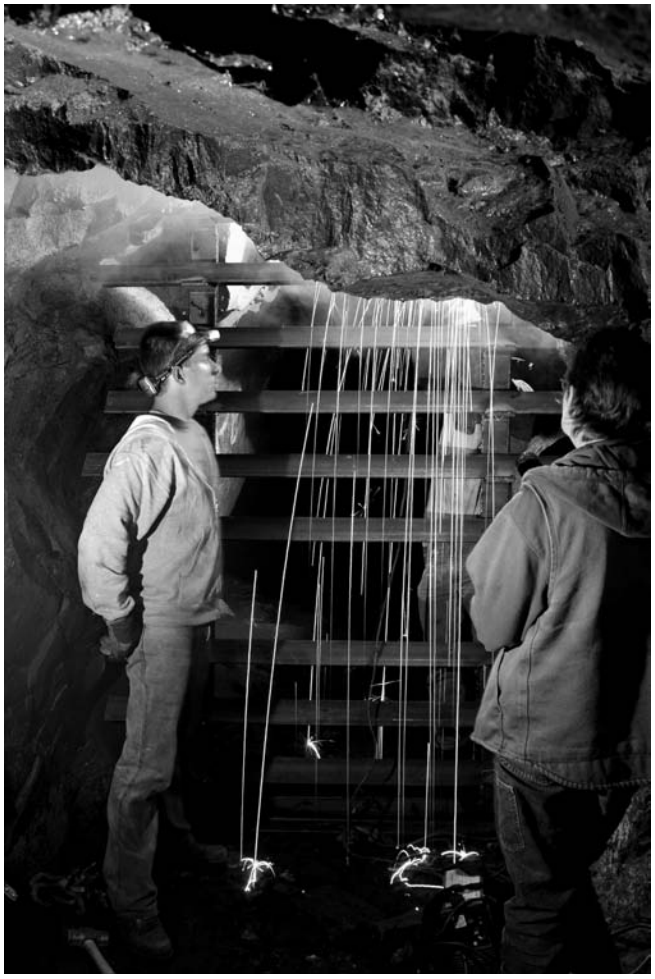
District Wildlife Technicians maintained open field habitat at the following Wildlife Management Areas: Jug End WMA, Knightville WMA, Eugene Moran WMA, Hinsdale Flats WMA, George Darey WMA, Stafford Hill WMA, and Fairfield Brook NHA. Cutting begins after the songbird nesting season and continues through October. District Staff devote considerable time and effort to maintaining these habitats, operating tractors daily for more than three months, often in difficult weather.

Western District personnel provided support for wildlife project leaders through game check stations, radio telemetry monitoring, Chronic Wasting Disease monitoring, goose banding, and habitat work.

Fisheries

The primary aquatic issue for the District in FY 10 was the appearance of the zebra mussel (*Driessena polymorpha*) in Laurel Lake in Lee. This was the first occurrence in Massachusetts and required significant time commitment from the Western District Staff. Wildlife Technicians posted signs, and the Fisheries Manager and all District staff answered numerous questions about the biology and management of the species. The District Supervisor participated in many meetings on the subject and dedicated significant time to the issue.

District Staff completed fish community surveys on three ponds and 47 streams in FY10. Survey efforts



Bat cave gate installation at Chester Mine.

focused on small headwater streams which had never before been sampled. The District Fisheries Manager continues to work with DFW fisheries biologists on conservation guidelines for coldwater streams and presented the results of her work at the Northeast Fisheries and Wildlife Conference.

The Fisheries Manager led staff in conducting fisheries surveys in association with dam removal projects in the District. Pre- and post-removal monitoring was carried out at sites in Adams, Dalton, Windsor, and Clarksburg. The sampling in Clarksburg was part of a DFW led, multi-year aquatic assessment of the Hoosic River North Branch in coordination with the Briggsville Dam removal project. This effort will generate data on fisheries and aquatic invertebrate resources before and after barrier removal. District staff also saw the completion of the May Brook dam removal on the Dalton Fire District WCE. This barrier was first identified by District staff in 2004 and was removed in 2009 as part of a Department of Environmental Protection mitigation project, with technical assistance from DFW.

District personnel assisted with Atlantic salmon fry stocking. The Fisheries Manager visited numerous project sites to assist in environmental review of proposed projects. The Fisheries Manager served as a reviewer for USFWS journal articles and Eastern Brook Trout Joint Venture projects.

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 listed 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 and other project leaders in updating the active habitat management database. 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 stocked into 24 lakes and ponds and 56 streams and rivers to enhance recreational fishing. District staff also stocked broodstock 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. 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. Efforts continued to mark WMA boundaries and access.

Outreach 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 and to the Hampshire County League of Sportsmen's Clubs when the meetings occurred in the Western District. The District Supervisor gave wildlife and fisheries presentations to educators learning Project Wild, Trout Unlimited, visitors to the DAR State Forest, Student Conservation Association, Trustees of Reservations, and the Environmental Police, as well as to local community and school groups. He also led an interpretive walk for the Becoming an Outdoors-Woman Program at their January event. The District Wildlife Manager presented a talk on bears to the Berkshire Bee Keepers Association. Other staff participated in outreach activities at the Springfield Sportsmen's Show and at the Massachusetts Junior Conservation Camp.

Technical Assistance

The District Clerk 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. The District Supervisor represented the agency at meetings of the Housatonic ACEC Stewardship Committee and the Citizens Coordinating Council which addresses PCB contamination in the Housatonic Watershed.

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*
Steve Hurley, *Fisheries Manager*
Dick Turner, *Wildlife Manager*
Ed Kraus, *Wildlife Technician* (Retired 1/31/10)
Jeff Breton, *Wildlife Technician*
Daniel Fortier, *Wildlife Technician*
Aaron Best, *Wildlife Technician*
Steve Wright, *Wildlife Technician* (Transferred 6/1/10)
Camie Marsh, *Clerk* (Retired 2/8/2009)
Joan Pierce, *Land Agent*

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*

Central District

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

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 Milanesi, *Land Agent*
Dana Ohman, *Fisheries Manager*

WILDLIFE LANDS

Craig A. MacDonnell
Chief of Wildlife Lands

Land Acquisition

FY 10 was a very successful year for land protection at DFW. Despite challenging economic conditions, agency staff completed 57 projects conserving 6,164 acres at a cost of 10.49 million dollars. Across the state, most of the transactions involved additions to existing areas, although two new Wildlife Management Areas, six new Wildlife Conservation Easements, one new Fish and Wildlife Area, and one new River Access Area were added.

These acquisitions were well distributed around the Commonwealth. The eastern part of the state, which includes the Southeast and Northeast Districts, benefited with over 60 percent of the total acreage protected in 2010. As in recent years, conservation easements played a major role in the DFW's land protection efforts throughout the state. Although easements accounted for only seven of the 57 projects, they included almost 60 percent of the total acreage protected. The 3,065 acre New Bedford Wildlife Conservation Easement (WCE) contributed significantly to this total, as did the 319 acre new Mt. Darby WCE in Mt. Washington. Altogether, including both easement and fee acquisitions, the Western District added 1,067 acres; the Connecticut Valley District added 139 acres; the Central District added 943 acres; the Southeast District added 3,337 acres; and the Northeast District added 675 acres.

Fee acquisitions ranged in size from the very tiny (.21 acre addition to the Palmer WMA and the .71 acre addition to the Poutwater Pond WMA) to the very large (new 278 acre Ashfield-Hawley WMA and the 245 acre Century Bog addition to the Red Brook WMA). Other relatively large fee acquisitions include the 186 acre Sturbridge addition to the Leadmine WMA, the 164 acre addition to the Peru WMA, and the 103 acre addition in Newbury to the Martin Burns WMA.

Non-profit partnerships contributed substantially to our success in 2010. Non-profit organizations assisted directly on numerous acquisitions and provided valuable input on others. These included The Nature Conservancy, Berkshire Natural Resources Council, Inc., Sheffield Land Trust, Mount Grace Land Conservation Trust, Inc., Franklin Land Trust, East Quabbin Land Trust, and The Wildlands Trust of Southeast Massachusetts.

A summary of the year's successes would not be complete without featuring the 249 acre Century Bog acquisition in Wareham and Plymouth (acquired from A.D. Makepeace) and the 3,065 acre New Bedford WCE.

Acreage Cost by District
(purchases only)

Western District	
Expended	$2,360,000.00
Acreage	1,067.93
Cost/acre	$2,209.88
Valley District	
Expended	$285,000.00
Acreage	54.66
Cost/acre	$5,214.05
Central District	
Expended	$2,564,000.00
Acreage	856.85
Cost/acre	$2,992.36
Northeast District	
Expended	$2,273,000.00
Acreage	445.95
Cost/acre	$5,096.98
Southeast District	
Expended	$3,008,000.00
Acreage	256.75
Cost/acre	$11,715.68
Total Expended	$10,490,000.00
Total Acreage Purchased	2,682.14
Average Cost per Acre	$3,911.05

These acreage figures and costs are for properties acquired with FY10 funds and recorded on or before June 30, 2010. Ancillary costs, such as appraisals, surveys, title examinations, and other related transaction expenses are not included.

The Century Bog project was the culmination of many years of negotiation and is a singular achievement for both the agency and for the environment. With the protection of this addition to the 421 acre Red Brook WMA, the entire Red Brook from its headwaters at White Island Pond to the sea at Buttermilk Bay has been conserved. The protection of this corridor will enable us to complete major habitat restoration efforts substantially benefitting many river species including sea-run brook trout, and will also provide much-needed public access to the area.

The New Bedford WCE, which was donated by the City as a component in the financing of a large 2002 conservation project, protects watershed lands in four towns (Freetown, Rochester, Lakeville and Middleborough) around the Assawompsett Ponds complex. It allows public access to most of this vast acreage for passive recreation, including hunting, and sets aside fishing access in selected locations.

Eighteen acquisitions were recorded in the Northeast District, 16 in the Central District, nine in the Western District, eight in the Connecticut Valley District, and six in the Southeast District.

In sum, the agency's realty staff completed another exceptional year of land conservation in FY10. Tight fiscal times again encouraged early, vigorous acquisition activity that enabled transactions to be spread out through the year's four quarters. The 6,164 acres protected in FY 10 bring DFW's total protected acreage to just over 187,000 acres, or approximately 292 square miles.

Western District

The Western District completed nine acquisitions in FY10 and protected a total of 1,067.93 acres at a cost of $2,360,000. Parcels ranged in size from a 12.7 acre addition to the Chalet WMA (improved public access) to the 319 acre new Mt. Darby WCE in Mt. Washington (enhanced hunting access in an area replete with closed properties). Two other acquisitions exceeded one hundred acres in size, including the new 278 acre Ashfield-Hawley WMA (healthy headwaters and associated riparian forest) and a 164 acre addition to the Peru WMA (mixed forest with vernal pools).

Other significant acquisitions include the new 85 acre Dolomite Ledges WMA in Sheffield and Egremont, the new 81 acre Jug End Fen WCE in Egremont, the 61 acre addition to the Hinsdale Flats WMA, and the new 35 acre Williams River access in West Stockbridge, a transaction involving the West Stockbridge Sportsmen's Club.

Non-profits again played an important role in the Western District land acquisition effort. The Berkshire Natural Resource Council, Inc. participated in several projects, including the Mt. Darby WCE, and The Nature Conservancy was a key partner in both the Jug End Fen WCE and the Mt. Darby projects.

Valley District

The Valley District completed seven projects in FY10 and protected a total of 139.33 acres at a cost of $285,000. Four of the projects were along important rivers, enhancing water quality and fishing access. The largest project was the 72 acre Tully Mountain easement in Orange, which expands the Tully Mountain WMA and is near Warwick State Forest and other land conserved by DCR. Our staff favorite, however, is the 12 acre addition to the DFW's Connecticut River access Area in West Springfield, which adds over 1,000 feet of shoreline protection and conserves an important eagle nesting area. The 19 acre addition to the Green River Access Area and the 8 acre addition to the Montague WMA round out this list of key river access projects in the Valley District.

Central District

The Central District had another outstanding year of land conservation, completing 16 acquisitions in eight different areas. A total of 943.68 acres were protected in eleven municipalities at a cost of $2,564,000. As is agency preference, a majority of the acreage protected in this district was via fee acquisition. Key projects included the 186 acre addition to the Leadmine WMA in Sturbridge, which connects that 814 acre WCE to a once-isolated 40 acre parcel, and the 161 acre and the 98 acre additions to the Moose Brook WMA in Barre, which significantly expanded that WMA and built connections to the 200 acre Stelmokas Farm that is protected by a conservation restriction held jointly by the East Quabbin Land Trust and The Trustees of Reservations.

The most satisfying story in the Central District, however, was the closure of four projects of long-term interest protecting 160 acres and 1.7 miles of Nashua River frontage at Bolton Flats WMA. These projects include scenic floodplain fields near the confluence of the North and South branches of the Nashua River and more than 100 contiguous acres of floodplain forest along the north bank.

Mount Grace Land Conservation Trust and the East Quabbin Land Trust again proved how important partnerships with the non-profit conservation community are for the Central District's land acquisition efforts. Both organizations pre-acquired high priority parcels that were at risk while land staff worked to assemble the necessary funding. All three properties were conveyed to the Commonwealth at the end of this fiscal year.

The Central District now has over 42,500 acres under DFW management and control.

Northeast District

The Northeast District remains a challenging area because of land fragmentation and high property values. Despite this relative difficulty, the Northeast District enjoyed a bountiful year of land conservation progress. Working on the project pipeline and negotiation legacy of the late Dennis McNamara, the district's new land agent pursued and completed an agency-high of 18 projects protecting 675.61 acres of land in seven different municipalities at a cost of $2,273,000.

Notable projects included three long-sought additions to key WMAs.

The first is the 103 acre Blackwell parcel addition to the now-1,657 acre Martin Burns WMA in Newbury. Agency staff has been working with the Blackwell family for over 20 years to purchase land directly abutting the northern border of Martin Burns WMA off Scotland Road. This exemplary acquisition expands upon the contiguous wildlife habitat complex, providing rolling oak-pine forest

dotted with a suite of vernal pool and wetland habitat types for rare and state-listed herpetofauna, including blue-spotted salamanders, four-toed salamanders, and three species of turtles.

The second is the 57 acre Cousins parcel addition to the Townsend Hill WMA, which is almost entirely early succession poplar-birch habitat for upland birds. Reproducing ruffed grouse and turkey were documented here last year, and the parcel will likely prove to be good woodcock habitat. The property also contains a series of productive vernal pools, one of which has held over 200 spotted salamander egg masses, all falling within an area of recent state-listed turtle findings.

The third is the 78 acre Adams parcel addition to the Squannacook River WMA. This parcel includes 2,900 linear feet of river frontage together with easy road access for anglers and nature enthusiasts.

Southeast District

The Southeast District completed six land conservation projects in FY10 involving a total of 3,337.49 acres in nine towns at a cost of $3,008,000.

The majority of this acreage came in the form of the New Bedford WCE, which included 3,065 acres in four municipalities and will provide general public access to this vast acreage and selected locations for fishing access. This easement has been in the works for almost ten years, and arises out of a very large conservation project in 2002 protecting the Lakeville area known as Betty's Neck, which prompted the Cities of New Bedford and Taunton to agree to place easements on their watershed lands as a condition of securing significant municipal and state conservation investments at that time.

The most significant project in the Southeast and the most expensive project in the state was the long-sought 249 acre Century Bog acquisition in Wareham and Plymouth, acquired at a cost of $3,000,000 from A.D. Makepeace. This project arose from a series of negotiations conducted over several years between and among agency staff, company officials, and non-profit representatives. It is a watershed accomplishment of the land acquisition program. This ownership will be added to the 421 acre Red Brook WMA, which, together with the investments of our regional conservation partner The Trustees of Reservations, results in the protection of the entirety of that brook's adjacent land from the headwaters to the ocean, and will provide significant programmatic restoration opportunities for the future.

Land Agents

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

Land Inventory

Western District	**Acres**
Wildlife Management Areas - 32	
Agawam Lake	779.8
Ashfield-Hawley	278.0
Becket	239.6
Chalet	7,093.0
Cummington	225.4
Day Mountain	382.4
Dolomite Ledges	85.46
Eugene Moran	1,669.9
Farmington River	1,760.3
Fisk Meadows	1145.2
Fox Den	4,702.6
Green River	489.2
Hancock	491.5
Hinsdale Flats	1,554.3
Hiram H. Fox (ex Canada Hill)	3,766.96
Hop Brook	424.8
Housatonic Valley	817.9
Hubbard Brook	58.4
John J. Kelly	267.0
Jug End (held jointly with DCR)	1,233.8
Knightville	721.0
Lilly Pond	349.7
Maple Hill	370.1
Mount Tekoa	1,422.0
Otis	83.5
Peru (w/Tracy Pd.)	5,368.12
Powell Brook	402.6
Savoy	1,603.8
Stafford Hill	1,591.6
Taconic Mountain	157.3
Three Mile Pond	1,127.1
Walnut Hill	812.0
	41,478.54
Wildlife Conservation Easements – 14	
Alford Spring	784.0
Ashfield	101.0
Blanford	986.0
Chesterfield	491.0
Dalton Fire District	2,754.0
Huntington	78.0
Jug End Fen WCE	81.5
Mount Plantain	1,337.4
Mt. Darby WCE	319.29
New Marlborough	239.0
Sandisfield	692.0
Tyringham	1,136.0
Westfield Watershed	2,300.0
Wright/Mica Mill	1782.0
	13,038.19
River Access - 7	
Farmington	4.1
Green River (Egremont)	21.5
Hoosic River	5.9
Housatonic River	146.5
Konkopot River	8.8

Westfield River (W)	800.0
Williams River	35.0
	1,021.8
Wildlife Sanctuaries - 2	
E. Howe Forbush	268.0
Grace A. Robson	69.5
	337.5
Wildlife District - 1	
District Headquarters	2.1
Natural Heritage Areas - 9	
Bullock Ledge	15.5
Dolomite Ledges	164.9
Fairfield Brook	203.3
Hawley	532.7
Jug End Fen	38.8
Kampoosa Fen	72.0
Lanesboro	88.6
Nordeen Marsh	22.9
Rowe	36.4
	1,170.10
Total Western District	**57,048.23**

Valley District	**Acres**
Wildlife Management Areas - 31	
Brewer Brook	214.0
Catamount	413.0
Coy Hill(V)	211.6
East Mountain	347.9
Facing Rock	1,556.1
Herman Covey**	1,521.5
Honey Pot/Westfield	227.0
Lake Warner	94.8
Leadmine(V)	344.0
Leyden	759.0
Millers River(V)	65.84
Montague	1,815.9
Montague Plains	1,504.8
Mount Esther	191.0
Mount Toby	379.5
Orange	1,605.2
Palmer	1,052.32
Pauchaug Brook*	161.3
Poland Brook	679.4
Satan's Kingdom	2,044.8
Shattuck Brook	156.1
Southampton	170.6
Southwick	264
Tully Mountain	1,187.4
Tully River(V)	59.0
Wales	207.1
Warwick	379.0
Wendell	585.7
Whately	380.7
Whately Great Swamp	445.6
Williamsburg	88.00
	19,112.41

*WMA and Connecticut River Access

**Combination-Hatchery (McLaughlin), WMA and District HQ.

Wildlife Conservation Easements (3)	
Amherst/Pelham ALA	36.9
Ludlow Reservoir	1750.0
North Quabbin CRs	
New Salem	59.0
Tully River	250.0
Tully Mt	72.87
	2,168.77
Islands (Connecticut River) - 2	
Shepherd's Island	15.0
Sunderland Islands (2)	9.0
	24.0
Fish Hatcheries - 4	
Bitzer	150.6
McLaughlin (within Herman Covey WMA)	
Reed	301.0
Sunderland	47.70
	499.3
Game Farm - 1	
Wilbraham (DFG easement over town fee)	137.2
River Access - 9	
Connecticut River	94.8
Deerfield River	20.5
Green River(V)	199.45
Mill River	23.0
Sawmill River	52.0
Sibley Brook	13.4
Tully Brook	154.9
Ware River (V)	14.0
Westfield River (V)	76.8
	648.85
Pond Access - 4	
Little Alum Pond	0.5
Lake Lorraine (PAB)	0.3
Lake Rohunta	2.5
Packard Pond	0.5
	3.8
Fisheries & Wildlife Areas – 1	
Whately Ponds	85.6
Natural Heritage Areas – 5	
Rainbow Beach	30.9
Mt. Toby Highlands NHA	100.0
Mt. Tom	72.7
Darwin Scott Memorial	27.3
Honey Pot NHA	234.10
	465.00
Total Valley District	**23,144.93**

Central District	**Acres**
Wildlife Management Areas - 41	
Ashby	48.5
Bennett	281.2
Birch Hill	4,122.4
Bolton Flats	1,542.15
Breakneck Brook	1,409.0
Coy Hill	654.2
E. Kent Swift	200.5

Fish Brook	221.0
Four Chimneys	200.0
High Ridge*	2,348.5
Lackey Pond	150.5
Lawrence Brook	1,051.5
Leadmine(C)	482.0
Martha B. Deering	272.4
McKinstry Brook	348.3
Merrill Pond (System)	803.0
Millers River(C)	3,643.4
Moose Brook	754.3
Moose Hill	567.1
Muddy Brook	1,739.4
North Brookfield	102.6
Oakham	730.2
Palmer	208.0
Phillipston	3,615.2
Popple Camp	1,161.0
Poutwater Pond (ex North Street)	378.71
Prince River	749.0
Quaboag River	1,832.15
Quacumquasit	179.9
Quisset	635.0
Raccoon Hill	645.5
Richardson	467.2
Savage Hill	1,165.0
Thayer Pond	131.0
Tully Mountain	119.5
Tully River(C)	9.0
Ware River(C)	291.4
Westboro	894.6
Winimusett	670.1
Wolf Swamp	1,048.5
	36,703.86

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

Wildlife Conservation Easements (14)

Burnshirt River	5.64
Carter Pond	280.0
Fitchburg Watershed	1,197.6
Hitchcock Mountain	610.0
Hunting Hills	53.7
Leadmine Mountain	826.0
Moose Brook	125.0
Nineteenth Hill	623.9
North Quabbin CRs	
Phillipston (Secret Lake)	212.0
Quabbin Corridor	99.3
Tully River	6.6
Northboro Forest Area	19.12
Quabbin	28.0
Quabbin Corridor (MGLCT/Wilson)	99.3
Stillwater River	29.0
Wekepeke	564.00
	4,679.82

Wildlife Sanctuaries – 2

Susan B. Minns	140.0
Watatic Mountain	100.0
	240.0

River Access Areas - 5

Blackstone/West River	28.0
Five Mile River (17 acres are easement)	195.5
Natty Brook	95.2
Quinapoxet River	32.0
Seven Mile River	77.0
	427.7

Natural Heritage Areas – 4

Chockalog Swamp	52.5
Clinton Bluff NHA	42.0
Podunk Marsh	15.0
Quag Pond Bog	31.0
	140.5

Marshes – 1

Quinsigamond Marsh	59.0

Pond Access - 6

Cusky Pond	23.75
Fisherville Pond	1.6
Glen Echo Lake	1.0
Mossy Pond	16.1
South Meadow Pond	0.25
Sputtermill Pond	58.50
	101.20

Forest – 2

Hamilton	70.0
Northboro	88.8
	158.8

Total Central District	**42,510.88**

Northeast District	**Acres**
Wildlife Management Areas - 12	
Ashby	1,028.4
Crane Pond	2,256.1
Dunstable Brook	131.6
Hunting Hills*	452.92
Martin H. Burns	1,657.5
Mulpus Brook	193.36
Nissitissit River	365.9
Pantry Brook	410.9
Salisbury Marsh	658.8
Squannacook River**	1,489.0
Townsend Hill	258.53
William Forward	2,122.50
	11,046.91

* Includes 53.7-acre easement in CD

** 21 acres owned by DCR

Wildlife Conservation Easements – 8

Ashby	148.0
Fitchburg Watershed	677.4
Groton	127.0
Newbury Common Pasture	46.7
Pepperell Springs	255.0
Surrenden Farms	159.7
Throne Hill	177.5
Great Swamp Brook	106.0
	1,697.3

Wildlife Sanctuaries - 5

Carr Island	110.5
Egg Rock	2.0
J.C. Phillips	391.0
Milk Island	29.0
Ram Island	20.0
	552.5

Game Farm - 1

Ayer	111.9

Wildlife District - 1

District Headquarters	1.9

Fisheries & Wildlife Area - 2

Flint Pond	81.9
Flagg Swamp	54.0
	135.9

Forest - 2

Acton	36.0
Townsend	60.0
	96.0

Pond Access - 4

Knops Pond	0.6
Mascopic Lake	0.3
Baddacook Pond	0.2
Long Sought For Pond	1.0
	2.1

Salt Marsh – 1

North Shore	407.7

River Access - 7

Concord River	23.6
Ipswich River	1.8
Nashua River	68.5
Sucker Brook	12.0
Sudbury River (held jointly with DCR)	139.1
Trapfall Brook	45.4
Weymouth Back River	16.4
	306.8

Natural Heritage Areas - 4

Boxboro Station	124.2
Eagle Island	5.0
Elbow Meadow	210.3
Hauk Swamp	55.00
	394.50
Total Northeast District	**14,753.51**

Southeast District	**Acres**

Wildlife Management Areas - 23

Black Brook	289.55
Burrage Pond	1,969.7
Copicut	3,874.1
Church Homestead	163.0
Dartmoor Farms	473.0
Erwin Wilder	450.0
Frances A. Crane	1,912.8
Freetown Swamp	337.0
Gosnold	3.5
Halfway Pond	28.6
Haskell Swamp	2,922.9
Hockomock Swamp	4,454.5
Hyannis Ponds	357.0
Maple Springs	129.2
Meetinghouse Swamp	109.0
Noquochoke	204.6
Peterson Swamp	250.0
Purchade Brook	120.0
Red Brook	649.0
Rochester	70.0
Rocky Gutter	3,054.7
Taunton River	409.0
West Meadows	227.9
	22,459.05

Wildlife Conservation Easements – 13

Acushnet River	30.2
Agawam River	4.0
Angeline Brook	50.7
Billington Sea	69.7
Brandt Island Cove	109.5
Camp Cachalot	789.0
Fall River (co-held with DCR)	4,300.0
Forbes Swamp	390.14
New Bedford Water Supply	3,065.0
Pickerel Cove	78.3
Plymouth Pine Hills	188.0
Plymouth Town Forest	296.0
Santuit Pond	293.00
	9,663.54

Wildlife Sanctuaries – 4

Billingsgate Island	0.5
Penikese Island	60.0
Ram Island	2.0
Tarpaulin Cove	4.5
	67.0

Wildlife District - 1

District Headquarters	23.8

Fish Hatcheries - 1

Sandwich	35.0

Game Farm - 1

Sandwich	133.00

Salt Marsh - 6

Brayton Point	2.2
Chase Garden Creek	56.4
Eastham	7.4
English	191.5
Fox Island	87.1
South Shore	22.4
	367.0

River Access – 7

Bread & Cheese Brook	5.2
Canoe River	116.6
Childs River	0.2
Mashpee River	56.5
Nemasket River	0.5
Quashnet River (360 acres held jointly with DCR)	426.0
Taunton River	8.9
	613.9

Pond/Coastal Access - 13

Agawam Mill Pond	1.7
Bakers Pond	1.7
Bearse Pond	5.8
Clapps Pond	68.4
Cooks Pond	3.0
Dogfish Bar Beach (PAB)	2.4
Lake Snipatuit	0.5
Robbins Pond	1.0
Sandy Point	0.2
Scorton Creek	5.5
Spectacle Pond	0.5
Triangle Pond	81.9
Wakeby Pond	15.9
	188.5

Military Lands - 7

Dillingham Lot	37.0
Fisk Forestdale Lot	117.0
Hog Pond Lot	26.2
Lawrence Pond lot	10.0
Mashpee Pond Lot	25.0
Poponesset Beach	2.0
Springhill Lot	7.0
	224.2

Hatchery Lands - 2

N. Attleboro Hatchery	36.5
E. Sandwich Hatchery	20.55
	57.05
MA Military Reservation (MMR)	15,000.0

Fisheries & Wildlife Area - 3

Muddy Pond	72.0
Provincetown Rte.6 Corridor	122.0
South Barrier Beach (Leland)	99.5
	293.5

Natural Heritage Areas - 11

Grassy Pond	59.4
Grassy Pond (Dennis)	7.2
Harlow/Cooks Pond	53.6
Head of the Plains	2.0
Katama Plains	18.5
Mashpee Pine Barrens	193.2
Miacomet Heath	3.8
Olivers Pond	12.0
Sly Pond	192.0
South Triangle Pond	10.3
Thad Ellis	1.50
	558.40
Total Southeast District	**49,683.94**

Total Acreage by Area Type

	Acres
Wildlife Management Area - 139	130,800.77
Wildlife Sanctuaries - 13	1,197.00
Fish Hatcheries - 5	534.30
Game Farms - 3	382.10
River Access - 35	3,019.05
Salt Marsh - 7	774.70
Lake, Pond and Coastal Access - 27	295.60
Fisheries & Wildlife Areas - 6	515.00
Natural Heritage Areas - 33	2,728.50
Conservation Easements – 53	31,247.62
(Some acreage included in WMAs)	
MA Military Reservation – 1	15,000.00
Other	646.85
TOTAL	**187,141.49**

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 for Administration. This includes an 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, $4,529,149 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 $3,895,530 is a decrease from last year's apportionment. These funds were divided as follows: The Department of Fish & Game's Office of Fishing & Boating Access (OFBA), which is responsible for constructing and maintaining motorboat access facilities, received $ 584,329.50 (15%); and the balance of $ 3,311,200.50 was divided equally between the Division of Marine Fisheries (DMF) and the Division of Fisheries and Wildlife (DFW)($1,655,600.25 each).

Eleven projects were obligated with the OFBA and DFW shares of the Dingell-Johnson and Wallop-Breaux funds (a total of $2,239,929.75). The OFBA, in cooperation with the DFW, had seven boat accommodation grants active in FY 10, 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 10 State Wildlife Grant apportionment of $ 1,119,042.00 was an increase from FY 09. Activities reimbursed through this apportionment 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 in the development and implementation of our Comprehensive Wildlife Conservation Strategy (CWCS).

Through a multi-state regional effort, the states of New Hampshire, Connecticut, New York, Maine, and Massachusetts were successfully awarded a total of $731,975 through the national State Wildlife Grant Competitive program to implement the Rangewide New England Cottontail Initiative. Massachusetts' share of the funds ($223,525) will be used to restore New England Cottontail habitat in Massachusetts.

The Endangered Species Act (Section 6)

The DFW continues to receive minimal Endangered Species Section 6 funding. Our FY 09 apportionment of $30,000 was used to reimburse the Globally Imperiled and Vulnerable Plants project in FY 10. Our FY 10 apportionment of $40,000.00 will be used to reimburse the federally listed Plant Monitoring and Management project as well as Piping Plover Monitoring, Management, and Research.

In FY 10, the DFW also received $ 9,048 under the USFWS White-nose Syndrome Funding Opportunity for the acquisition and installation of bat gates to minimize disturbance of bats and to prevent the spread of White Nose Syndrome (WNS).

Landowner Incentive Program:

The federal government did not fund the Landowner Incentive Program in FY 10; as a result the DFW could not apply for federal funding for its state program. The DFW is actively pursing funding to continue the implementation of this program.

The DFW used prior funding to implement the FY 10 projects. In FY 07 the DFW had received a combined award of $1,029,510.00 under this highly competitive program (a significant increase over the FY 06 award of $180,000.00.) The Landowner Incentive Program awards are divided into two tiers. The DFW's FY 07 Tier

I apportionment of $180,000.00 was used in FY 10 for project coordination. The Tier II award, $849,510.00, was used for program implementation. For more detailed information relating to the DFW's FY 10 activities under the Land Owner Incentive Program see page 36.

Chronic Wasting Disease Surveillance and Management:

In FY 10, the DFW received $70,000.00 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 31.

Audits:

Two audits were conducted during FY 10. The Coordinator's Office spent considerable time facilitating the audits by providing records, performing additional data analysis, and coordinating audit efforts within the agency.

In FY 09, the DFW initiated a contract 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 audit was completed in FY 10 and the final report was issued on December 7, 2009.

Additionally, the US Department of Interior, Office of the Inspector General (OIG) completed a federal audit of all Sport Fish and Wildlife Restoration grants administered by the Division for fiscal years 2008 and 2009. These federal audits are conducted once every five years. The OIG audit report was issued in February 2009. Since the OIG auditors reported no findings, no corrective action plan was required.

Other Matters:

Additional Federal Aid Coordinator's duties included responding to requests for information, responding to 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

Priority infrastructure improvements for FY 10 included the relocation of the Northeast Wildlife District office from Harris St. in Acton to 85 Fitchburg Road in Ayer. This relocation required numerous facility maintenance operations in the new office complex.

The first project was the installation of an ADA-compliant access ramp to the main office building. For the secondary shop/office building, a contractor was brought in to install new asphalt roofing shingles after repairing a section of roof that was leaking. An enclosed double oil storage tank system was then installed on the exterior of the building to bring the heating system up to state code. We also completed construction of four office cubicles, a staff break room, and a conference room.

Additional improvement projects were completed at the Westborough Field Headquarters. The following maintenance projects were put out for bid, awarded, and performed:

An electrical upgrade provided additional outlets and circuits to the over-taxed wiring on the first floor of Building A. In our efforts to provide a better work environment for our employees, two additional projects were conducted in the basement of Building A. Approximately 550 square feet of epoxy floor coating was installed to provide a very durable and low maintenance floor finish in the heavy traffic areas. We also installed two clean air plant units to help improve air quality in this below-ground-level environment. In addition to standard maintenance operations around the Field Headquarters Complex, two fire hydrants were serviced to provide optimal efficiency during emergency operation.

Maintenance & Development Staff

Gary Zima, *Senior Planner*

Bruce Walker, *Wildlife Tecnician*

LEGISLATIVE REPORT

Jack Buckley
Deputy Director & Legislative Liaison

During FY 10 there were no legislative actions that had an impact on fish and wildlife in the Commonwealth.

PERSONNEL REPORT

Peter Burke
Personnel Officer

New Hires

Name	Title	Date	Comments
Sienczyk, Elizabeth	Admin Services Coord	11/30/09	post retirement 8.0 hrs/wk
MacDonnell, Craig	Environmental Analyst IV	03/27/10	
Johnson, Jason	Contracted Seasonal Employee	04/25/10	
McDermott, Derek R.	Contracted Seasonal Employee	04/25/10	
Leon, Bennet H.	Contracted Seasonal Employee	04/25/10	
Prior, F. Timothy	Contracted Seasonal Employee	04/25/10	
Takaki, Norio	Contracted Seasonal Employee	04/25/10	
Nunzianto, Michael D.	Contracted Seasonal Employee	05/16/10	

Promotions

Name	Title	Date	Comments
Piche, Marianne	Researcher	Scientist	4/11/2010

Voluntary Demotions

Name	Title	Date	Comments
Jackson, Alan	Wildlife Technician II	Wildlife Technician I	

Reallocations

Name	Title	Date	Comments
John Sheedy	Game Biologist II	Aquatic Biologist II	03/31/10
Boswell, Tara	Conservation Biologist I	Conservation Biologist II	06/07/10
Black, Kristin	Conservation Biologist II	Conservation Biologist III	06/02/10

Terminations

Name	Title	Date	Comments
Cardoza, James	Game Biologist III	10/09/09	Retirement
Skowron, Reecca	Conservation Biologist II	10/09/09	resigned
Gamelin, Richard	Wildlife Technician I	10/26/09	Retirement
Minior, William	Environmental Analyst IV	11/02/09	Retirement
Sienczyk, Elizabeth	Admin Services Coord	11/28/09	Retirement
Kraus, Edward E.	Wildlife Technician II	01/30/10	Retirement
Musiak, William J.	Wildlife Technician II	01/31/10	Retirement
Marsh, Camie	Clerk III	02/08/10	Retirement
McGrath, Jonathan	Game Biologist II	05/16/10	Resigned
Siwicki, Edward	Wildlife Technician II	06/04/10	Retirement
Durkan, Patrick	Contracted Seasonal Employee	7/18/2009	End of contract
McClellan, Christopher	Researcher	7/18/2009	End of contract
Mumma, Victoria	Contracted Seasonal Employee	7/18/2009	End of contract
Schulwitz, Sarah	Researcher	7/18/2009	End of contract
Hatt, Joanna L	Scientist	8/1/2009	End of contract
Scantlebury, Kimberly	Researcher	8/8/2009	End of contract
Woodward, Sarah	Contracted Student Intern	8/8/2009	End of contract
Maikath, Tyler	Scientist	8/8/2009	End of contract
Stinemack, Kelsey	Contracted Seasonal Employee	8/15/2009	End of contract
Leon, Bennet	Contracted Seasonal Employee	9/30/2009	End of contract
Johnson, Jason	Contracted Seasonal Employee	9/30/2009	End of contract
McDermott, Derek	Contracted Seasonal Employee	9/30/2009	End of contract
Lencer, Ezra	Scientist	12/26/2009	End of contract
Grazia, Tracey	Scientist	3/13/2010	End of contract
Jones, Michael T.	Scientist	5/1/2010	End of contract

Work Hour Changes

Name	Title	From Hours	To Hours	Date
Moruzzi, Trina	Game Biologist II	40.00	32.00	07/05/09
Schluter, Everose	Conservation Biologist III	40.00	30.00	10/04/09
Haggerty, Sarah	Conservation Biologist III	40.00	24.00	11/15/09
Schluter, Everose	Conservation Biologist III	30.00	27.00	11/24/09
Sienczyk, Elizabeth	Administrative Sevices Coordinator	8.00	8.00	05/03/10
Black, Kristin	Conservation Biologist II	30.00	24.00	06/06/10

Transfers

Name	Title	From	To
Wright, Stephen	Wildlife Technician II	Central District	Southeast District

Part Time Employees

Name	Title	Hours	Comment
Gabriel, Marea	Conservation Biologist III	32.00	
Moruzzi, Trina	Game Biologist II	32.00	
Cavaliere, Mary	Accountant II	28.50	
Black, Kristin	Conservation Biologist III	24.00	
Schluter, Everose	Conservation Biologist III	27.00	
Haggerty, Sarah	Conservatin Biologist III	24.00	
Huguenin, Tara	Conservation Biologist I	30.00	
MacAdams, Proscilla A.	Clerk III	28.00	
Durand, Jill	Clerk III	22.50	
Sienczyk, Elizabeth	Administrative Services Coordinator	8.00	Post Retirement
Hew. Lillian	Accountant I	6.25	Post Retirement

Work Out of Grade

Name	Title	Date	Comment
Kathleen Plett	Programn Coordinator II	7/1/2009	due to K Meagher absence

Leave of Absence

Name	Title	Dates	Type of Leave
Meagher, Kerry	Program Coordinator II	7/1/2007 - on going	Personal
Schluter, Everose N.	Conservation Biologist III	7/5/2009 - 09/21/2009	Maternity
Connolly, Brian	Conservation Biologist III	7/12/2009 - 07/25/2009	Family Medical
Haggerty, Sarah	Conservation Biologist III	8/7/2009 - 11/02/2009	Maternity
Marold, Misty-Anne	Conservation Biologist III	12/3/2009 - on going	Maternity

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
David Szczebak

How the Sportsmen's Dollar Was Spent

Inland Fish and Game Fund

July 1, 2009 to June 30, 2010

PROGRAMS/ASSESSMENTS	EXPENDITURES	PERCENTAGES
Administration:		
Administration	$1,318,060.11	
Information-Education	$809,863.56	18%
Total	**$2,127,923.67**	
Fisheries and Wildlife Programs:		
Hatcheries	$1,799,049.00	
Game Bird Program	$440,348.15	
Seasonals	$52,884.00	55%
Cooperative Units	$100,113.65	
Fisheries and Wildlife Management	$4,014,160.06	
Total	**$6,406,554.86**	
Other Programs:		
Land Acquisitions	$1,000,000.00	
Waterfowl Management Program	$45,000.00	12%
Hunter Safety Program	$362,238.57	
Total	**$1,407,238.57**	
Other Assessments:		
Payroll Taxes	$84,961.20	
Group Insurance and Other Fringe Benefits	$1,609,140.00	15%
Total	**$1,694,101.20**	
TOTAL EXPENDITURES	**$11,635,818.30**	

Summary
Revenues, Expenditures and Fund Equity
Natural Heritage & Endangered Species Fund
July 1, 2009 to June 30, 2010

REVENUES	
Natural Heritage and Endangered Species Tax Checkoff Donations	$213,480.02
Sales	$17,787.00
Federal Aid Reimbursements	$275,120.09
Massachusetts Endangered Species Act Fees	$455,886.70
Contracts	$563,176.59
Direct Donations	$9,065.03
Interest	$2,479.44
TOTAL REVENUES:	***$1,536,994.87***
*EXPENDITURES	
Natural Heritage and Endangered Species Program	$1,599,570.25
Tern Restoration	$198,154.97
Wildlife Habitat Incentive Program	$52,361.17
State Wildlife Grant Program	$34,179.99
Housatonic Natural Resource Damages	$336,050.82
TOTAL EXPENDITURES:	***$2,220,317.20***
TOTAL FUND EQUITY:	***$81,195.39***

**100% of total expenditures charged to Natural Heritage Fund for FY2010.*

Other Funds and Programs
Expenditures Division Wide
July 1, 2009 to June 30, 2010

CAPITAL OUTLAY FUNDS:	
Land Protection - Habitat Management	$51,173.81
BioMap II	$237,019.01
Habitat Reserve Resource Inventory	$37,500.00
Heritage Mapping for Biodiversity	$125,874.56
Forest Certification	$13,070.00
Upland Habitat Management	$19,520.00
Staffing for Land and Infrastructure Programs	$510,995.08
Hatchery/District/Westborough Field Headquarters Repairs	$211,048.69
TOTAL CAPITAL EXPENDITURES	***$1,206,201.15***
INTERDEPARTMENTAL SERVICE AGREEMENTS:	
Department of Environmental Protection	
Charles George Land Trust	$58,987.14
Massachusetts Highway Department	
Accelerated Bridge Program	$47,658.10
TOTAL ISA EXPENDITURES	***$106,645.24***
FEDERAL GRANT ACCOUNTS:	
Landowner Incentive Program Tier 1	$57,193.71
Landowner Incentive Program Tier 2	$406,070.75
Chronic Wasting Disease	$103,359.89
TOTAL FEDERAL EXPENDITURES	***$566,624.35***
OTHER TRUST ACCOUNTS:	
Upland Sandpiper	$49,995.00
TOTAL OTHER TRUST EXPENDITURES	***$49,995.00***

Summary
Revenue and Fund Equity
Inland Fish and Game Fund
July 1, 2009 to June 30, 2010

DEPARTMENTAL REVENUES:	
Fishing,Hunting, and Trapping Licenses	$4,913,510.16
Archery Stamps	$148,826.40
Primitive Firearm Stamps	$162,667.00
Waterfowl Stamps, Administration	$11,314.00
Waterfowl Stamps, Ducks Unlimited	$12,053.00
Waterfowl Stamps, Other	$36,159.00
Wildlands Stamps	$947,602.50
Trap Registrations	$1,600.00
Antlerless Deer Permits	$177,965.00
Bear Permits	$36,012.50
Turkey Permits	$90,517.50
Special Licenses,Tags and Posters	$50,460.10
Magazine Subscriptions	$90,459.32
Sales,Other	$100.00
Fines and Penalties	$31,340.00
Rents	$34,349.55
Prior Year Refunds	$-
Donations	$376,777.41
Miscellaneous Income	$5,869.13
PAC	$27,965.00
NSF Charge/Debt. Collection	$400.00
Total	**$7,155,947.57**
FEDERAL AID REIMBURSEMENTS;	
Dingell-Johnson (Fisheries)	$1,278,465.42
Pittman-Robertson (Wildlife)	$4,235,439.54
State Wildlife Grant (SWG)	$367,267.55
Wildlife Habitat Incentives Program (WHIP)	$37.05
Chronic Wasting Disease	$11,321.29
Avian Influenza	$31,208.53
Indirect Cost Reimbursements	$1,026,555.30
Total	**$6,950,294.68**
TAXES;	
Gasoline Tax Apportionment	$866,312.99
OTHER FINANCIAL SOURCES;	
Reimbursement for Half-Price Licenses	$130,467.75
Investment Earnings	$4,543.22
Total	**$135,010.97**
TOTAL REVENUE	***$15,107,566.21***
FUND EQUITY AS OF JUNE 30, 2010	**$17,344,254.77**

License and Stamp Sales

July 1, 2009 to June 30, 2010

Code	Type of License	Unit Cost	Quantity	Amount
F1	Resident Citizen Fishing	22.50	108,748	2,446,830.00
F2	Resident Citizen Minor Fishing	6.50	5,067	32,935.50
F3	Resident Citizen Fishing (Age 65-69)	11.25	5,570	62,662.50
F4	Resident Cit. Fishing (Over 70, etc.)	FREE	12,418	0.00
F6	Non-Res. Citizen/Alien Fishing	32.50	8,049	261,592.50
F7	Non-Res. Citizen/Alien Fishing (3 day)	18.50	2,437	45,084.50
F8	Resident Fishing (3 day)	7.50	1,256	9,420.00
F9	Non-Resident (Citizen) Minor Fishing	6.50	317	2,060.50
DF	Duplicate Fishing	2.50	484	1,210.00
	Quabbin 1-Day Fishing	5.00	2,509	12,545.00
T1	Resident Citizen Trapping	30.50	296	9,028.00
T2	Resident Citizen Minor Trapping	6.50	12	78.00
T3	Resident Citizen Trapping (Age 65-69)	15.25	26	396.50
DT	Duplicate Trapping	2.50	3	7.50
H1	Resident Citizen Hunting	22.50	18,048	406,080.00
H2	Resident Citizen Hunting (Age 65-69)	11.25	815	9,168.75
H3	Resident Citizen Hunting (Paraplegics)	FREE	240	0.00
H4	Resident Alien Hunting	22.50	45	1,012.50
H5	Non-Res. Cit./Alien Hunting (Big Game)	94.50	2,402	226,989.00
H6	Non-Res. Cit./Alien Hunting (Sm. Game)	60.50	909	54,994.50
H8	Resident (Citizen) Minor Hunting	6.50	943	6,129.50
DH	Duplicate Hunting	2.50	258	645.00
S1	Resident Citizen Sporting	40.00	32,059	1,282,360.00
S2	Resident Citizen Sporting (Age 65-69)	20.00	2,912	58,240.00
S3	Resident Citizen Sporting (Over 70)	FREE	8,823	0.00
S4	Resident Minor Sporting (Age 15-17)	8.00	508	4,064.00
DS	Duplicate Sporting	2.50	711	1,777.50
	TOTAL LICENSE SALES (GROSS)		***215,865***	***4,935,311.25***
	Current Year Stamp Sales			
M1	Archery Stamps	5.10	29,181	148,823.10
M3	Primitive Firearm Stamps	5.10	32,024	163,322.40
W1	Wildlands Stamps	5.00	175,406	877,030.00
W2	Non-Resident Wildlands Stamps	5.00	14,114	70,570.00
M2	Waterfowl Stamps, Administration	1.00	11,300	11,300.00
M2	Waterfowl Stamps, Ducks Unlimited	1.00		11,300.00
M2	Waterfowl Stamps, Other	3.00		33,900.00
	Duplicate Stamps	2.50	8	20.00
	TOTAL STAMP SALES (GROSS)		***262,033***	***1,316,265.50***
	Previous Years Stamp Sales			
M1	Archery Stamps		127	681.80
M3	Primitive Firearm Stamps		35	187.60
M2	Waterfowl Stamps, Administration	balance	753	785.00
M2	Waterfowl Stamps, Ducks Unlimited	1.00		753.00
M2	Waterfowl Stamps, Other	3.00		2259.00
	TOTAL STAMP SALES (GROSS)		***915***	***4,666.40***
	Fees Retained and Adjustments by Clerks			(24,033.59)
	Refunds			(77.50)
	TOTAL			**(24,111.09)**
	TOTAL LICENSE/STAMP SALES (NET)			***6,232,132.06***

Commonwealth of Massachusetts
Division of Fisheries and Wildlife Organizational Chart