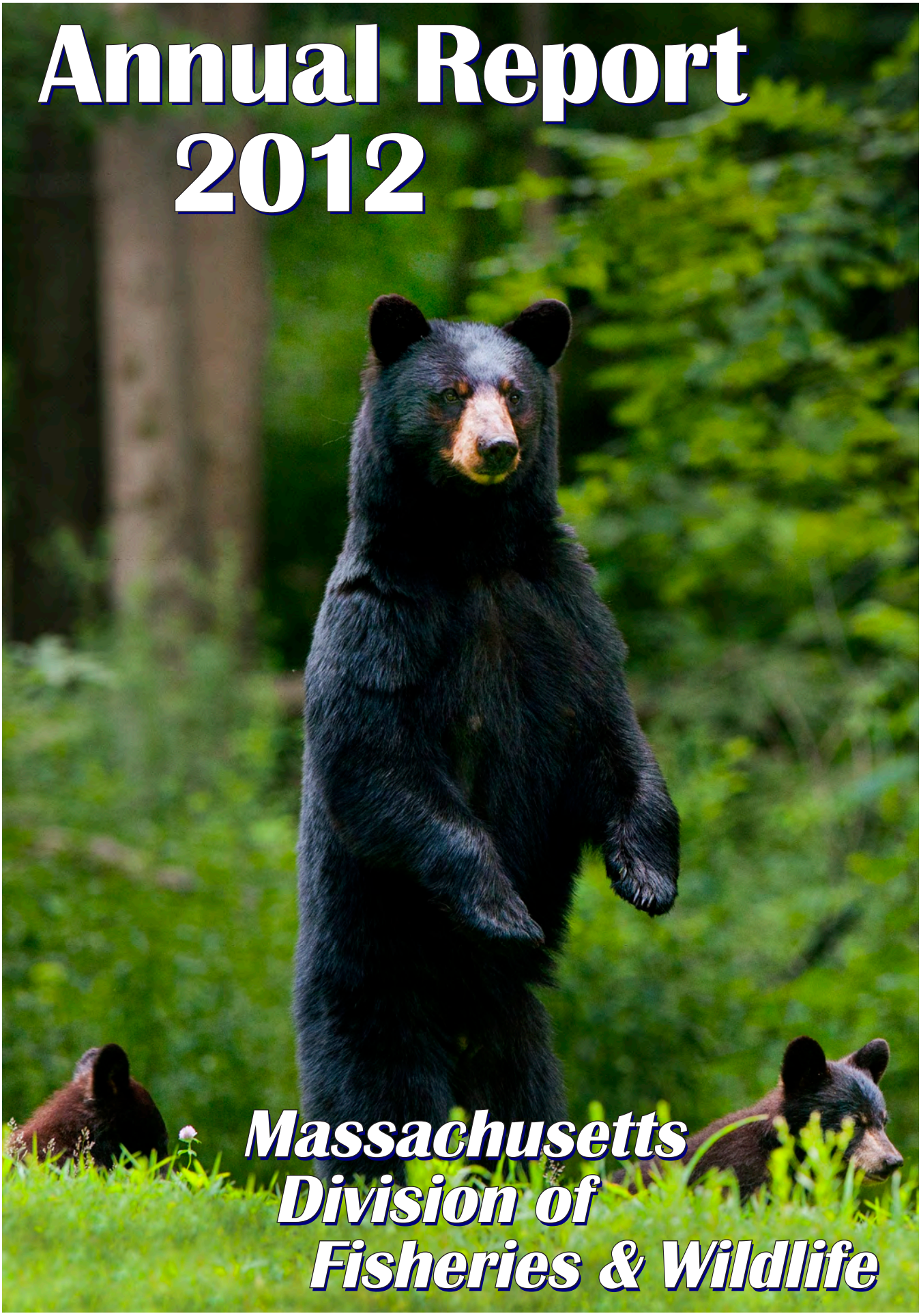
Annual Report 2012



Massachusetts Division of Fisheries & Wildlife

Annual Report 2012

Massachusetts Division of Fisheries & Wildlife

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An Agency of the Department of Fish & Game

Table of Contents

About the Cover:
This beautiful black bear sow and her two cubs were photographed at a field edge in western Massachusetts by DFW Senior Photographer Bill Byrne. For detailed informtion on the DFW's Black Bear Program, please see page 30.

THE BOARD REPORTS

George Darey
Chairman

Overview

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 5-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 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 proposals for regulatory changes and agency programs.

Proposals for Regulatory Changes

Youth Turkey Permit Regulations

As reported last year, the Board had received a request from the Barre Sportsmen's Club to 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 at that time to have staff review the Youth Turkey Hunt Program and report back with their findings.

In December 2010, Upland Game Bird Biologist David Scarpitti gave a review of the Youth Turkey Hunt permit to the Board. In summary, Mr. Scarpitti reported that staff had the following recommendations: Modify the 12-14-year-old Youth Turkey Hunt Program permit to 1) allow the permit/tag to be used throughout the spring turkey season; 2) provide two tags with 12-14-year-old Youth permit; and 3) make the required regulatory changes to 321 CMR 3.02 (9)(e) (youth bag limit) to incorporate the first two recommendations.

Mr. Scarpitti briefly summarized these recommendations to the Board again in June 2011, when a public hearing was held to accept comment on the proposed regulations.

The results were acted upon early in this fiscal year. The Board voted to allow the Youth Turkey Permit to remain valid throughout the spring season; that two tags be issued to 12-14-year-olds; and that the regulations be changed accordingly.

Fall Wild Turkey Season Regulations

Upland Game Bird Biologist Scarpitti provided a another presentation, on the Fall Wild Turkey Hunting season, including a review of wild turkey restoration, the history and expansion of hunting opportunities, the wild turkey population status, and the combined spring/fall turkey harvest. He reported that the spring harvest trends indicate a robust and growing population across the state, especially in eastern Massachusetts, and that the turkey population is strong enough to support a fall hunting season. He also addressed the current permissible shot sizes, regulated to #4-#6, and noted that modern alloy shot shells in #4-#7 offer more variety and superior characteristics to turkey hunters. In summary, staff recommended the following proposed regulatory changes:

1) Expand fall season to all remaining available Wildlife Management Zones (WMZs 10, 11, and 12).
2) Increase season length to 2 weeks statewide (i.e., add a week prior to existing season framework).
3) Adjust legal shot size for turkey hunting to #4-#7.

The Board voted to hold a public hearing on the proposed changes and will vote on them in the near future.

Falconry Regulations

Wildlife Biologist Michael Huguenin provided the Board with a presentation on proposed falconry regulations during the previous fiscal year. The following staff-recommended changes to 321 CMR 3.04 were proposed at that time:

1) Remove the requirement for a federal permit
2) Address the permit lapse requirements
3) Add definitions
4) Clarify the MESA requirements
5) Address new Massachusetts residency requirements

6) Allow for the utilization of falconry birds for education
7) Increase the possession limit
8) Allow non-resident take of raptors
9) Extend the raptor trapping season

After a brief discussion, the Board had voted to bring these recommendations to a public hearing as soon as possible. That hearing was held during FY 12, and, based on the comments received, several additional changes to the falconry regulations were suggested:

1) Add gyrfalcon and red-shouldered hawk to allowable species;
2) Add a "Let-lay" provision that allows a falconry permit holder whose raptor accidentally kills any protected animal during the closed season or a protected animal or sex during the open hunting season to leave the dead animal where it lies;
3) Remove the restriction against practicing falconry within ¼ mile of a refuge or sanctuary;
4) Remove the provision that requires a licensed falconer to possess a Raptor Propagation Permit in order to legally sell a raptor;
5) Remove any limits on what proportion of the possession limit is required to be either wild-caught or captive-bred birds;
6) Change from 48-hour requirement to 5 days for reporting the take of a raptor, to be consistent with the federal requirement.

The Board considered these additions and rejected the "Let-lay" provision (2 above), based primarily on staff reservations. The Board then voted to accept the original and all remaining additional provisions.

Waterfowl Regulations

The Board heard Waterfowl Project Leader H Heusmann's annual presentation on the framework and proposed season dates and bag and possession limits for the 2011-2012 waterfowl seasons. Following a public hearing on the proposed dates and limits, the Board voted unanimously to accept them.

Massachusetts Endangered Species List Changes

Assistant Director for NHESP Tom French provided the Board with a presentation on the recommended changes to the Massachusetts List of Endangered, Threatened, and Special Concern Species last year (species are listed under the Act as Endangered [E], Threatened [T], or Species of Special Concern [SC]).

There are 435 species currently listed under MESA. Habitat Protection Specialist Lynn Harper reviewed the delisting of dragonflies and damselflies, and State Botanist Bryan Connolly reviewed the delisting of plant species, then Dr. French provided a summary. There were a total of 15 currently listed species being either down-listed (i.e., status changed from E to T, E to SC, or T to SC) or up-listed. All of the changes were brought to the Natural Heritage and Endangered Species Advisory Committee in May 2010, and each was reviewed and recommended by the Committee. A public hearing was held in September, and, following consideration of the comments received, the Board approved 15 changes in status, 12 deletions, and 8 additions to the MESA list, as presented.

Disability Licenses

Deputy Director Buckley requested that the Board consider holding a public hearing relative to the requirements for free licenses. There are a number of discrepancies related to the three categories of licenses of this type (blind, paraplegic, and mentally retarded). Some technical changes are needed to make these definitions in the regulation clearer, and the "mentally retarded," needs to be changed to "mentally disabled." The Board voted to conduct a public hearing on the requirement for the three license categories.

Deer Review/Antlerless Permit Allocation

The Board heard an excellent review of the status of the deer population and deer management from Deer Project Leader Sonja Christensen. The Board voted to accept an increase of 500 permits over the previous year's (2010) allocations, the increase being in WMZs 10 and 11, for the 2011 seasons. The Board was disappointed to learn that Ms. Christensen was resigning her position to pursue a funded Ph.D. program in Montana, but it wishes her well and thanks her for all the work she has done on behalf of the Commonwealth.

Later in the fiscal year the Board heard a similar review from new Deer Project Leader David Stainbrook, who also explained in detail how the permit system would function under the new, entirely electronic system, and how deer harvests would eventually be reported online, presumably in 2013. The Board voted to accept his proposed increases in antlerless permit allocations for the 2012 seasons, the increases being in Zone 10 (+800), Zone 11 (+850), and Zone 12 (+25). No decreases were recommended for any Zone.

Nantucket Deer Possession Limit

Deer Project Leader Stainbrook reported to the Board that the Division had received a public request to reduce deer densities in response to high tick-borne-disease incidences on both Martha's Vineyard and Nantucket (WMZs 13 and 14, respectively). He proposed a staff-approved regulatory change to increase the possession limit of unsealed/unreported deer from two to four deer in WMZs 13 and 14, and listed the following benefits from increasing the possession limit:

1) Reduce the number of deer passed up by hunters because they already possessed the current limit of two unsealed/unreported deer;
2) Allow hunters more time afield and less spent traveling to and from check stations;

3) Increase success rates and harvest without increasing hunter numbers.

The Board voted to hold a public hearing on the proposed regulatory change.

Brood Stock Salmon Regulations for the Merrimack River

Anadromous Fisheries Biologist Caleb Slater provided the Board with a presentation on a proposed regulation change involving the taking of brood stock Atlantic salmon from the Merrimack River. The current regulation allows Atlantic salmon to be harvested from the Merrimack only if they are upstream of the Essex Dam in Lawrence. This is because any salmon returning from the ocean have been captured at the dam and transported to a hatchery for spawning; hence, no further protections were needed upstream. While Massachusetts does not release its surplus brood stock salmon in the Merrimack, New Hampshire has done so for many years, to allow its anglers to catch them there.

Now, however, the restoration strategy for the Merrimack has changed, and a portion of the returning sea-run salmon will be released from the fishway and allowed to continue their migration upstream. The goal is to allow natural reproduction in the Souhegan River in southern New Hampshire. The problem is that these fish will now be vulnerable to harvest in Massachusetts during upstream and downstream migration, so the Atlantic salmon harvest regulations on the Merrimack River need to be changed to protect these salmon.

Stocking Atlantic salmon fry.

The proposed regulation would allow harvest only of salmon marked with an external tag, and only upstream of the Essex Dam. As all brood stock released by New Hampshire are tagged, and New Hampshire regulations already only allow harvest of tagged salmon, the new regulation will protect the wild fish (no tag) that are allowed to pass through the fish lift facilities in Lawrence and Lowell, and also unify the salmon regulations of the two states on the Merrimack River upstream of Essex Dam.

A public hearing on the proposal was held in March, and, following review of comments, the Board voted to accept the proposed regulation changes.

Old Sandwich Game Farm WMA Regulation Change

Gene A. Schott, Executive Director of the Thornton W. Burgess Society, sent a letter to the Board this year requesting consideration of a regulation for the Old Sandwich Game Farm WMA – which is now being managed by the Thornton Burgess Society under an agreement with the DFW – that would prohibit swimming. His argument was that such a regulation would help prevent further erosion and the degradation of the marsh and creek banks caused by swimmers and beach-going activities. The Board voted to hold a public hearing on the proposal.

Wildlife-related Legislative Matters

Free Youth Fishing License

Deputy Director for Administration Jack Buckley reported to the Board that the General Appropriation Act for the FY 12 budget had an outside section that inserted the words "under 18 for free fishing license." This was done statutorily, and, as a consequence, there is no longer to be any charge for the Youth Minor fishing license, and no vote of the Board was required. Our 2012 publications reflect this change.

Massachusetts Endangered Species Act Proposed Legislation

Legislation was filed by an anti-regulatory faction this year that would radically alter the provisions and effectiveness of the Massachusetts Endangered Species Act (MESA). Surprisingly, it was reported out favorably by the Joint Committee on Natural Resources and Agriculture, and as of the end of this fiscal year is a clear threat to the future effectiveness of MESA in that it would effectively end the Priority Habitat mapping and project screening process that is presently in place to protect state-listed species. This despite the fact that MESA was significantly amended in 2005 and in 2010 with the cooperation and blessing of the leading pro-development and conservation organizations in the state. It would appear that some members of the legislature are misinformed about MESA and its history of amendments, and it is clear that the anti-regulatory faction behind the bill is deliberately misinforming the

public and the legislature as to how MESA operates and functions.

The Board offered in writing to discuss this issue with the Senate and House Chairs, but no meetings resulted. Consequently, the Board voted to send a letter signed by all members of the Board to all the Representatives and Senators to explain the impact of the proposed legislation to the MESA regulatory framework. This bill would be disastrous for our state's wildlife resources, sportsmen, and all those who believe in the conservation of the wildlife resources of Massachusetts.

Agency Program Reviews

I&E/Personnel Working Committee Report

With the retirement of I&E Chief Ellie Horwitz, who had held the position for 34 years, Chairman Darey established a working committee of the Board to review the duties and responsibilities of that position. The Chairman also expanded the scope of the Committee to review the agency's current staffing levels and needs. Of particular concern is that an increasing number of younger professional staff is leaving for other jobs and that most of our senior managers are near retirement. The Committee completed its review and offered the following recommendations in its report:

1) A general description of the I&E Chief's duties is provided and should be used as the formal job description in the job posting. If the Board agrees, the posting should be advertised immediately.
2) The I&E Chief's job description is very comprehensive; hence, it is unlikely any one person will have strong capabilities in every area. Therefore, a minimum of one additional position should be added to the I&E staff.
3) In 2003, the Inland Fish and Game Fund appropriation was cut significantly. At that time, about 25% of our positions were vacant, due to employees taking an early-retirement offer combined with the effects of a hiring freeze that had been in effect since 2001. Faced with insufficient staff to operate, we were looking at closing two hatcheries. The Board rejected this and at the August Board meeting voted to maintain a core-staffing level that kept the hatchery operations. Subsequently, the legislature increased the Inland Fish and Game Fund appropriation to that level. The Division has been operating at that level ever since. The Inland Fish and Game Fund appropriation for this year is sufficient to return to the pre-2003 operation level. Therefore, the committee recommended that the Board vote to raise staff capacity.
4) The turnover in staff suggests that the DFW's compensation levels are not competitive. Of particular concern are the salaries of Wildlife Technicians, which position constitutes about 25% of the agency's staff. The committee recommended that the Director undertake a study of DFW compensation compared to levels offered by other agencies for comparable positions.

Piping Plover.

The Board discussed these recommendations and voted to restore staffing to normal operating (pre-2003) levels; voted to have the Director use the general description of I&E Chief's duties in the Working Committee report for the formal job description and proceed with the posting; and voted to have the Director undertake a study of compensation for Division staff as compared to compensation in other agencies in the Commonwealth.

Staff Compensation Review

Following the above request by the Board, which has become increasingly concerned with these issues over the past several years, Deputy Director Buckley provided a review of the agency's technical staff positions relative to compensation. He stated that we have an educated staff, but recruitment is difficult as the salary structure is low compared to the technical staff in other state and federal agencies. At the Board's request, he also conducted a comparison review of the U.S. Fish and Wildlife Service's and the state Department of Environmental Protection's compensation of technical positions and found that the DFW is lacking two to three pay grades in comparison to our colleagues in these agencies. He stated that the most important thing we have is our staff, and we need to be able to recruit staff with a comparable salary structure. The Board agrees and is determined to get this accomplished. The Board voted to request that Deputy Director Buckley assemble a package for their

review on compensation for technical staff positions, and will make the correction of this pay inequity a priority. We cannot afford to lose some of our best and most promising staff to other agencies.

After updates throughout the year and much discussion at a number of Fisheries and Wildlife Board meetings, Commissioner Griffin reported toward the end of the fiscal year that, through the efforts of the DFW, DFG, EOEEA, and the Human Resources Division, the reclassification of the DFW's Wildlife Technicians had been accomplished, effective April 8, through a "class reallocation" process, wherein all Wildlife Technician II employees had been promoted to Wildlife Technician III. The Board is very pleased that this class reallocation finally came to fruition, but remains concerned that the salaries of our biologists are still lagging way behind the rest of the state and country. The Board will continue to work to rectify this vexing issue.

Becoming an Outdoors Woman Review

Deputy Director of Field Operations Rob Deblinger, who has been serving as the Acting Chief of the Information & Education (I&E) Section due to the retirement of former I&E Chief Horwitz, reported that he had discussed the Becoming an Outdoors Woman (BOW) program with the section's staff and that, without Ellie's involvement, the agency simply could not offer as many BOW events as it did last year. Ellie offered as many as 12 BOW events on an annual basis, but presently the I&E staff is already booked for many weekends for Hunter Education, sportsmen's shows, and other events. Hence, he recommended that for the 2012 season the section needed to scale back some of the BOW programs. His recommendation was to offer the best of BOW: five events that were selected because of the high demand for them and the high attendance they command and also because they most strongly relate to and further the agency's mission. They are the Turkey Seminar and Hunt in April and May, respectively; The BOW weekend in Becket in June; Family Camping/Fishing in conjunction with the Department of Conservation & Recreation (DCR) in August; Shooting Sports in September; and the Deer Seminar and Hunt in November and December, respectively. The Section's working group also looked at what other states offer for BOW events and agreed on several changes to BOW to include ways to make it a better recruitment program. However, given that the agency is trying to hire a new I&E Chief, as well as a Recruitment/Retention Specialist, he recommended no other changes at this time other than the reduction in the number and diversity of events. The Board agreed and endorsed his proposal.

Sawmill River Restoration

Connecticut Valley District Manager Ralph Taylor provided a presentation on the Sawmill River Implementation Project. Mr. Taylor gave a history of the project, which includes the Franklin Conservation District's (FCD) permission to conduct a geomorphic study of the Sawmill River on DFW property. Approval was given with the understanding that final approval would be needed by the agency to proceed to implementation. In 2011, the FCD further refined the restoration plan's extent and design, resulting in a final design. The project will restore a Coldwater Fisheries Resource by increasing habitat diversity and features within the river, improve wildlife habitat and flood control by reconnecting the river to its floodplain, and serve as an example for future restoration efforts on other parts of the river. The project is funded through a Sec. 319 grant from the U.S. EPA/Mass. DEP (Project No. 10-08/319), hence no DFW resources will be expended other than staff time for oversight. The Board voted to approve the project and allow it to proceed.

National Wild Turkey Federation Partnership

Upland Game Biologist Scarpitti presented the Board with an update on the partnership between the DFW and the National Wildlife Turkey Federation (NWTF). He reviewed the current Memorandum of Understanding (MOU) we have with the NWTF, which includes the promotion of land acquisition, habitat restoration, and hunter education; support for the Becoming an Outdoorswoman Program (as well as the NWTF's Women Outdoors Program); and the provision of wild turkey learning kits and staffing for certain public events. The NWTF has been updating their MOUs with various states, including Massachusetts, to make them all consistent. Staff asked for the Board's endorsement to pursue amending the existing MOU, which does not address new programs (e.g., youth turkey hunts) that have come into existence since the first MOU was signed. The Board voted to endorse pursuing an amended MOU, and after reviewing a draft to which the Board offered several edits, voted to endorse the new MOU as corrected.

Draw-downs Study

The subject of draw-downs, i.e., the deliberate lowering of a body of water in winter to help control aquatic vegetation and/or aquatic invasive species, has long been of concern to the Board, the agency, sportsmen, and environmentalists. The effects of such artificial manipulations on aquatic ecology and native and introduced species remain largely unknown, primarily due to a dearth of research information, and as sportsmen have reported to the Board, they can also affect recreational public access. While DFW staff often testifies at Conservation Commission hearings in opposition to draw-downs, the DFW cannot legally intervene unless there are state-listed species occurring in the affected body of water. No studies seem to be available, but the Director reported that the USGS Massachusetts Cooperative Fish & Wildlife Research Unit at the University of Massachusetts, Amherst (Cooperative Research Unit) has filled a fisheries vacancy with a very competent and experienced fisheries biologist, and that DFW staff have been meeting with the Cooperative Research Unit to fund a graduate student to begin a study on the impacts of draw-downs. The Board was very pleased to hear this news and voted to charge the DFW with the task

of supporting a study on the environmental aspects of draw-downs and looks forward to seeing the results of this long-needed research.

Hamant Brook Restoration Project

The Board heard a report by Assistant Director for Fisheries Mark Tisa on the Hamant Brook Restoration Project Memorandum of Understanding (MOU). A presentation on this project was given to the Board approximately 2 years ago, but the project actually began in 1999. Dr. Tisa reported that the parties involved wish to implement the Hamant Brook Restoration Project to restore habitat and fish passage to Hamant Brook in Sturbridge, including the removal of three dams, the replacement or modification of two stream crossings, and the reconnaissance-level identification of additional restoration projects in the Hamant Brook watershed and nearby Quinebaug River. The project was awarded $800,000 by the Millennium Power Management Team in accordance with the procedures described in the December 2007 Millennium Power Project Phase II Project Evaluation Procedures document. The Project funds derive from mitigation measures identified in March 1998 by the U.S. EPA, New England Region. The DFW will maintain oversight and will be working with American Rivers. The request was for the Board to approve the MOU relative to the restoration project, and following some discussion, the Board voted to sign the agreement.

DCR Landscape Designations

The Board asked Assistant Director for Wildlife Tom O'Shea to provide a presentation on the DCR's Landscape Designations. The DCR holds 308,000 acres of land, 5,306 acres of which are held jointly with the DFW. The Board is most concerned about the DCR's land-holding designations, which could theoretically prevent managing more than 5 contiguous acres of forestland as early-successional habitat, which would in turn prevent management for New England Cottontails and other Species of Greatest Conservation Need. The Board voted to request a meeting with the DRC to resolve these conflicts by establishing a memorandum of understanding to cover all jointly owned properties that would ensure that all DCR management plans are agreed upon by the DFW; that will identify properties where the desired size of openings may exceed 5 acres; and that would require a DFW staff person and the UMass Cooperative Wildlife Research Unit Leader on the DCR's proposed Forest Reserve Science Advisory Council.

Electronic Licensing and Game Reporting

The Board heard multiple presentations on the agency's new electronic licensing system and the closely related subject of electronic game reporting from Assistant Director O'Shea this year. While Massachusetts has offered electronic licensing for several years, we are now fully electronic, and everyone purchasing a license, stamps, permits, etc., including all license vendors as well as individuals working from home computers, must now work through the system. No pre-printed, paper licenses were printed or distributed for the 2012 calendar year; licenses/permits/stamps are printed directly on plain-paper stock from vendors and/or personal computers. Further, the process to enter the drawing for antlerless deer permits is now fully electronic. This will result in considerable cost savings to the agency while providing 1) convenience for license buyers, 2) quick and efficient data collection, 3) a reduction in data-entry burden to staff, 4) a reduction in data errors, 5) law enforcement with real-time checking on license validity, 6) earlier availability of hunting-season data, and 7) additional data-analysis capabilities. The Board voted to endorse the complicated regulatory changes that will be required to fully implement online licensing and game checking and scheduled a hearing in June to solicit public input. The Board will vote on the required changes early in the next fiscal year.

Presentations

The Board heard a large number of informative presentations from staff and members of the public this year that are not categorized under the previous headings. While these informative presentations did not require votes, they added greatly to the Board's collective knowledge and insight, and the Board is thankful to have such professional assessments of various subjects and issues.

The presentations included a thorough review of the policy and issuing requirements for farmer/landowner deer permits by Assistant Director O'Shea; an overview of District activities by Western District Supervisor Andrew Madden; an overview by Fisheries Biologist Todd Richards of the now-completed Gulf Brook Habitat Restoration Project in Pepperell (funded in part by the Massachusetts Outdoor Heritage Foundation); a complete review of the status and management of black bear by Furbearer Biologist Laura Hajduk-Conlee, including the research plan and management recommendations for this important game species over the next 5 years; a summary of public comments on the Box Turtle Conservation Plan provided by Assistant Director French; an overview of the 14th Edition of the Priority Habitat Atlas, also provided by Dr. French; a presentation on "Deer, Forests, and People" by Thomas Rawinski, a member of the Natural Heritage & Endangered Species Advisory Committee, who provided current and historical perspective on the ecological and cultural impacts of deer and his suggestions on how to address them; a report on "Massachusetts' Role in Climate Change" by Hector Galbraith of the Manomet Center for Conservation Sciences, who discussed vulnerability aspects to climate change and how studying and addressing those aspects could guide resource-management decision-making. Mr. Galbraith noted that the Commonwealth has been at the forefront of this work; other states and organizations are borrowing heavily from the products and activities initiated by Massachusetts.

The Board also heard an excellent presentation from

Dr. Steve DeStefano, Leader of the USGS Massachusetts Cooperative Fish & Wildlife Research Unit at the University of Massachusetts, Amherst, and Dave Wattles of the same Cooperative Research Unit. The presentation was on moose, and Mr. Wattles provided a review of moose-vehicle collisions, moose home ranges in relation to topography, road mortality of collared females, the daily movement rates of both male and female moose, and wildlife road-crossing structures.

Miscellaneous

Congratulations

The Board was very pleased to dedicate a scenic marsh overlook at the William Forward WMA to former Vice Chair and Board member Nancy Begin in August. The Nancy Begin Salt Marsh Overlook and a six-car parking lot were created in honor of Nancy's many years of dedicated service to the Fisheries Wildlife Board and wildlife conservation in Massachusetts. Fencing around the area was donated by the Essex County League of Sportsmen, and a commemorative plaque was donated by the Gun Owners' Action League (G.O.A.L.). A viewshed was opened by Northeast Wildlife District staff into the salt marsh, and an information kiosk installed.

The New Field Headquarters Building

The Board heard multiple updates this year from the Director and Commissioner Griffin on the long-awaited new DFW Field Headquarters building in Westborough, and enjoyed a presentation by Ellen Watts and Michael Grant of Architerra, the firm designing and overseeing the construction of the building. This new "green" building will replace the old Richard Cronin Field Headquarters building and surrounding buildings; providing desperately needed space for employees, equipment, and publications; and will be a "zero net-energy" building using geothermal and solar power. Demolition work is expected to begin in September and the new building is scheduled for completion in 2014.

FISHERIES

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

Overview

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 in 2006. 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.

Fisheries Survey and Inventory Project

Todd Richards, *Project Leader*

FY 12 Stream Survey project involved participation in Statewide Fisheries Survey and Inventory; Stream Habitat Restoration Project – Hamant Brook, Sturbridge; Stream Flow Monitoring Project; Sustainable Water Management Initiative; and Instream Flow Council Activities.

Statewide Fisheries Survey and Inventory

Stream Survey and Inventory efforts continued in FY 12, sampling 324 sites in 27 watersheds (Table 1) and capturing nearly 49,500 individual fish.

Table 1. Watersheds and number of samples in each watershed in FY 12.

Blackstone	11
Buzzards Bay	7
Cape Cod	1
Charles	13
Chicopee	11
Concord	46
Connecticut	12
Deerfield	44
Farmington	3
Hoosic	11
Housatonic	14
Ipswich	3
Islands	4
Kinderhook	3
Merrimack	12
Millers	10
Mt. Hope/Narragansett	2
Mystic	1
Nashua	25
Neponset	2
North Coastal	6
Quinebaug	2
South Coastal	7
Taunton	2
Ten Mile	2
Westfield	67
Weymouth & Weir	3

Stream Habitat Restoration Project: Hamant Brook, Sturbridge

The DFW 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.

In FY 12, the Division, in cooperation with American Rivers, contracted Stantec, Inc., to proceed with engineering and pre-permitting phases of the project. The proposed work areas were surveyed and mapped, 30% design drawings were drafted, and meetings were held with landowners and stakeholders.

Stream Flow Monitoring Project

A stream flow monitoring project was initiated in collaboration with the Massachusetts Cooperative Fish and Wildlife Research Unit to examine stream flows in small streams statewide. Three treatments were described: 1) relatively unaltered stream flow conditions (those without large water withdrawals); 2) stream flow conditions downstream of water supply reservoir impoundments; and 3) stream flow conditions downstream of unregulated impoundments. A total of five replicates are anticipated and will be selected first by locating an appropriate water supply reservoir and then selecting appropriate treatments nearby for the other two treatments. Four of the replicates were selected in FY 12: Westfield Water Supply system, Greenfield Water Supply, Westborough Water Supply, and Fitchburg Water supply. Pressure transducers for continuous stage monitoring will be installed in FY 13.

Sustainable Water Management Initiative (SWMI)

Interagency, technical subcommittee, and advisory committee work continued on the SWMI initiative, focusing on the refinement of the tiers table, development of pilot communities for mock permitting exercises, and a final packet including the SWMI framework and associated appendices. The final Advisory committee meeting was held in February 2012.

Instream Flow Council Activities

Project Leader Richards continued his role as President-elect for the Instream Flow Council (IFC). Responsibilities focused primarily on planning for the upcoming (September 2012) biennial meeting, including venue selection, agenda, and travel planning for the anticipated 40 participants. Executive committee meetings were also held to discuss membership issues, develop IFC products for members (expertise directory, state instream flow summaries), and bylaws.

Anadromous Fish Investigations

Caleb Slater, Ph.D., *Project Leader*

General

In FY 11, the DFW hired three 6-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 3-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.

A total of 754,018 unfed Atlantic salmon fry from the Roger Reed State Fish Hatchery were scatter-planted from shore into 40 tributaries of the Connecticut River in spring 2012. An additional 90,074 feeding Atlantic salmon fry of sea-run origin from the Richard Cronin National Salmon Station were scatter-planted into two tributaries of the Connecticut River in Massachusetts. Stocking took place on 20 days between April 9 and May 1.

During FY 11, the Project Leader was actively involved in the FERC relicensing of the Woronoco Hydroelectric project on the Westfield River in Russell; FERC relicensing of the Glendale Hydroelectric and Willow Mill Hydroelectric Projects on the Housatonic River; 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; with applications for FERC exemptions at the Westfield Paper dam on the Westfield River in Russell; the Ice House dam on the Nashua River in Ayer; the Pepperell Paper dam on the Nashua River in Pepperell; the Alternatives project on the Mumford River in Northbridge; the Byron Weston No. 2 Project on the Housatonic River in Dalton; the Dexter Russell Hydroelectric Project on the Quinebaug River in Southbridge; the Dodgeville Hydroelectric Project on the Ten Mile River in Attleboro; the Shaker Mill Dam Hydroelectric Project on the Williams River in West Stockbridge; Crocker Pond Hydroelectric Project on the Whitman River on the North Nashua River in Westminster; an application for amendment of FERC exemption at Riverdale Mills on the Blackstone River in Northbridge; and application for a preliminary permit of the Moody Street Dam Hydroelectric Project, to be located on the Charles River in Waltham.

The Project Leader worked with DFG and DOER, commenting on the applications of numerous hydroelectric projects seeking to qualify for "Low Impact Hydroelectric Certification" and/or "green energy" credits in Massachusetts.

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 (awarded in 2001). 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 2011. 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

Because 2012 fish passage operations are ongoing at this time, this report summarizes the 2011 fish passage activities. No major malfunctions were experienced at any of the fishways on the Connecticut or Westfield rivers in 2011.

The Holyoke fish passage facility operated for a total of 66 days between April 11 and July 15, 2011, with several exceptions when the fish lifts could not be operated due to high river discharge, exceptionally high turbidity, or canal outage. During the spring season, fish passage was not accomplished April 12–May 4, May 17–22, and May 30–31, due to high river discharge; June 1 due to nil visibility, which prevented observation for and trapping of Atlantic salmon; or on May 9, because of maintenance repairs to the attraction water distribution system. The facility passed a total of 264,141 anadromous fish and 2,720 fish of 18 resident species (including adult American eel). Three 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 66. 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, 95% of 244,189 in 17 days; blueback herring, 99% of 138 in 9 days; sea lamprey, 97% of 19,136 in 17 days; striped bass, 79% of 183 in 27 days; gizzard shad, 89% of 423 in 22 days; and Atlantic salmon, 100% of 72 in 27 days.

Atlantic Salmon

Forty one (41) Atlantic salmon were counted during the spring/summer fish passage season at the Holyoke fish lift. 2011 passage was 20% of the record passage of 1992, 89% of the previous 5-year mean, and 109% of the previous 10-year mean. A total of 10 Atlantic salmon were trapped at Holyoke during the spring/summer season, and 10 Atlantic salmon were radio-tagged and released at Holyoke as per agreement with TransCanada.

American Shad

The total number of shad lifted in 2011 (244,189) was 34% of the record high passage of 1992. Passage in 2011 was 154% of the previous 5-year mean, and 120% of the previous 10-year mean. Examining the cumulative percent of shad passed at Holyoke, 50% of fish passed this project on the twenty-second day of passage, 22 May. A total of 486 American shad were sampled for biological data on 28 days from 7 May through 30 June. Fork length, weight, sex, and scale samples were collected from all individuals. This sample represents 0.2% of the total American shad passed for the year and between 0.1% and 10% 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 78%. The weighted sex ratio of American shad lifted at the Holyoke facility in 2011 was 70% males and 30% females. Fish lift personnel trapped and trucked a total of 2,182 shad for restoration efforts.

Other Anadromous Fish

Blueback herring passage in 2011 was 138. This was .02% of the maximum passage of 1985, 109% of the previous 5-year mean and 8% of the previous 10-year mean.

Sea lamprey passage in 2011 (19,136) was 26% of the record passage of 1998 and was 55% of the previous 5-year mean and 44% of the previous 10-year mean.

Gizzard shad passage in 2011 was 423. This was 275% of the previous 5-year mean and 40% of the previous 10-year mean.

American Eel

A conceptual study plan for upstream eel passage monitoring at Holyoke Dam was drafted during 2010 pursuant to the City of Holyoke Gas & Electric Department's (HG&E) Upstream Eel Passage Plan [approved by FERC order (115 FERC ¶ 62,158, 10 May 2006)] and as the result of a meeting of HG&E and agencies and stakeholders on March 31, 2010. In that meeting, HG&E noted the objective of determining siting for permanent

eel collection/passage facilities on the Holyoke side of the project, but with the understanding that downstream fish passage and protection measures for Hadley Falls Station will necessitate reconsideration of any facilities in the bypass reach. The 2011 study plan was a continuation of the 2010 plan, which included simulation of fish lift attraction water sheet-flow events that occurred in 2003 when large numbers of eels were observed aggregating in the Holyoke fish lift structures.

Implementation of the 2011 study plan included:

1) Monitoring upstream eel passage with three interim eel passage devices on the Holyoke side of the Project, including eel ramps in the tailrace and spillway fish lift structures and just downstream of the spillway fish lift entrance in the bypass reach;
2) Monitoring upstream eel passage with an eel ramp on the South Hadley side of the Project in the bypass reach;
3) Visual surveys within the Holyoke fish lift structures for eel aggregations and behavior in coordination with simulation of sheet-flow from the fish lift attraction water system, and temporary installation of a portable eel ramp in the upper stilling basin; and
4) Tabulation of hydraulic, atmospheric, and other variables during the eel migration season. These included total river discharge, nighttime fish lift attraction flow, water temperature, local rainfall, moon illumination, and hourly rubber dam spilling status.

On the Holyoke side of the project, eel ramps were deployed beginning June 13, 2011, in the spillway fish lift entrance channel. Both the spillway fish lift and bypass reach eel ramps were redesigned to incorporate Milieu 1-inch vertical stud climbing substrate instead of the 2-inch substrate used in 2010. The South Hadley eel ramp was initially put in service on July 15. The 2011 season was characterized by high river discharge events, most notably from tropical storms Irene and Lee in late August and early September, respectively, which caused extensive damage to the South Hadley and bypass reach eel ramps. Additionally, an extended fish-lift-maintenance dewatering in the summer reduced the collection period there; and dredging of the South Hadley Canal, which eliminated the attraction flow source, caused the South Hadley eel ramp to operate with reduced attraction flows. Nonetheless, overall collections during 2011 were the second-highest recorded since 2003, when eel collections began at Holyoke Dam. Virtually all eels collected during 2011 were from the Holyoke side of the project. Cumulatively, 9,734 eels were collected during 2011: 5,141 from the spillway ramp, 4,459 from the upper stilling basin, 95 from the bypass reach eel ramp, 17 from the tailrace ramp, and 22 from the South Hadley eel ramp.

Fish lift attraction flow was set to deliver approximately 10 cubic feet per second (cfs) periodically beginning in late June (overnight only during the fall fish passage season), though the pulse schedule was disrupted by flood flows, the fall canal outage, and fish-lift-maintenance dewatering. Visual surveys were conducted on fifteen dates from July 13–October 17 by roving spotlight observations in each of six regions: tailrace fish lift entrance gallery, tailrace fish lift transport channel, lower (tailrace) stilling basin, spillway fish lift entrance channel, spillway stilling basin/attraction water distribution, and upper stilling basin. The majority of both elvers (75%) and yellow phase eels (42%) were observed in the upper stilling basin. Relatively large proportions of yellow phase/adult eels were also observed in the tailrace fish lift entrance channel (27%) and the tailrace fish lift stilling basin (9%). By August 30, 94% of the annual total had been collected.

The results this year support the hypothesis that a significant portion of eels that might have been collected by the South Hadley ramp were not collected there due to reduced attraction flow, and instead, eels continued searching until finding the Holyoke spillway fish lift entrance. According to this hypothesis, eels migrating up the bypass reach in prior years were intercepted by the South Hadley eel ramp and, therefore, were not available for collection from the Holyoke side of the project, resulting in collections that were an order of magnitude lower there.

Results of visual surveys confirmed an aggregation area in the upper stilling basin and supported the conclusion that moderate to high overnight fish lift attraction flows tested in 2005–2009 may have prevented eels from navigating the fish lift structures.

Turners Falls

The fish ladders at Turners Falls were operated for a total of 56 days from May 12 through July 7, 2011. Operational problems were reviewed as needed on an ongoing basis by agency personnel (DFW and USFWS), and by the dam owner (Firstlight Power).

Upstream fish passage counts were made at the Spillway, Gatehouse, and Cabot fish ladders by review of recorded passage. Digital recordings were reviewed by employees of Firstlight Power. All ladders were monitored for 24 hours each day unless technical problems occurred. All fish ladders remained open for passage 24 hours each day.

Anadromous Fish Passage

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

During the spring/summer migration, 10 adult Atlantic salmon were allowed to pass the Holyoke fish passage facility. Eight of these were observed passing the fish ladders at Turners Falls.

The number of American shad passing the Gatehouse fish ladder in 2011 (16,798) was 29% of the maximum passage of 1992, 165% of the previous 5-year mean and 202% of the previous 10-year mean.

The number of shad passing the Spillway fish ladder in 2011 (1,966) was 17% of the maximum passage of 1992, 114% of the previous 5-year mean and 76% of the previous 10-year mean.

The number of shad passing the Cabot fish ladder in 2011 (16,798) was 45% of the maximum passage of 1992, 293% of the previous 5-year mean and 426% of the previous 10-year mean.

Examining the cumulative percent of shad passed at Gatehouse, 50% of fish passed this ladder on the twenty-fourth day of operation; May 28, 2011.

Examining the cumulative percent of shad passed at Spillway, 50% of fish passed this ladder on the twenty-ninth day of operation; June 2, 2011.

Examining the cumulative percent of shad passed at Cabot, 50% of fish passed this ladder on the twenty-fourth day of operation; May 28, 2011.

Only 6.9% of the shad lifted at Holyoke (244,189) passed the Gatehouse observation window, well below the restoration goal of 50%.

A total of 2,032 sea lamprey passed the gatehouse fishway in 2011. This represents 6% of the maximum passage of 2008, 16% of the previous 5-year mean and 23% of the previous 10-year mean.

Westfield River

In 2011, a fish ladder was operated for the fifteenth year at the A&D Hydroelectric dam in West Springfield. 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 September 2011.

Anadromous Fish

The West Springfield fish passage facility operated for 76 days in the spring of 2011. The number of days that passage was greater than 1% of the seasonal total was considerably less than 88. 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, 84 % of 5,029 in 18 days; sea lamprey, 89% of 1,590 in 21 days; Atlantic salmon, 100% of 9 in 6 days.

During the spring/summer season, 9 Atlantic salmon were trapped. All salmon were transported by personnel of the USFWS to the Richard Cronin National Salmon Station in Sunderland.

A total of 5,029 American shad; 1,590 sea lamprey; 0 striped bass; 0 Blueback herring; 7 American eel. and 0 gizzard shad were passed upstream in spring/summer 2011. The shad passage represents a new record high and 107% of the previous record high of 4,720 in 2001.

Non-anadromous 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 2010.

Merrimack River

In FY 11, the Project Leader actively participated in Merrimack River Policy and Technical Committee meetings as well as several working group meetings. The two mainstem fish lifts on the Merrimack River in Massachusetts (Lawrence and Lowell) were operated and monitored for anadromous fish passage during the spring/summer of 2012. Because 2012 fish passage operations are ongoing at this time, this report summarizes the 2011 fish passage activities. No major malfunctions were experienced any of the fishways on the Merrimack River in 2011.

Essex Dam

The Essex Dam fish elevator in Lawrence operated for 74 days between May 1 and July 17, 2011. 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 were made per weekday.

Anadromous Fish Passage

At the Essex fish lift, 402 adult Atlantic salmon were captured during spring 2011. This was a new record and 120% of the previous record passage of 1991. Salmon returns were 493% of the previous 5-year mean, and 484% 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 USFWS National Fish Hatchery at Nashua, New Hampshire, to be spawned.

The total number of American shad lifted in 2011 (13,835) was 18% of the record high passage of 2001. Shad passage in 2011 was 92% of the previous 5-year mean and 45% of the previous 10-year mean. A total of 405 shad were trapped and trucked to the USFWS Nashua Fish Hatchery for spawning, where 5.8 million fry were produced of which 2.9 million were stocked in the Charles River and 2.9 million stocked in the Merrimack River. A total of 144 shad were trapped and trucked to the USFWS North Attleboro Fish Hatchery

for spawning, where 1.4 million fry were produced of which 1.1 million were stocked in the Charles River and 300,000 were stocked in the Pawcatuck River in Rhode Island. A total of 848 shad were trapped and trucked by New Hampshire Fish and Game.

The 2011 river herring passage was 740; this was 0.2% of the record high passage of 1991, 85% of the previous 5-year mean, and 23% of the previous 10-year mean.

Total number of sea lamprey, striped bass, and gizzard shad passing through the Lawrence fish lift were 2,571; 0; and 2, respectively.

Pawtucket Dam

Operation of the Pawtucket Dam fish elevator (Lowell) began on May 9, 2011, 1 week after lifting operations began at the Lawrence fishway, approximately 12 miles downstream, and concluded on July 15. 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 passed at the Lowell facility in 2011 was 1,202; this represents 8.7% of the shad passing through the Lawrence fishway this season.

No sea-run Atlantic salmon were seen at the Lowell fish lift. All sea-run Atlantic salmon that enter the Lawrence fish lift, downstream, are captured and removed for broodstock.

The total number of sea lamprey and river herring estimated to have passed through the Lowell fish lift were 272 and 256, respectively.

Atlantic Salmon Fry Stocking

Atlantic salmon fry from the Roger Reed State Fish Hatchery and the Richard Cronin National Salmon Station were stocked on 20 days from April 9 through May 1, 2012. All fry stocked in 2011 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 DFW personnel. Fry from the Richard Cronin National Salmon Station were transported by either DFW personnel or USFWS personnel. Fry were enumerated by weight and transferred to 19-liter 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 25 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 feet 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 number of fry stocked into Massachusetts waters in 2012 (815,767) was only 56% of the average of the last 5 years. This reduction was due to the loss of fry production from the White River National Fish Hatchery, which was severely damaged by Hurricane Irene on August 28, 2011. The Deerfield (217,333 fry) and the Westfield (386,303 fry) river basins were stocked with Atlantic salmon fry for the twenty-fifth and twenty-fourth consecutive years, respectively. Mill Brook (7,752 fry), Northfield, was stocked for the sixteenth time. The Manhan River Basin (42,410 fry) was stocked for the twentieth time since 1989 and the Fall River Basin (9,930 fry) was stocked for the nineteenth time since 1988. The Mill River (30,153 fry) in Williamsburg was stocked for the fifteenth time. The Sawmill River Basin (65,648 fry) was stocked for the eighteenth time. The Millers River (56,240 fry) was stocked for the fifteenth time.

Atlantic Salmon Fry Survival

Selected salmon-stocked streams were sampled for juvenile Atlantic salmon in 2011. DFW personnel sampled 38 sites on 30 streams.

A single-pass technique employing 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 biological 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 underestimation 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.

Sampling was cut short in 2011 by Hurricane Irene, which swept through New England on August 28. Very high water due to the excessive rainfall made sampling impossible. Just as the water levels were receding to normal, the remnants of a tropical storm caused more flooding. The wet weather continued throughout the month of September and we were never able to continue the stream surveys.

Due to this lack of data and uncertainty as to the fish population status in streams sampled before the floods, no estimate of 2012 smolts was made.

Warmwater Fisheries Investigations

Richard Hartley, *Project Leader*

Freshwater Sport Fishing Awards Program

For nearly 50 years, the Freshwater Sport Fishing Awards Program has been awarding pins to anglers who catch trophy-size fish from the waters of the Commonwealth. Minimum qualifying weights are currently in place for 22 different species of fish. Beginning in 2005,

Freshwater Sport Fishing Gold Pin Awards for 2010

Species	Number of Adult Pins	Number of Youth Pins	Weight of Gold Pin Adult	Weight of Gold Pin Youth
Broodstock salmon	10	6	14 lb. 5 oz.	20 lb. 5 oz
Brook trout	11	18	3 lb. 1 oz.	3 lb. 9 oz.
Brown trout	9	16	8 lb. 15 oz.	6 lb. 10 oz.
Bullhead	19	36	5 lb. 15 oz.	2 lb. 1 oz.
Carp	30	14	39 lb. 10 oz.	30 lb. 15 oz.
Chain pickerel	36	43	7 lb. 2 oz.	5 lb. 12 oz.
Channel catfish	41	6	12 lb. 12 oz.	11 lb. 2 oz.
Crappie	36	32	2 lb. 15 oz.	2 lb. 14 oz.
Lake trout	17	2	14 lb. 0 oz.	8 lb. 0 oz.
Landlocked salmon	87	34	6 lb. 14 oz.	6 lb. 8 oz.
Largemouth bass	14	58	9 lb. 4 oz.	6 lb. 5 oz.
Northern pike	14	5	24 lb. 11 oz.	17 lb. 0 oz.
Rainbow trout	21	13	5 lb. 2 oz.	3 lb. 12 oz.
Shad	1	12	6 lb. 8 oz.	5 lb. 6 oz.
Smallmouth bass	21	38	5 lb. 12 oz.	4 lb. 14 oz.
Sunfish	31	46	1 lb. 2 oz.	1 lb. 0 oz.
Tiger muskellunge	1	0	19 lb. 2 oz.	N/A
Tiger trout	7	16	3 lb. 5 oz.	2 lb. 7 oz.
Walleye	10	1	8 lb. 14 oz.	3 lb. 4 oz.
White catfish	11	7	7 lb. 1 oz.	4 lb. 15 oz.
White perch	32	29	2 lb. 12 oz.	2 lb. 8 oz.
Yellow perch	31	59	2 lb. 7 oz.	1 lb. 12 oz.

lower minimum weights for Youth Anglers (age 17 and under) were established. This addition has resulted in a near doubling of the number of pins awarded annually. Upon weighing a fish on a state-certified scale, the angler receives a bronze pin depicting the species of fish with the weight and year of catch stamped on the back. In addition to the bronze pin, the lucky Adult and Youth anglers who weigh in the largest fish of the year for each of the categories are awarded a plaque and a gold pin at the annual awards ceremony, traditionally held during the Eastern Fishing & Outdoor Exposition in February at the DCU Center in Worcester.

Record Carp held by angler Shane Felch.

Affidavits are still being received for 2012, so results from 2011 are presented above. After a record-setting year in 2010 (1,131), the number of pins awarded dropped slightly in 2011, to 981. Pins were awarded in all 22 categories to Adult anglers (490) and in 21 categories to Youth anglers (491) for calendar year 2011. Since the Youth minimum weights were established, the only category that has had no entries is the state's most elusive, Youth tiger muskellunge.

For the fourth consecutive year, landlocked salmon was ranked number one overall and with Adult anglers, while yellow perch were again ranked number one among Youth anglers. The tenth annual Angler of the Year Award (presented to the angler who submits the highest number of eligible species) was presented for the second time to a Youth angler (at 12 years old also our youngest winner to date), Trenton Anestis of Boxborough, who weighed in 16 different species.

Bass Tournament Creel Analysis

For the past 16 years, the Fisheries Section 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 that requests the use of a facility governed by the Office of Fishing and Boating Access (OFBA) to hold a fishing event must receive a Special Use Permit. As part of the permit, the OFBA includes a creel sheet to be completed by the fishing club at the close of the event. Additionally, individual bass clubs, as well as the Massachusetts Chapter of B.A.S.S. (Bass Anglers Sportsman Society), have been given creel sheets in an attempt to generate information on tournaments held at non-OFBA facilities. The creel sheets are also available to download on the Division's website. The completed creel sheets are mailed to the Warm/Coolwater Project Leader at the Field Headquarters. The creel sheet seeks the following information: club name, date of event, location of event, start and end time, number of anglers, number of anglers weighing bass, number of anglers with limits of bass, total number of bass weighed in by species, total bass over 5 pounds, number of bass returned alive by species, total weight, winning weight, and the weight of the biggest bass of the event. There is also a space for the club to include comments. This information is entered into a database to allow the Division to detect long term trends in the bass populations in some of the Commonwealths most heavily fished waters.

Creel sheets are still being received for the 2012 tournament season, so results from the 2011 season are presented here.

In 2011, a total of 197 usable creel sheets were submitted to the Field Headquarters. This represents a voluntary reporting rate of 31%, based on the number of Special Use Permits issued by the OFBA. In an attempt to increase participation in the voluntary creel, beginning in 2013, tournament organizers will be able to fill out the creel sheets and submit them electronically. These 197 tournaments represented 56 different bass organizations fishing on 47 different waters. A total of 5,757 largemouth bass and 1,190 smallmouth bass were weighed in for a catch rate of approximately one bass per 2.9 angler hours. The average weight of a bass weighed in was 1 pound, 15 ounces, and 81% of all anglers weighed at least one bass while 34% caught a limit (5 bass total of either species). Ninety-nine percent of all bass were returned to the waterbody alive at the close of the tournaments. These indices have not changed significantly since tracking began in 1996. For waters with more than four tournaments, Congamond Lake, Southwick, yielded the highest number of bass over 5 pounds (8) in 21 tournaments, while Whitehall Reservoir, Hopkinton, had the highest catch rate overall. The Nashua River yielded the highest percent of anglers weighing bass (97%) while Whitehall Reservoir, Hopkinton, had the highest percent of anglers with limits (58%). A breakdown of the number of tournaments by waterbody revealed that most host only a few a year while the highest number of tournaments continue to take place on the Connecticut River and on Congamond Lake, Southwick, which generated creel sheets for 23 and 22 tournaments, respectively (23% of all tournaments statewide). Over time, this data will aid in detecting possible changes to these important bass fisheries.

Beginning in 2006, due to its status as host to the highest number of tournaments outside the Connecticut River, the bass fishery of Congamond Lake, Southwick, has been monitored for many of the same parameters provided by the statewide bass creel survey. This monitoring will aid in determining if the large number of bass tournaments is having a measurable impact on the bass population. To date, as with the statewide creel survey, all indices measured have remained stable.

Fish-kill Investigations

Pursuant to the 1999 Fish Kill Memorandum of Understanding between the DFW, the Department of Environmental Protection (DEP), the Massachusetts Environmental Police (MEP), and the Department of Agricultural Resources (DAR), the DFW is the lead agency to coordinate fish-kill response. In FY 11, DFW received 33 calls for incidents that involved dead fish. Of these reports, 10 (30%) required field investigations by DFW or DEP personnel to determine the cause of the kill. The final disposition of the 33 calls was 21 natural kills, including species-specific kills involving black crappie, shad, white perch, white sucker, and yellow perch; 1 pollution-related (wastewater treatment plant overflow); 1 construction-related (gas line rupture); 1 hydropower-related (leaking turbine); 1 agricultural activity (bog operation); and 7 marine kills related to high water strandings, low-dissolved-oxygen conditions, or saltwater intrusion into freshwater ponds.

Environmental Review

In 2011, 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 34 opportunities to review project proposals potentially affecting 44 different waters (33 rivers, streams, and unnamed tributaries and 10 lakes and ponds) statewide. With 42% of the total, the highest number of requests was received from environmental consulting contractors to fulfill DEP and MEPA filing requirements or at the request of local conservation commissions. The remainders were from state agencies such as DEP, MassHighway and the MBTA (39%), federal agencies such as the US Army Corp of Engineers (3%), town offices (10%), and local organizations such as land trusts (5%). Fisheries resources were partitioned as follows: warmwater (24%); coldwater (24%); trout-stocked waters (27%, of which 5% were holdover waters); anadromous (16%); rare, threatened or endangered (5%); and unknown (3%). The majority of the projects were bridge replacements/ rehabilitations over rivers and streams and road recon-

Table 2. Summary of the number trout produced and stocked from each of the Division's four trout hatcheries in FY 12.
(Fall stocking 2011 and Spring stocking 2012)

Species	Size Cat. (inches)	Number of fish				Total No. of Fish
		Bitzer	McLaughlin	Sunderland	Sandwich	
Rainbow Trout	9+	13,900	10,916	0	0	24,816
	12+	0	20,457	60,953	17,153	98,563
	14+	25,600	195,990	0	33,968	255,558
	Subtotal	**39,500**	**227,363**	**60,953**	**51,121**	**378,937**
Brook Trout	6-9	0	0	0	0	0
	9+	0	0	36,581	0	36,581
	12+	24,850	0	3,730	9,944	38,524
	18+	0	0	0	564	564
	Subtotal	**24,850**	**0**	**40,311**	**10,508**	**75,669**
Brown Trout	6-9	23,498	0	0	0	23,498
	9+	0	30,700	30,700	0	61,400
	12+	21,925	0	17,080	10,599	49,604
	18+	0	0	0	642	642
	Subtotal	**45,423**	**30,700**	**47,780**	**11,241**	**135,144**
Tiger Trout	14+	0	0	0	5,090	5,090
	Subtotal	**0**	**0**	**0**	**5,090**	**5,090**
Total		**109,773**	**258,063**	**149,044**	**77,960**	**594,840**

struction (33%). The remaining reviews involved new construction (proposed extension to a commuter rail; 3%); lake management issues such as drawdowns for aquatic vegetation management, dredging, phosphorus inactivation, and mechanical harvesting (17%); river management plans (17%); a proposed new well site (3%); and issues concerning dams, including maintenance and removals (28%).

Fish Culture Program

Ken Simmons, Ph.D., *Project Leader*

The Division slightly exceeded its annual trout production goal of 400,000 to 450,000 pounds in FY 12. The 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 DEP and the federal Environmental Protection Agency. Growing conditions for trout were ideal in FY 12, with ample rainfall to maintain hatchery water flows and a warmer-than-normal winter. The Division's four trout hatcheries produced 457,339 pounds of trout, comprising a total of 594,840 brook, brown, rainbow, and tiger trout, which includes both the fall 2011 and spring 2012 stocking seasons (Tables 2 and 3).

A total of 67,680 pounds of trout were stocked in the fall, comprising 65,826 pounds of rainbow trout and 1,854 pounds of rainbow trout. A total of 81,126 rainbow trout and 2,000 brown trout were stocked. Thirty-two percent of the rainbow trout stocked in the fall were greater than 14 inches long. In spring 2012, a total of 389,659 pounds of trout were stocked. This included 271,980 pounds of rainbow trout comprising 297,811 fish. More than 229,958 of these rainbow trout averaged more than 14 inches. Spring 2012 stocking also included a total of 75,669 brook trout that ranged between 6 and 18+ inches long. Fifty-two percent of the brook trout were 12 inches or longer. A total of 133,144 brown trout that ranged between 6 and 18+ inches long were stocked, of which 38% were 12 inches or longer. Spring stocking also included 5,090 tiger trout that were more than 14 inches long. Tiger trout are a cross between a brook trout male and a brown trout female. They are called tiger trout because of their striking, 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 FY 12. A total of 12,100 landlocked salmon smolts were produced, of which 10,100 were stocked into Quabbin Reservoir in late April 2012, with the balance going to the state of New Jersey in return for 300,000 brown trout eggs for the Division's trout program. Just under 1.4 million Atlantic salmon eggs were produced from brood stock held at the station. A total of 1,573,400 Atlantic salmon fry were reared from

these eggs and eggs obtained from the USFWS's White River National Fish Hatchery and stocked into rivers and streams in the Connecticut River drainage basin during spring 2012. In addition, 310 adult brood stock salmon produced at Roger Reed Hatchery were stocked in selected waters across the Commonwealth to provide recreational angling opportunities for catching 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 4. Roger Reed's staff also continued its participation in the Atlantic Salmon Egg Rearing Program by distributing salmon eggs to 37 schools in the Connecticut River basin in Massachusetts. Students in the participating schools raise the salmon eggs to fry in special rearing tanks and then stock them in tributaries of the Connecticut River basin.

Three important hatchery infrastructure projects were completed in FY 12. The asphalt-shingle roof on the main hatchery building at Palmer Hatchery was replaced. New asphalt-shingle roofs were also installed on the main hatchery building and two outbuildings at Sunderland Hatchery. At McLaughlin Hatchery, the drain system in the six-bay garage was upgraded with a new 2,500-gallon, double-walled, holding-tank system.

There were no changes in hatchery personnel in FY 12.

Table 3. Summary of the weight of trout produced and stocked from each of the Division's four trout hatcheries in FY 12.

(Fall stocking 2011 and Spring stocking 2012)

Species	Size Cat. (inches)	Weight of fish (lbs) Bitzer	McLaughlin	Sunderland	Sandwich	Total Wgt. of Fish (lbs)
Rainbow Trout	9+	6,737	3,138	0	0	9,875
	12+	0	18,543	38,862	15,189	97,274
	14+	23,958	206,699	0	24,680	230,657
	Subtotal	**30,695**	**228,380**	**38,862**	**39,869**	**337,806**
Brook Trout	6–9	0	0	0	0	0
	9+	0	0	10,612	0	10,612
	12+	19,485	0	2,597	5,656	27,738
	18+	0	0	0	1119	1119
	Subtotal	**19,485**	**0**	**13,209**	**6,775**	**39,469**
Brown Trout	6–9	5,843	0	0	0	5,843
	9+	0	10,590	12,032	0	22,622
	12+	22,361	0	15,430	6,736	44,527
	18+	0	0	0	1,592	1,592
	Subtotal	**28,204**	**10,590**	**27,462**	**8,328**	**74,584**
Tiger Trout	14+	0	0	0	5,480	5,480
	Subtotal	**0**	**0**	**0**	**5,480**	**5,480**
Total		**78,384**	**238,970**	**79,533**	**60,452**	**457,339**

Table 4. Summary of Landlocked salmon and Atlantic salmon produced at the Roger Reed Hatchery in FY 12.

Species	Size Category (inches)	Number	Weight (lbs)
Landlocked Salmon	smolts (8+)	12,100	2,131
	Subtotal	**12,100**	**2,131**
Atlantic salmon	green eggs	1,399,000	-
	unfed fry (1+)	1,573,400	471
	adults (15+)	310	2,994
	Subtotal	**2,972,710**	**3,465**

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WILDLIFE

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Overview

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 Areas (WMAs); responding to human-wildlife conflicts; guiding and supporting the agency's large animal response team (LART); and supporting wildlife-dependent recreational opportunities.

Toward these ends, there are over 10 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 (PAC) agents, wildlife rehabilitators, and falconers; the inspection of commercial deer farm and other wildlife propagators' facilities; the issuance and processing of antlerless deer, turkey, and black bear permits; and a statewide pheasant-stocking program.

The Wildlife Section develops science-based regulatory, policy, and programmatic recommendations for the Fisheries & Wildlife Board; serves as the wildlife representative on the agency's land acquisition committee; directs and coordinates with the University of Massachusetts and the USGS Cooperative Fish and 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 Agencies' various technical committees, as well as for the Northeast Association of Wildlife Administrators.

In FY 12, Wildlife Section staff continued to work with the Division's electronic licensing vendor, Active Outdoors, to design and test the major components of *MassFishHunt*'s functionality, including the development and deployment of Instant Award and Surplus permit issuance of antlerless deer permits. The Instant Award permit issuance process, in particular, was a new way of issuing permits and required much design and testing input from Division staff. The other major component of the *MassFishHunt* system whose development was led by the Wildlife Section was the design of and associated regulatory process for eventual online game-checking (i.e., harvest reporting).

Habitat Management Programs

Landscape Analysis Projects

Jonathan Brooks, *Wildlife Population Ecologist*

According to a nationwide survey by Responsive Management in 2008, "lack of access" was rated as one of the top three reasons why people no longer continue hunting and is one that fish and wildlife agencies, conservation and sporting organizations, local communities, and landowners can realistically influence in a significant way. Three major barriers to hunting access in Massachusetts, the third-most-densely-populated state, have been determined to be 1) the combination of statutory discharge setbacks, or "safety zones," and development trends; 2) city and town restrictions on hunting practices, including firearms discharge; and 3) private land posted against hunting and/or trespass.

Hunting setbacks are areas where hunting is prohibited either by statute or by regulation. An example of a hunting setback would be the statute prohibiting any individual from hunting within 500 feet of an occupied dwelling without the owner's or tenant's written permission. Wildlife Section staff has worked over many years to develop good setback data in its efforts to respond to municipalities and individuals seeking direction from the Division about wildlife management in general and the options available to towns and landowners in particular. The Wildlife Population Ecologist used new data recently available for each Massachusetts municipality to fine-tune the GIS-based maps already developed by Wildlife Section staff representing setback areas and calculated that 60% – roughly 3.1 million acres – of Massachusetts is within a discharge setback. Continued trends in development sprawl, exacerbated by low-density residential zoning regulations, threaten to close thousands of additional acres to hunting.

Further compounding access limitations, at least 161 communities in Massachusetts have enacted local shooting and/or hunting restrictions. The percentage of such communities has increased from about 12% of the cities and towns in the state in 1956 to more than 45% today.

Private land offers the majority of potential hunting opportunities in the state, with approximately 78% of Massachusetts hunters surveyed reporting that they use private land for all types of hunting. Private landowners and local communities must therefore cooperate in any long-term plan for sustaining both hunting access and the public benefits of hunting and wildlife management.

Landfire data is a system of organizing vegetation and habitat types that is designed to facilitate national- and regional-level strategic planning and reporting of management activities. As part of a project that benefits both game and natural heritage biologists, Mr. Brooks adapted the *Landfire* classification scheme to create digital data that identifies fire-adapted areas across the state.

Forestry Program

John Scanlon, *Forestry Program Leader*

The Forestry Program is a component of the DFW's 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 across more than 160,000 acres of state wildlife lands, 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 is also responsible for the monitoring of over 45,000 acres spread across 175 parcels of private land that are subject to Wildlife Conservation Easements (WCEs), assisting with land acquisition, and providing technical assistance to private and other public landowners interested in enhancing wildlife habitat through forest harvesting operations.

The Forestry Program's objectives for state wildlife lands are 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 WMA.

Use inventory data to design and carry out both forest harvesting operations and other habitat management activities to meet landscape composition goals for successional forest habitats that maintain biological diversity, using ecological regions (eco-regions) as the fundamental planning units for management.

Conduct pre- and post-treatment biological monitoring to determine the response of wildlife populations to forest cutting operations.

The DFW's Forestry Program's landscape composition goals for the state's WMAs are to achieve 15-20% young forest habitat less than 30 years old, 10-15% biologically mature forest habitat more than 150 years old, and 65-75% mid-successional forest habitat between 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 ensure that landscape conditions are assessed and that management activities reflect landscape conditions. Intensity of cutting varies from moderate (Group Shelterwoods) to high (Aggregate Retention Cuts), 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. Prior to any cutting operation,

Forestry Project Leader John Scanlon conducting a public site tour of tornado damage at McKinstry Brook WMA

Division foresters consult with District staff to address local access and aesthetic issues, and with personnel from the DFW's Natural Heritage & 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 (DCR) under the Massachusetts Forest Cutting Practices Act (Chapter 132).

Biological Monitoring

Regular monitoring is essential for practicing adaptive natural resource management and typically includes one or more of the following: 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 FY 12, DFW foresters received refresher training in field identification of herbaceous vegetation, including ferns and broadleaved non-woody plants; conducted monitoring of breeding songbirds at the Hiram Fox WMA in Cheshire; and monitored native pollinator insects at the Montague Plains WMA and the Muddy Brook WMA in Hardwick. Monitoring results are available at: ***http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/plant_surveys.htm***.

Boundary Marking

DFW foresters conducted boundary research, field reconnaissance, and/or marking at multiple properties in FY 12, including the Cummington WMA, the Orange WMA, and the Westfield River Access Area.

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

Forest Harvesting Operations and Management Activities

Pre-harvest field assessments were conducted at the Patrill Hollow section of the Muddy Brook WMA in Hardwick. Pre- and post-harvest assessment involves checking condition of access roads, stream crossings, and wetland crossings, and occurrence of ATV trespass activity. Access road improvement occurred on the McKinstry Brook WMA in Southbridge.

Invasive plant control efforts were conducted on managed sites at the Eugene Moran WMA in Windsor. Prescribed burning was conducted at the Montague Plains WMA and the Frances Crane WMA in Falmouth.

DFW foresters and other habitat management staff conducted public site visits on a portion of the DFW McKinstry Brook WMA in Southbridge that was heavily impacted by the June 2011 tornadoes that swept through multiple towns throughout Massachusetts to discuss how natural disturbance processes can positively impact wildlife habitat. DFW Foresters also attended mandatory Continuing Forestry Education (CFE) classes to maintain Forester licenses in Massachusetts.

Timber sale preparations continued at the Patrill Hollow portion of the Muddy Brook WMA in Hardwick (pitch-pine/scrub-oak restoration), and were completed on the Queen Lake portion of the Phillipston WMA (old-field white pine regeneration). Timber-sale preparations include marking of trees to be cut; marking of trees to be retained (including mast-producing trees such as black cherry, American beech, and red oak to enhance wildlife habitat after the cut); location(s) of wetland resource areas, rare species habitat, 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.

Following sale preparation, DFW Foresters supervise logging activities (e.g., to ensure that small-diameter, non-merchantable stems are cut to facilitate regeneration of quality hardwoods; that retained trees are protected from damage by logging machinery; that logging slash is reduced throughout the cut to facilitate public access; and 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 was marked. When a sale is awarded through the public bid process, the qualified vendor submitting the highest bid is awarded the contract. Ten percent of the high bid is due at the time the contract is awarded, and the balance (90%) is due prior to the start of cutting, or within 1 year of the contract award, whichever comes first. Vendors are given up to 2 years to complete cutting, so that they can take advantage of variable market conditions.

Wildlife Conservation Easement and Fee Ownership Compliance Monitoring

Compliance monitoring for WCEs involves site visits to timber sales and other forest cutting operations on private lands where DFW owns development and public access rights. In FY 12, monitoring occurred at the Crane WCE in Dalton, the Heyes Forest Products WCE in Orange, The Nature Conservancy DeRis

Table 1. Abandoned Field Reclamation.

Site Name	Town	Habitat Type	Objective	Acres
Stafford Hill WMA	Cheshire	Shrubland	Reclaim	18
Noquochoke WMA	Dartmouth	Grassland	Reclaim/Establishment	16
Millers River WMA, Cass Meadows	Athol	Shrubland	Reclaim	17
Leyden WMA	Leyden	Heathlands/shrubland	Maintain	28.7
Total				**79.7**

WCE in Egremont, the Westfield Watershed WCE in Montgomery, and the W.D. Cowls WCE in Shutesbury. Additional Forestry Program staff time was devoted to constructing a formal WCE monitoring field form and database for DFW staff. Also in FY12, The Forestry Program supervised contracted vendors who conducted Forestry Monitoring Reports (FMRs) on the Barnstable WCE in Barnstable, the Breakneck WCE in Sturbridge, the Dalton Fire District WCE in Dalton and Hinsdale, the Hitchcock Mountain WCE in East Brookfield, the Hunting Hills WCE in Lunenburg, the Lawrence Brook WCE in Royalston, the Lily Pond WCE in Goshen, the Mashpee WCE in Mashpee, the Orange WCE in Orange, the Squannacook River WCE in Townsend, the Stillwater River WCE in Sterling, the Surrenden Farms WCE in Groton, the Tully Mountain WCE in Orange and Royalston, the Tyringham WCE in Tyringham, and the Wildlands Trust WCE in Bridgewater.

Compliance monitoring for fee ownership involves site visits to License Agreement locations where adjacent landowners are temporarily allowed to access or otherwise use WMA lands, as well as addressing timber trespass onto WMAs by adjacent landowners. In FY 12, License Agreement monitoring occurred at the Phillipston WMA.

Forest Inventory and Analysis

Inventories on lands acquired in the past few fiscal years have been limited by a vacancy in a Management Forester position that was filled late in FY 11. The current status of the DFW Forestry Program's inventory and analysis is available at: ***http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/forest_inventory.htm***.

Upland Habitat Management Program

Ben Mazzei, *Upland Program Coordinator*

The Upland Habitat Management Program (Upland Program) of the DFW 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:

Use the best available science, data, and tools to identify appropriate sites for management of declining early-successional habitats (e.g., abandoned agricultural fields, aspen forest stands, abandoned orchards) while maintaining extensive, unfragmented forest lands.

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

Systematically monitor the effects of habitat management on plant and animal communities to ensure that managed habitats continue to support the native biodiversity of Massachusetts.

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

Project Accomplishments

Abandoned Field Reclamation

The Upland Program reclaimed and/or maintained approximately 80 acres of abandoned fields, abandoned orchards, native grasslands, and/or heathlands across the state in FY 12, using private machinery operators (Table 1).

Stafford Hill WMA, Cheshire; 18 Acres of Reclaimed Shrubland

In January-March 2012, 18 acres of 10-25-year-old forest growing on abandoned pastureland was cleared of most standing trees to begin to expand and connect to the adjacent 60 acres of existing old field habitat. A whole-tree-harvesting machine was used to fell and bunch trees, and a forwarder was used to transport trees. Scattered mast-producing trees (black cherry, oak spp., butternut), den/cavity trees, wild apple trees, and native shrubs were retained within these 18 acres to provide food and cover for wildlife species. A substantial amount of woody debris was also retained throughout these 18 acres, and some of the debris was put into brush piles for the benefit of wildlife.

Noquochoke WMA, Darmouth; 16 Acres of Reclaimed/Established Grassland

In May-June 2012, 16 acres of cold-season grasslands and invasive plants were mowed and treated with herbicide to prepare the area for a native warm-season grass planting. The mowing and subsequent herbicide applications were completed with a tractor and the appro-

Table 2. Invasive Plant Control.

Site Name	Town	Habitat Type	Treatment Type	Acres
Millers River WMA, Cass Meadows	Athol	Shrubland	Initial foliar herbicide treatment	30
Noquochoke WMA	Dartmouth	Shrubland/ Grassland	Foliar herbicide follow-up	53
Martin Burns WMA	Newbury	Shrubland	Foliar herbicide follow-up	85
Eugene Moran WMA	Windsor	Shrubland	Foliar herbicide follow-up	50
Dunstable Brook WMA	Dunstable	Shrubland	Foliar herbicide follow-up	37
Leyden WMA	Leyden	Shrubland	Foliar herbicide follow-up	166
Muddy Brook WMA	Hardwick	Shrubland	Foliar herbicide follow-up	63
Stafford Hill WMA	Cheshire	Shrubland	Initial and follow-up herbicide	114.4
Total				**598.4**

priate rear mounted implements. In coordination with the DFW Ecological Restoration Program, this native warm-season grassland habitat will be maintained in the future using a combination of prescribed burning and mechanical mowing.

Millers River WMA, Cass Meadows; Athol;
17 Acres of Reclaimed Shrubland

In January-February 2012, 17 acres of abandoned agricultural fields were reclaimed using a brontosaurus mower and chainsaw. All woody material was either mulched on site or placed in scattered brushpiles to provide cover for wildlife. Scattered mast-producing, den/cavity trees, wild apple trees, and native shrubs were retained within these 17 acres to provide food and cover for wildlife.

Leyden WMA, North; Leyden;
28.7 Acres of Maintained Heathlands/Shrublands

A total of 28.7 acres of abandoned blueberry fields were maintained using a tracked fecon type 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).

Invasive Plant Control

The Upland Program used selective herbicide and mechanical treatments to control invasive plants on 598.4 acres of project sites using a combination of private applicators and DFW field staff time (Table 2).

Millers River WMA, Cass Meadows; Athol; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control invasive Japanese knotweed, honeysuckle, buckthorn, multiflora rose, and bittersweet on 30 acres of abandoned shrubland habitat. Vendors also used a cut stem application to control large (taller than 6 feet) glossy buckthorn which was found along the resource area.

Noquochoke WMA, Dartmouth; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control exotic honeysuckles, autumn olive, multiflora rose, bittersweet and other invasive woody plants over 53 acres of abandoned field area.

Martin Burns WMA, Newbury; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers

Table 3. Breeding Bird Surveys.

Site	Management District	Town	Number of Survey Points	Acres
Stafford Hill WMA	Western	Cheshire	5	132
Peru WMA	Western	Peru	2	20
Eugene Moran WMA	Western	Windsor	4	45
Francis Crane WMA, Quail	Southeast	Falmouth	7	90
Francis Crane WMA, Pheasant	Southeast	Falmouth	10	120
Martin Burns WMA	Northeast	Newbury	5	100
Leyden WMA, North	Conn. Valley	Leyden	5	40
Poland Brook WMA	Conn. Valley	Conway	4	50
Winimusset WMA	Central	New Braintree	5	60
Westborough WMA	Central	Westborough	4	70
Muddy Brook WMA, Patrill Hollow*	Central	Hardwick	10	130
Muddy Brook WMA, Jackson Road*	Central	Hardwick	4	34
Total			**65**	**891**

to control exotic honeysuckles, autumn olive, multiflora rose, bittersweet and other invasive woody plants over 85 acres of abandoned-field area.

Eugene Moran WMA, Windsor; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control exotic honeysuckles, autumn olive, multiflora rose, bittersweet and other invasive woody plants over 50 acres of abandoned-field area.

Dunstable Brook WMA, Dunstable; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control exotic honeysuckles, autumn olive, multiflora rose, bittersweet and other invasive woody plants over 37 acres of abandoned-field area.

Leyden WMA, Leyden; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control exotic honeysuckles, autumn olive, multiflora rose, bittersweet and other invasive woody plants over 166 acres of abandoned-field area.

Muddy Brook WMA, Hardwick; Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control exotic honeysuckles, autumn olive, multiflora rose, bittersweet and other invasive woody plants over 63 acres of abandoned field area.

Stafford Hill WMA, Cheshire, Herbicide

Contracted licensed pesticide applicators selectively applied herbicide using powered backpack mist-blowers to control invasive Japanese knotweed, honeysuckle, buckthorn, multiflora rose, and bittersweet on 114.4 acres of abandoned shrubland habitat. Vendors also used a cut stem application to control large (taller than 6 feet) buckthorn and autumn olive which was found scattered throughout the area.

Biological Monitoring

To determine the success of habitat treatments over time, a long-term program to monitor birds, butterflies, and vegetation was implemented during the summer of 1999 on Upland Program sites across the state. During summer 2012, breeding bird surveys occurred on 891 acres across 12 different sites (Table 3) using a combination of independent contractors and DFW field staff time.

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 8-12 years.

Keystone Program

No funding was available to support this program during FY 12. In the past, the Upland Program has provided limited funding for the Keystone (formerly Coverts) Program of the UMass Cooperative Forestry Extension, a 3-day forestry and wildlife habitat conservation workshop for individuals in positions 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. Despite the lack of funding, DFW staff still provides program support and technical assistance to this valuable program whenever possible.

Wildlife Management Programs

Upland Game Program

Dave Scarpitti, *Upland Game Biologist*

Wild Turkey Harvest

The 21st modern-day fall either-sex turkey season was held October 31-November 5, 2011. The open zones included Wildlife Management Zones (WMZ) 1-9 and 13. A total of 82 wild turkeys were harvested, a decline from 2011, when 147 turkeys were harvested. Overall, 49 male and 33 female wild turkeys were harvested. In many places, the decline in fall harvest was a consequence of poor hunting conditions created by a mid-October snowstorm.

The Massachusetts spring gobbler hunt was held April 30-May 26, 2012. The 4-week open zone included WMZs 1-13. Greater than 20,000 wild turkey permits were issue for the 2012 spring season, the greatest season total in the modern history of wild turkey hunting. Total harvest during the spring season was 2,723 birds, the third-highest turkey harvest recorded in Massachusetts since wild turkey hunting seasons were established 30+ years ago. There were 2,043 adult males, 655 immature males, and 25 bearded hens harvested. The total number of turkeys harvested in the spring of 2012 was only slightly lower than the harvest in spring 2011 (2,745); and comparable to several of the recent spring hunting seasons' harvests. Spring brood conditions were good in many areas; however, the Division received many anecdotal observations of young broods later in the summer, indicating that some level of re-nesting occurred.

Ruffed Grouse

Roadside surveys to measure the conspicuous breeding activity (otherwise known as drumming) of ruffed grouse are conducted statewide from late April through mid-May. In 2012, the 17th year 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 also surveyed. The average number of drumming events heard per stop (ANDS) per route for all random routes statewide was 0.13, slightly lower than in 2011 and 2010 (0.16 each year). Across the state, drumming activity was slightly greater in the Western District, but down slightly in the Connecticut Valley and Central districts. However, overall statewide breeding activity, as measured by the drumming survey, has remained stable over the

past decade. Drumming activity on subjective routes continues to be approximately 3-4 times higher (0.64) than random routes (0.16), suggesting that good-quality habitat is still available, and ultimately influences the local population size of ruffed grouse. This further demonstrates the need for young forest and shrubland habitat management to support grouse and other species of conservation need that are dependent on various stages of early-successional habitat.

American Woodcock

American woodcock have a very elaborate, conspicuous courtship display that can be seen each spring from March through June across Massachusetts. This courtship display is surveyed as part of the USFWS's Woodcock Singing-Ground survey each spring, the results of which provide an index to the breeding population of woodcock across the state. Fifteen randomized roadside woodcock singing-ground surveys were conducted in 2012, from April 20 through May 10. The average number of singing woodcock heard per active route in 2012 was 1.58, slightly lower than in 2011 (1.67). Greater than two woodcock were heard on six of the 15 active routes. In general, population modeling conducted by the USFWS indicates that woodcock populations have remained stable over the past 10 years in the Eastern Management Unit (Atlantic Flyway) and within Massachusetts. Harvest of American woodcock as measured by the USFWS's Migratory Bird Hunter Harvest Information Program (HIP) showed an increase in woodcock harvest that corresponded with the 50% season length expansion in 2011. Mild spring conditions in 2012 will very likely result in strong brood production, and subsequently good hunting opportunities during the fall of 2012.

Mourning Dove

Doves are not considered a game species in Massachusetts, but they are one of the most abundant and popular game bird species across the nation. The DFW participates in the annual Mourning Dove Call Count Survey, a standardized survey coordinated by the USFWS. Currently, eight survey routes are active across the state, and are sampled from mid-May to early June. The 2012 Dove Population Status Report produced by the USFWS indicated that the breeding population index, based on the number of doves heard on New England routes, was 10.8, the highest number of doves heard since the inception of the survey in 1966. Dove populations in New England have demonstrated stable to slightly increasing populations over the past 2-, 10-, and 45-year time periods.

New England Cottontail Survey and Habitat Restoration

The DFW is continuing work to help conserve our only native cottontail in concert with other New England states through the New England Cottontail Initiative. The New England Cottontail Initiative is a multi-state effort in partnership with federal agencies, including the USFWS and the USDA's NRCS, and NGO partners, to proactively avoid federal listing of the New England Cottontail under the Endangered Species Act. This partnership brings with it significant effort and resources from public, NGO, and tribal organizations and employs a variety of conservation strategies that are primarily focused on expanding and restoring young forest and shrubland habitats both on public and private lands.

Regionally significant areas and site-specific focal areas associated with New England Cottontail habitat restoration have been identified using a landscape-scale approach. This approach incorporates regional, habitat-based GIS models to determine the best sites to conduct management for New England Cottontail. This information, coupled with occurrence data from recent and historic survey efforts, has further guided efforts to select parcels most suitable for New England Cottontail habitat management.

A variety of habitat management techniques are being employed to benefit New England Cottontail habitat in southeastern Massachusetts, such as prescribed burning, shrub-mowing, tree harvesting, and invasive plant species control. Specifically, prescribed burning activities at the Massachusetts Military Reservation (MMR) on Cape Cod were employed on approximately 75 acres to support habitat restoration for New England cottontail. An additional 200-300 acres of prescribed burning activities are planned at MMR in 2012-2013. Further vegetation management activities are also being planned across up to 100 additional acres using more traditional mechanical mowing, cutting, and mulching processes.

The DFW-conducted winter surveys to assess sites for the presence of New England Cottontail and Eastern Cottontail continued during the winter of 2011-2012, including efforts to collect road-kill, hunter-harvest, or any other rabbit specimens for analysis. Over 800 specimens were collected and analyzed by either DNA analysis or via morphometric analysis of skull features, providing over 40 confirmed New England Cottontail records. However, all new NEC records occurred in areas with already documented populations. Unfortunately, warm-weather conditions during with 2011-2012 winter greatly reduced trapping and pellet collection efficacy. Further trapping, pellet sampling, and analysis of road-kill and hunter-donated specimens will continue in winter 2012-2013.

Waterfowl Program

H Heusmann, *Waterfowl Program Leader*

Division personnel continued to conduct nest-box checks on 52 sites used to monitor Wood Duck populations statewide. The spring of 2011 was wet and cool, with prolonged periods of heavy rainfall with especially cool, wet weather in mid-May, at the peak of hatch.

One confounding influence on results this year related to the mild winter the Northeast experienced, with temperatures averaging 4°-5° above normal. As a result, there was little ice formation, making winter box

checks difficult or impossible. Some boxes could not be checked until March from watercraft. As a result, some boxes that had fallen down could not be assessed as to whether or not they were used, or if they were, whether nests were successful or not. The delayed box checks also made determining the use of standing boxes less accurate.

Wood Duck nesting attempts have been similar in recent years (332 vs. 336 vs. 331) but well below the 425 nest attempts in 2004. Wood duck hatches, however, have varied (273 vs. 251 vs. 270). Hooded mergansers hatches rebounded from last year's 91 hatches and were similar to 2009's record 101 hatches.

Brood survival from this year's production is questionable in light of the cool, wet weather in early May at peak of hatch. The age ratio during August airboating was only 1:0.9 in 2011, compared with 1:1.4 in 2010).

There were 332 Wood Duck nest starts in 542 available boxes with 273 successful hatches, well below the peak of 352 hatches in 1995. In addition, there were 98 hooded merganser hatches from 124 starts.

Massachusetts participates in the Atlantic Flyway Resident-goose Banding Program. Previously, our state goal was to band 1,000 geese. However, we have been receiving over 400 band recoveries each year, indicating that we had a large sample of banded geese in the state. The Atlantic Canada Goose Resident Population management plan only requires Massachusetts to band 550 geese, so we decided to reduce our efforts. We have selected a lower goal of banding 800 geese annually to provide data for the federal database. Geese are captured by roundups during the summer molt. A total of 816 Canada geese were banded at 62 sites in 58 cities and towns in Massachusetts. The total included 397 goslings and 419 adults. Crews also captured an additional 196 previously-banded geese.

Taking advantage of safe ice to check Wood Duck boxes.

The fall of 2011 was the sixth year of use for the new airboat. After last year's banner airboating season, the 2011 season was beset by issues, including weather and water levels. After 2 trouble-free years mechanically, the airboat broke down on the third trip of the season, confounding our boating schedule. Low water levels affected boating on several sites. Hurricane Irene, though downgraded to a tropical storm by the time it reached Massachusetts, also affected the schedule through the storm itself and subsequent flooding. We ended up boating on 19 nights and banded 706 birds. Among birds banded, there were 510 Wood Ducks, 121 Mallards, 4 American Black Ducks, 1 Mallard x Black Duck hybrid, 39 Blue-winged Teal, 27 Green-winged Teal, 1 Northern Pintail and 3 Sora. Twenty-three previously-banded birds were also recaptured.

During the period of September 6-24, Massachusetts conducted a resident Canada Goose hunting season, with a daily bag of seven. The USFWS's HIP report is delayed in harvest estimates for the current year. However, the USFWS estimated a September season harvest of 2,200 geese in 2010. This compares to a harvest estimate of 4,200 geese in 2009; 4,600 in 2008; and 2,600 the previous year.

Duck-hunting seasons in the Atlantic Flyway continued with the liberal option of 60-day seasons and a six-bird bag limit. The Canada Goose season was 60 days with a two-bird daily bag limit in the Central and Coastal waterfowl hunting zones and 45 days with a three-bird bag limit beginning October 20 in the Berkshire zone.

The winter of 2011-12 was unusually mild with well-above-normal temperatures and nearly a complete lack of snowfall. Conditions were open all along the coast. American Black Duck numbers (30,575) were 69% above the 10-year average and the highest count since 1978. Mallard numbers (3,153) were 15% below normal but 74% above last year's low count. Canada Geese (16,587) were 46% higher than the 10-year average and the highest count since 1988. Atlantic brant (1,589) were 17% lower than their 10-year average. Merganser counts were high, nearly 4 times their long-term average, with the 15,157 birds counted the highest since 1987. Goldeneye numbers were 44% above the 10-year average but Bufflehead counts were down 37% while scaup numbers were 9% higher than average. Eider counts were down 18% while scoter counts were up 40%.

During the period January 16-February 15, 2011, 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 17 to February 15, with a five-bird daily bag in each zone. The USFWS is delayed in harvest estimates for the current year. However, the USFWS estimated a

harvest of 2,800 in 2011, compared to 2,900 in 2010; 1,200 geese in 2009; 2,300 geese in 2008; and 3,100 birds in 2007.

Postseason banding of wintering Black Ducks was resumed for the third year of a 5-year experiment to determine if two-season black duck banding efforts can improve the precision for black duck survival rates. Bait-trapping was carried out at 15 coastal sites in 10 towns from the New Hampshire to the Rhode Island borders. Trapping was carried out in January and February 2012. The mild winter, however, made for poor banding conditions, with ducks having little incentive to utilize the bait traps with plentiful natural foods and little winter stress. All Mallards and Mallard x Black Duck hybrids could be banded, broken down into five plumage types. A total of 240 American Black Ducks, 55 black-plumaged hybrids, 4 intermediate types, 1 Mallard-plumaged hybrid, and 13 Mallards were banded. In addition, there were 12 captures of foreign-recovery Black Ducks previously banded in New Brunswick (5), Quebec (3), Maine (2), and Nova Scotia (1), and one Parker River NWR summer-banded bird. There were also 16 recaptures from birds previously banded in Massachusetts.

During April and May, we participated in the Northeastern states' waterfowl breeding survey, which is based on sampling randomly-selected 1-kilometer-square plots. Massachusetts checked 92 of the 1,471 plots used in the survey. The population estimate in the Northeastern states for Mallards was 277,354 pairs $\pm$13%. The estimate for Black Ducks was 18,157 pairs $\pm$37%; Wood Ducks, 184,559 pairs $\pm$17%; and Canada Geese, 348,909 pairs $\pm$14%. Data from this survey is used to set hunting season regulations tailored to the Atlantic Flyway.

Massachusetts entered its 14th year of the federal 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 automatically given a HIP survey each time they buy a waterfowl stamp or a new hunting license through the state's *MassFishHunt* system.

Massachusetts issues individual egg-addling permits for resident Canada goose control under a federal program begun in March 2007. In 2011, we issued 34 such permits, for which 31 reports were returned. The permittees reported addling 1,153 eggs in 229 nests, while USDA APHIS Wildlife Services addled 705 eggs in 129 nests under their statewide permit. Permittees who had not returned their annual reports were ineligible to receive a permit in 2012.

Black Bear Program

Laura Conlee, *Black Bear Program Leader*

Black Bear Distribution and Harvest Investigations

A record total of 7,487 bear-hunting permits were issued for the 2011 hunting season. A total of 132 bears (144 in 2010) were taken during the 35-day season, including 106 during the 17-day September segment and 26 during the 18-day November segment. Eighty-seven males, 43 females and 2 unknown were taken in Berkshire (n=45), Franklin (n=25), Hampden (n=23), Hampshire (n=31), and Worcester (n=7) counties. There were 40 additional confirmed mortalities from July 1, 2011, through June 30, 2012. These mortality records are collected from DFW staff and through Environmental Police call logs and included: 29 road-kills; 6 bear taken under M.G.L. Ch. 131, Sec. 37 (2 causing agricultural damage; 2 attacked family dog; 2 broke into houses); 2 euthanized due to illness/injury; 1 of natural causes (tear in uterus that caused sepsis); 1 capture-related mortality; and 1 of unknown cause.

A black bear program review was conducted and staff recommended to make no changes to the existing hunting season framework, but recommended that a comprehensive bear management plan be developed once the current research project to guide management decisions is completed.

Side Note: "The Cape Cod Bear"

Beginning in May 2012, bear reports began coming in from areas of extreme southeastern Massachusetts. The bear was believed to be the same bear that overwintered in the Middleborough area in 2011-2012. This same bear had wandered a large area of southeastern Massachusetts during the summer and fall of 2011. On May 24, there were reports of a bear in Plymouth, approximately 1.5 miles from the ocean. Over Memorial Day weekend, reports of a bear on Cape Cod began coming in. The reports were confirmed by May 29, and it was suspected that the bear likely swam the Cape Cod Canal. Over the next 2 weeks, the bear made its way from the base of the Cape to Provincetown. The bear was captured in the town of Wellfleet on Monday, June 11, after spending a Friday night in downtown Provincetown. The bear was ear-tagged and released in central Massachusetts. On June 26, the same bear was found in a tree in Brookline (within 5 miles of downtown Boston). The bear was immobilized for a second time and transported to western Massachusetts. During the month of June, the Cape Cod Bear was wildly popular, with over 2,000 Twitter followers, his own Facebook page, and hundreds of media stories (see the District Reports for the Central and Southeast wildlife districts' perspective on the Cape Cod Bear.

Black Bear Research

From January 2012–September 2012, 12 of 15 radio-collared sows were handled in winter dens, as free-range bears, or during barrel-trapping. Three additional sows were captured in barrel traps and collared. Division staff also ear-tagged 15 additional bears through barrel trapping or LART (large-animal response team) situations. In 2009, a pilot habitat study began in conjunction with the Massachusetts Cooperative Fish & Wildlife Research Unit. Three GPS collars were deployed in 2009 that were removed during 2010 and sent to the manufacturer to be refurbished. Five GPS collars were

deployed in 2010 and nine GPS collars were deployed in winter 2011. Nine GPS collars were deployed between 2012 den work and barrel trapping or free-range capture.

Furbearer Program

Laura Conlee, *Furbearer Program Leader*

Overview

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

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

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

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

Harvest and Population

Harvest activities provide recreational and economic opportunities for citizens and households in the state. A total of 1,734 furbearers were tagged at Division check stations during the 2011-2012 season. The harvest (a combination of hunted, trapped, and/or salvaged) by tagged species included 787 beaver, 81 bobcat, 446 coyote, 214 fisher, 38 gray fox, 38 mink, 88 river otter, and 42 red fox. Trapper-survey results for species that do not require sealing have not been calculated to date.

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 state wildlife professionals to regulate wildlife populations and can reduce negative effects associated with high wildlife populations and allow for a sustainable use of a valuable natural resource. Regulated trapping allows residents of the state to reduce the expenses associated with the property damage furbearers cause, which can also in turn reduce the need for them to pay Problem Animal Control (PAC) Agents.

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

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

Wetland/Beaver Management

Between 1996 and 2000, the beaver population tripled as a result of a ban on certain types of traps enacted through a referendum in 1996. Complaints about flooding increased. Typical complaints included flooded septic systems, wells, roads, driveways, and railroad tracks. In July 2000, the Massachusetts Legislature passed, and the Governor signed, a new law that modified the restrictions on beaver and muskrat traps to provide relief for people suffering from flooding impacts caused by beaver or muskrat. An emergency permitting system was created at the town level with certain non-emergency permits for specific traps available from the DFW.

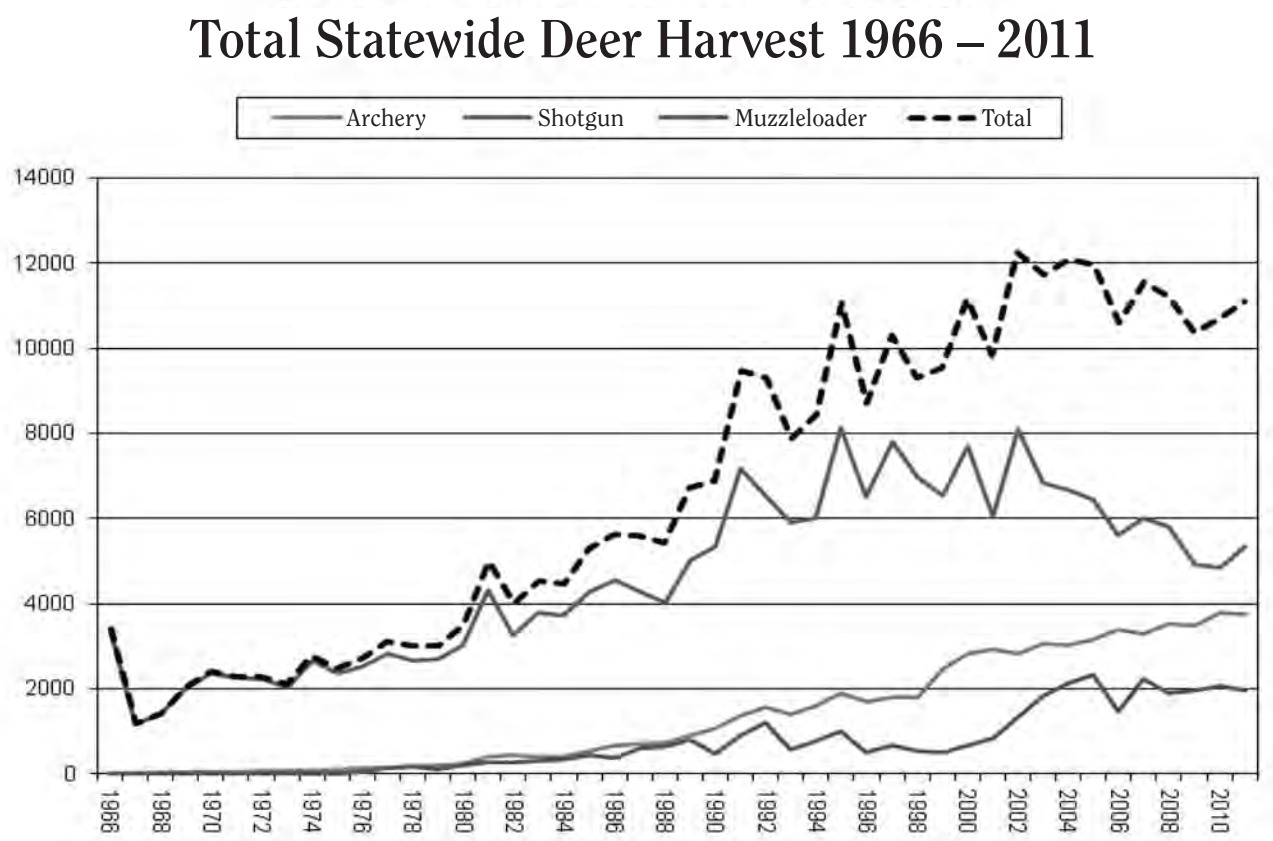
Licensed trappers tagged 776 trapped beaver during the 2011-2012 trapping season, of which 343 were reported as taken under emergency permits. PAC Agents reported taking 40 beaver outside the trapping season (July 1, 2011–October 31, 2011) and 48 beaver from November 1, 2011 to December 31, 2011 (during

Table 4. The 2011 White-tailed deer harvest by season and sex/age class in Massachusetts.

Season	Adult Male	Female	Male Fawn	Unknown sex	Total	% Harvest
Paraplegic	1	4	3	0	8	0%
Archery	2,467	1,094	196	8	3,765	34%
Shotgun	2,884	2,018	438	9	5,349	48%
Muzzleloader	801	990	164	4	1,959	18%
Subtotals	**6,153**	**4,106**	**801**	**21**	**11,081**	**99%**
Quabbin*	37	27	9	0	73	1%
State Totals	**6,190**	**4,133**	**810**	**21**	**11,154**	**100%**

* Controlled hunt with DCR; limited access.

Figure 1. Total white-tailed deer harvest by season and year in Massachusetts (excluding Quabbin).



the trapping season), of which 20 were taken under emergency permit. The Department of Conservation and Recreation removed 24 beaver for water-quality protection or damage mitigation. Estimates of beaver taken outside the trapping season by licensed trappers are currently being calculated from trapper survey data.

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

Table 5. The 2011 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	159	53	6	1	219	Stabilize	450	432
2	317	29	6		352	Stabilize	200	187
3	390	135	15		540	Stabilize	1,250	1,190
4N	301	65	6	1	373	Stabilize	400	388
4S	161	29	5		195	Stabilize	300	278
5	372	190	21		583	Stabilize	1,350	1,314
6	94	44	9		147	Stabilize	450	419
7	332	209	39		580	Stabilize	2,250	2,134
8	556	288	37	2	883	Stabilize	2,800	2,652
9	583	371	70	1	1,025	Stabilize	4,100	3,792
10	930	951	184	9	2,074	Reduce	9,000	8,664
11	1,286	918	197	5	2,406	Reduce	8,950	8,464
12	151	58	5		214	Stabilize	550	514
13	277	416	99		792	Reduce	2,700	1,429
14	243	349	102		694	Reduce	2,700	1,225
Unknown	1	1		2	4			
Statewide	6,153	4,106	801	21	11,081		37,450	33,082

Figure 2. A map depicting the current deer-density goals in the 15 WMZs in Massachusetts.

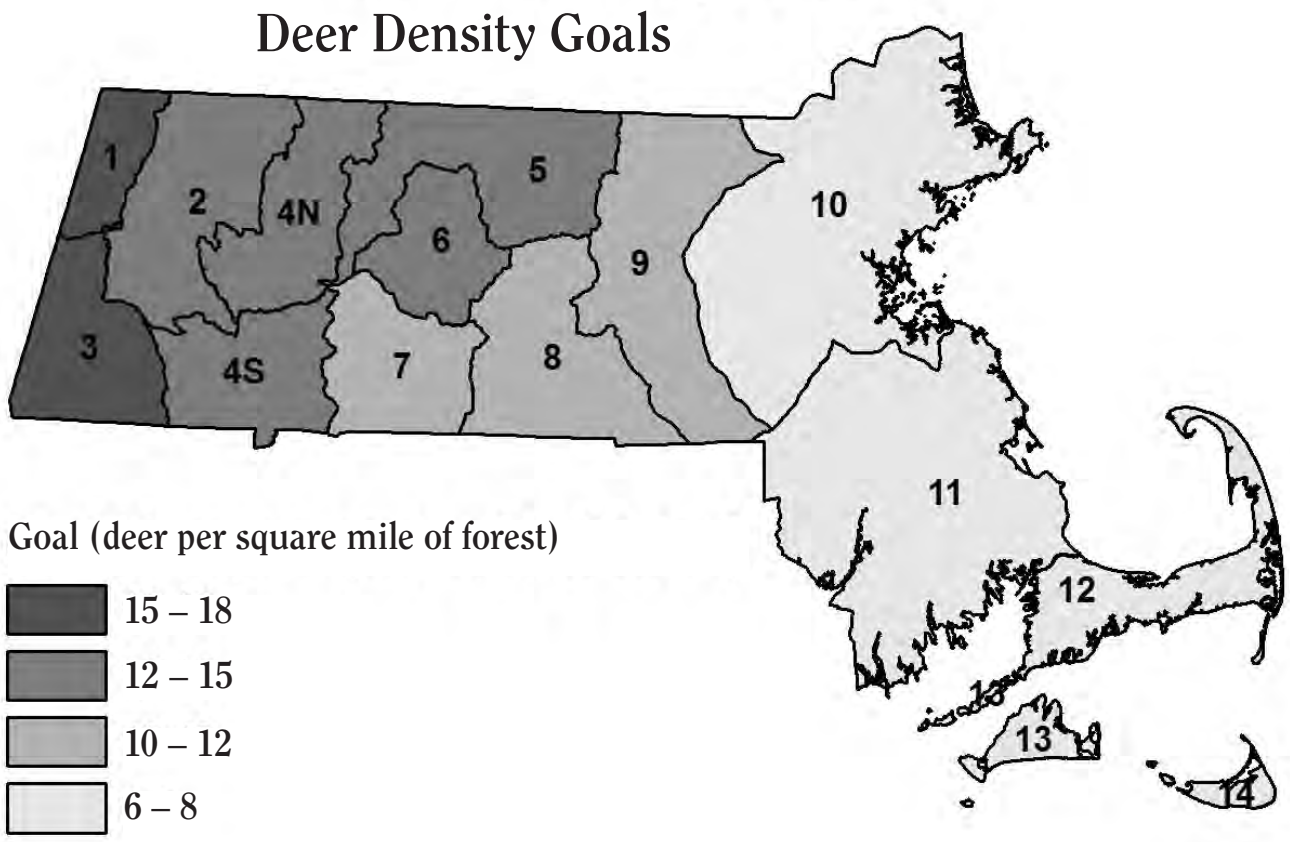
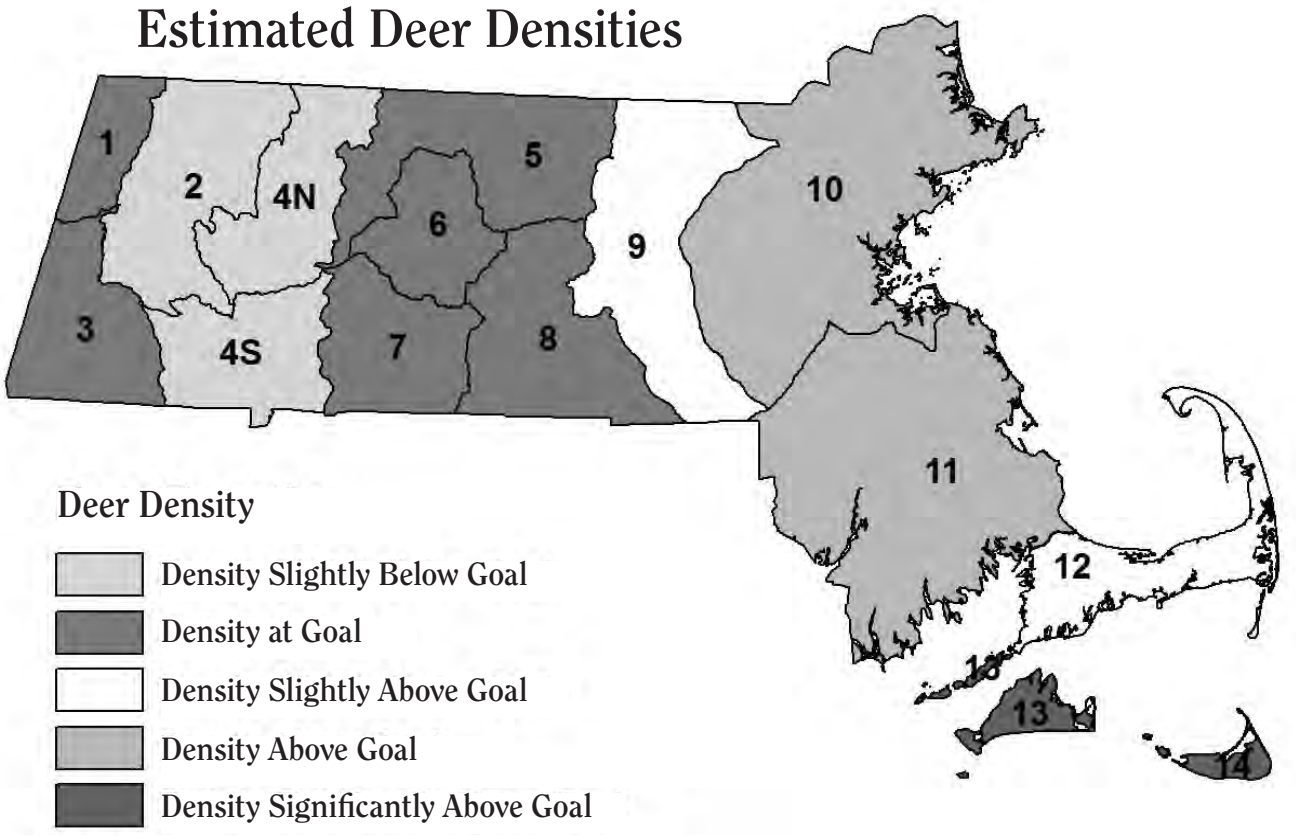


Figure 3. A map depicting how the current densities relate to deer density goals in the 15 WMZs in Massachusetts.



habitat, and minimizing economic damage to public and private property by beaver.

Furbearer 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 phone calls significantly outnumber those about other furbearer species. (See also the "Human-Wildlife Conflict Trends Project" section, below.)

Deer Management Program

David Stainbrook, *Deer and Moose Program Leader*

Harvest and Population

The statewide 2011 harvest of 11,154 deer represents the ninth-highest harvest reported in Massachusetts since 1966 (Figure 1). Overall, there was a 3% increase in harvest over the 2010 hunting season. The 2011 Archery harvest was the second-highest on record (Table 4). The lack of acorn mast in 2011 may have played a role in the increased harvest rates seen in the Archery and Shotgun seasons, as hunters were able to find and pattern deer easier around food resources. On the other hand, the lack of snow (critical for tracking) may have played a role in the lower harvest rates seen during the Primitive Arms season. Notwithstanding that lack of snow cover, the Primitive season was still the fifth-highest on record.

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

As in previous years, the Antlerless Deer Permit (ADP) system required a hunter to have an antlerless deer permit to harvest an antlerless deer in any deer season. The antlerless permit system increases hunter opportunity statewide while regulating deer harvest across all WMZs. Overall, we have achieved our deer density goals in the western and central parts of the state (Figures 2 and 3). Therefore, fewer antlerless permits have been issued in the central and western WMZs over the past few years, allowing the deer population to stabilize or even grow in zones 2, 4N, and 4S. Because the antlerless allocation is lower in these areas, fewer deer are being harvested (Table 5). Conversely, the deer populations in the eastern part of the state are still above goal, so antlerless permit allocations have remained high in an effort to increase harvest of females. Challenges still remain in eastern WMZs related to the relatively greater difficulty of hunter access in those areas.

Figure 4. Moose-vehicle accidents reported in Massachusetts per month from 1980 to 2011.

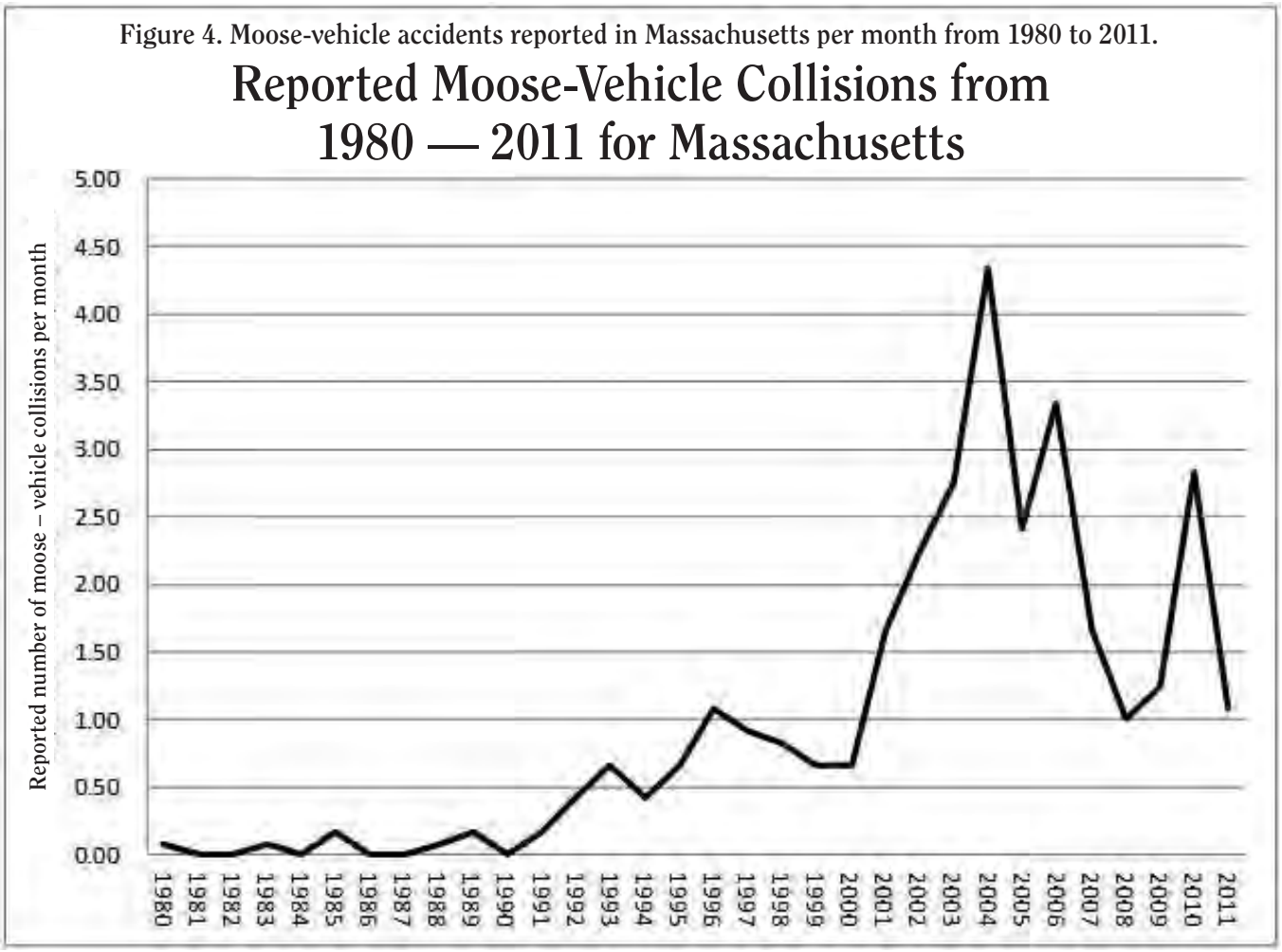
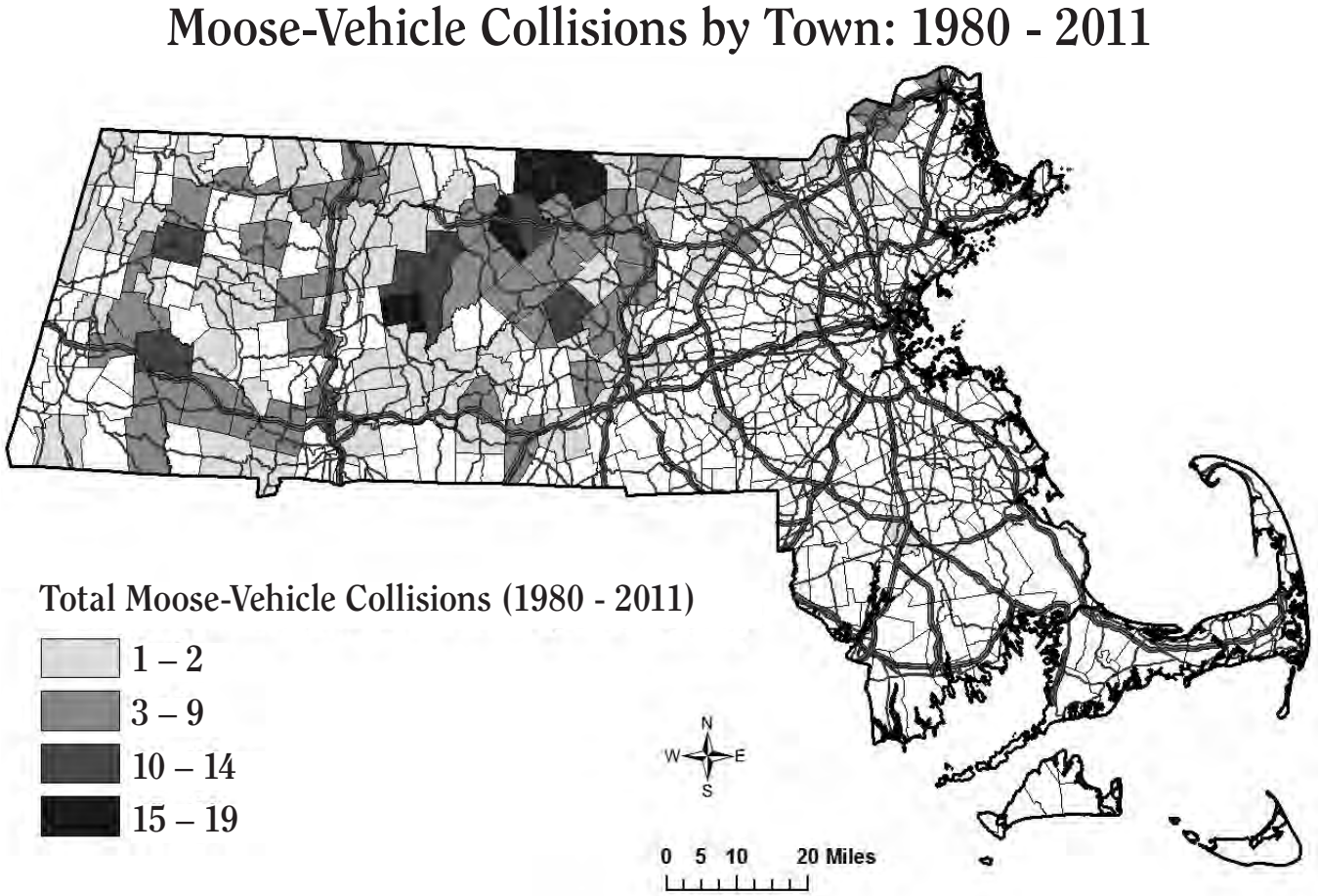


Figure 5. The total number by town of the moose-vehicle accidents reported from 1980 to 2011 in Massachusetts.



The ADP allocation for 2011 was 37,450 permits, a 1% increase from 2010, while 33,082 permits (88%) were actually issued (i.e., only about 50% of the allocated permits in WMZs 13 and 14 were sold and about 10% of hunters did not send in their payment). In 2011, a total of 33,082 antlerless deer permits were issued to Massachusetts' deer hunters. Of the permits that were sold, 21,682 (66%) were issued through the regular drawing process and 7,392 (22%) were issued over the counter at Division Offices and on the islands of Martha's Vineyard and Nantucket, while 4,008 (12%) were issued "over the counter" through the MassFishHunt website.

Research

No deer-related research projects occurred in FY 12.

Chronic Wasting Disease

In accordance with the USDA APHIS guidelines for Chronic Wasting Disease (CWD) Surveillance, we continued with our surveillance program. Deer heads were collected from each WMZ, to obtain the required samples that will generate a statistically valid stratified sample for Massachusetts. During 2011, Massachusetts collected 615 samples from hunter-harvested, road-killed, and targeted deer from across the state for CWD monitoring and testing. Eight road-killed moose and one target moose were also tested for CWD. This was the tenth year of sampling in Massachusetts as part of a nationwide CWD monitoring and surveillance program. Results indicated that CWD was not detected. We will not be continuing surveillance during 2012 deer harvest season because the funding provided by the USDA APHIS has ceased. We will continue to sample for CWD from suspect deer provided we can allocate the funds required for testing.

Moose Program

David Stainbrook, *Deer and Moose Program Leader*

Traditionally, the DFW has collected data concerning moose from sightings reported by the public, moose found dead, and moose-vehicle accidents (MVA). There have been 1,439 reports submitted to DFW concerning moose since 1924. In 2011, there were 24 reports made to DFW concerning moose, which included 13 MVAs, 3 sightings, 3 moose found dead, 0 illegal kill reports, 5 LART responses, and 0 relocations of problem moose. However, these reports make up only a fraction of the actual human-moose interactions that occur in the state because MVAs are not routinely being reported to the DFW or to the MEP. For example, many are discovered indirectly through newspaper reports. Further, caution must be used when looking at the number of collisions reported from year to year because reporting rates can vary from year to year (Figure 4). Nonetheless, these indices can be useful for biologists to use, along with our

population estimation method, to indicate population trends of moose in Massachusetts. The number of reports per town can be useful when making decisions about areas to focus on with signage on highways (Figure 5).

The current moose population in Massachusetts is estimated to be between 850 and 950 animals. We use a basic population model that incorporates standardized sighting rates from an annual deer hunter survey (we ask a random sample of deer hunters how many moose sightings they had per hour of deer hunting) and available moose habitats in the 12 WMZs that we feel have the potential for moose (we exclude Cape Cod and the Islands in our estimate, as they do not represent potential moose habitat).

We included moose in our Chronic Wasting Disease surveillance and monitoring for 2011. We collected eight samples from road-kill moose and one sample from a target moose. Chronic Wasting Disease has not been detected in moose in Massachusetts.

In 2011, we continued work on a research project with the USGS Cooperative Fish and Wildlife Research Unit at UMass/Amherst. We are using GPS collars to evaluate movement and habit use at a detailed level in Massachusetts. Major capture activities had been completed in 2010. Analysis of information on moose status and management, home range size, movements, and core area habitat use is included in a master's thesis by David Wattles, titled "Status, Movements, and Habitat Use of Moose in Massachusetts." Data collected from these collars will continue to be monitored and analyzed throughout 2012 and these data will be used as part of a Ph.D. dissertation by Mr. Wattles.

The Human-Wildlife Conflict Trends Project

Human-Wildlife Conflict Trends

Michael Huguenin, *Wildlife Biologist*

A study of human-wildlife conflict reports was initiated in 2010 as part of a graduate project through the USGS Cooperative Fish and Wildlife Research Unit at the University of Massachusetts. The goal of this study is to produce information that can be used to develop proactive management strategies effective at resolving human-wildlife conflicts. This will be accomplished by analyzing wildlife report data, generated through unsolicited phone calls and emails received at each of the six DFW offices from the public regarding a variety of wildlife related issues. We intend to 1) determine the effectiveness of the current Animal Report Data Sheet at providing the appropriate information for investigating trends in human-wildlife conflicts and trends in the public's perception of human-wildlife conflicts; 2) develop a new data collection system designed to capture objective information regarding human-wildlife conflicts that can be analyzed more efficiently and more effectively; and 3) analyze trends in human-wildlife conflicts and the associated concerns (public perception of interactions with wildlife) both spatially and temporally. We intend to analyze these trends using univariate and multivariate statistical methods, and by overlaying the data collected with data available in the Massachusetts Geographical Information System (MassGIS) database. The MassGIS data includes, but is not limited to, land use, towns, census data, and infrastructure (e.g., roads). Further, this data collection system is intended to be utilized on a long-term basis in order to develop and support future research to test the effectiveness of management strategies.

Procedures

In April 2010, DFW implemented a new data collection system for animal reports generated through incoming, unsolicited phone calls and emails. Reports are recorded as given by the individual, and therefore cannot always be considered accurate with regard to species identification or the exact circumstances of the incident. Rather, the data collected are meant to represent the public's perception of a conflict or interaction with wildlife.

Using this system, DFW staff collects the following information; date, species, town, type of report, and the individual's concern associated with the report. These data are then summarized. Summaries include, but are not limited to, graphs displaying differences in volume of report type, concern type, species, and season. Maps are developed using MassGIS to geographically display the distribution of reports by type and species. These summaries are meant to provide district biologists with information to assist them when providing advice and management options to the general public regarding human-wildlife interactions/conflicts. In subsequent years, we will analyze the relationships of species, report type, and concern type to each other and to human population density, property values, seasonal variation, habitat availability, and fragmentation of habitat. Analyses will include, but are not limited to, univariate techniques such as multiple regression analysis and analysis of variance. We intend to also utilize multivariate techniques to fully explore the relationships and multidimensionality of data collected on all of the variables.

Coyote study

Human-coyote conflict data collected between 2001 and 2007 were analyzed using multiple regression analysis in order to test the effectiveness of the animal report form at providing data that can be used for making management decisions regarding human-coyote conflicts. Each town (normalized by town area) in Massachusetts was considered one experimental unit. The dependent variable was coyote conflicts and the independent variables were human population density, year since first report of coyotes within each unit, coyote habitat, and coyote harvest.

Findings

No significant relationship was found between coyote conflicts and human population density ($p=0.97$), year since first report ($p=0.35$), or coyote harvest ($p=0.07$). The relationship between coyote conflicts and habitat availability, however, was significant ($p<0.0001$). Ana-

Table 6. Report Type	Concern Type					
	Unknown	None	Welfare of wildlife	Property	Pets/ livestock	Human safety
General	173	195	193	128	113	294
Sick/injured/young	140	67	454	43	51	213
Property damage	146	32	210	363	246	731
Depredation	38	0	2	54	100	71
Public safety	22	0	24	49	35	190

Table 6. Number of report types, by concern type. Neither concern type nor report type are mutually exclusive. In other words, more than one category of report type and more than one category of concern type may have been selected for any given individual report (call or email).

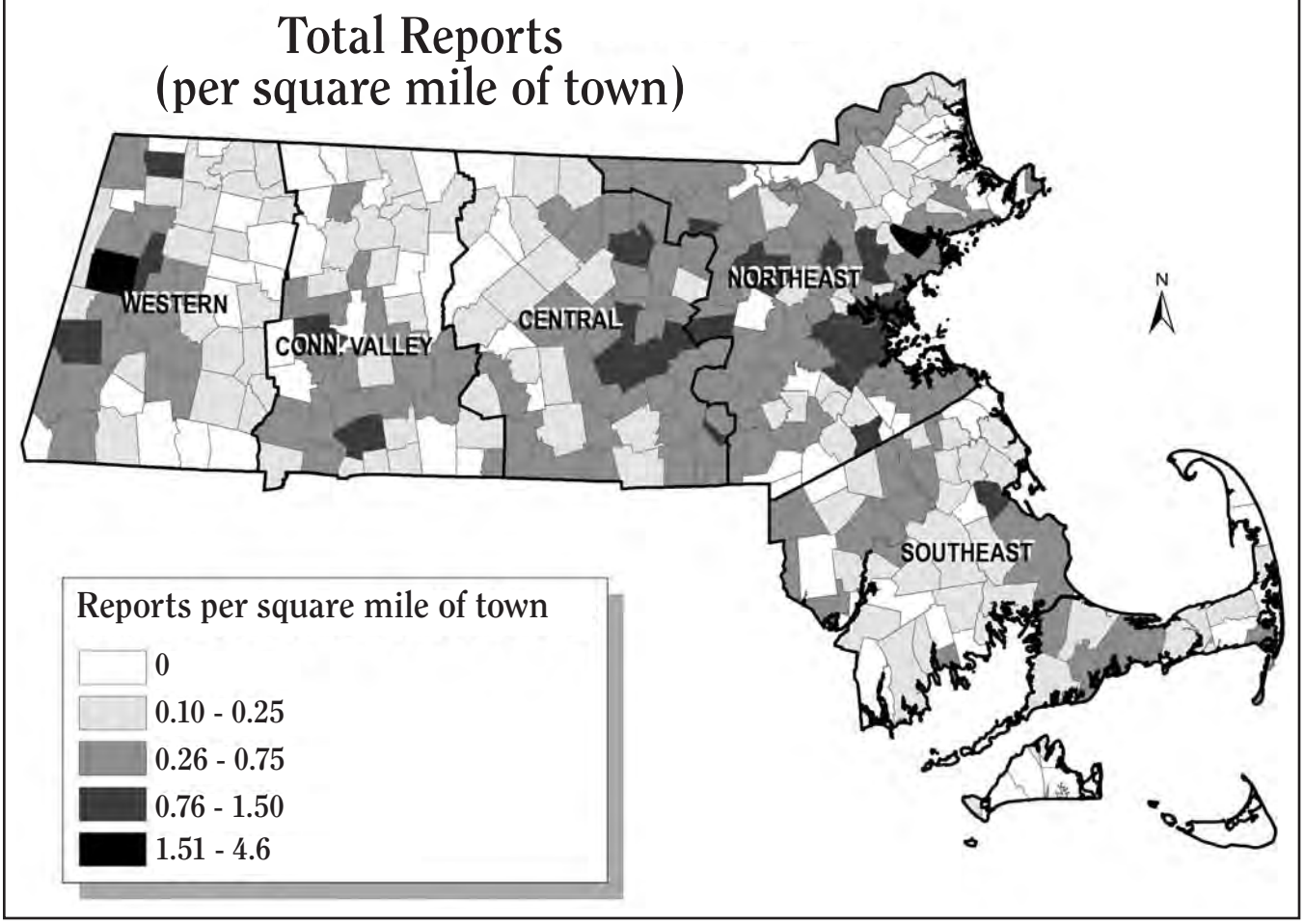
lyzing data collected through this system proved to be complicated. Report data were subjective, and therefore difficult to define. Also, data collection relative to location, species, and type of report seemed inconsistent and somewhat unreliable.

In response, DFW staff developed a new data collection system and emphasized the importance of rigorous data collection. The new data collection system gave us the ability to better categorize reports by providing the collector with a set of standard report types from which to choose. Also, we were able to collect data on the type of concern associated with the report. The new system has made data collection and data entry more efficient by, first, allowing for multiple reports per page and, second, by not requiring the collector to describe the report type; therefore, not requiring the enterer to subjectively interpret and categorize the report type. Also, we have emphasized the importance of collecting data for all reports regardless of species, location, type of report, or concern.

Current study

Reports were recorded in 333 of 351 towns across Massachusetts between April 2010 and June 2012, totaling 2,730 (Figure 6). Reports ranged from general

Figure 6. Map of Massachusetts, showing animal reports per square mile of town.



Club	Number of Participating Youth	Location of Hunt
Carver Sportsmen's Club	15	Myles Standish SF
Essex County League of Sportsmen	10	Martin Burns WMA
Falmouth Rod & Gun Club	3	Club property
Fin, Feather and Fur Club	10	Poland Brook WMA
Lee Sportsmen's Club	8	Hopbrook WMA
Norco Sportsmen's Club	18	Club property
Singletary Rod & Gun Club	3	Club property
Walpole Sportsman's Association	6	Charles River WMA
Worthington Rod & Gun Club	1	Route 143 field
Total Students	**74**	

Table 7. 2011 Youth Pheasant Hunt Participating Clubs

inquiry to threat to public safety and covered over one hundred species. Report type was categorized into one of five groups: 1) general; 2) sick/injured/young; 3) property damage; 4) depredation; and 5) public safety. Report type and concern type totals were summarized with respect to each other (Table 6). With respect to species, we received 209 reports involving threats to public safety, which include wildlife found inside a dwelling, wildlife approaching humans and/or pets on a leash, aggression toward humans, and human attack. Among these, fifteen were reported as human attack and involved the following species; turkey (5), hawk (4), coyote (2), fox (1), raccoon (1), swan (1), and bees (1). We received 189 reports of depredation/agricultural damage, which include missing pet or livestock, aggression toward pet, attack on livestock witnessed or not witnessed, and attack on pet witnessed or not witnessed. Eighty-seven of the 189 reports included information regarding a pet or livestock species depredated. We received 24 reports of chickens having been taken by bears (5), foxes (4), coyotes (7), bobcats (3), fisher (1), weasels (1), woodchuck (1), and unknown species (2). We also received 18 reports of domestic dogs and 14 reports of domestic cats depredated. Other reports of depredation included bee hives (7), rabbits (2), sheep (4), goats (3), horses (3), pigs (1), and buffalo (1).

Conclusions

During this time period, while using the new animal report form, DFW staff has effectively captured a much

Club	Total Students	New Students	Birds Harvested
Auburn Sportsmen's Club	1	0	0
Barre Sportsmen's Club	27	12	6
Carver Sportsmen's Club	27	13	6
Cheshire Rod & Gun Club	4	0	1
Concord Rod & Gun Club	1	0	0
Conway Sportsmen's Club	37	16	20
East Mountain Sportsmen's Club	2	2	0
Essex County Sportsmen's Association	4	3	2
Falmouth Rod & Gun Club	8	1	1
Fitchburg Sportsmen's Club	8	7	3
Hamilton Rod & Gun Club	2	0	1
Independent Sportsmen's Club	4	4	1
Lee Sportsmen's Club	9	3	8
North Brookfield Sportsmen's Club	1	1	1
Norco Sportsmen's Club	19	9	5
Stockbridge Sportsmen's Club	10	5	4
Woburn Sportsmen's Association	2	0	0
Worthington Rod & Gun Club	14	11	6
TOTAL	**180**	**87**	**65**

Table 8. 2012 Youth Turkey Hunt Participating Clubs

more diverse group of human-wildlife conflicts than in the past. Capturing more diverse human-wildlife conflict data may be the result of several factors, including an increased emphasis on collection effort, the implementation of the new animal report form, an actual increase in conflicts, or a combination of some or all of these things. Regardless, DFW staff has found data collection and data entry to be more efficient due to the new animal report form. Also, the new animal report form has proven effective at capturing more robust and less subjective data. Collecting these types of data affords us the opportunity to conduct more in-depth analyses. These analyses will include a more specific investigation of actual incidences and an individual's level of concern associated with that incident. Understanding concern will allow us to look at public perception of human-wildlife interactions. Public perception is important because it can help DFW track potential trends of wildlife populations as wildlife species shift from resources to pests or vice versa. Also, gaining knowledge on perception can help DFW staff invoke more focused management strategies (e.g., a trend toward coyote sightings that involve concerns for public safety may warrant more focused education with regards to coyote behavior).

Youth Skills and Recruitment Programs

National Archery in the Schools Program in Massachusetts

This program offers international-style target archery training with a national standardized education package in cooperation with state fish and wildlife agencies across the country. The National Archery in the Schools Program and the Archery Trade Association have partnered with the DFW and the Massachusetts Outdoor Heritage Foundation to promote student education and lifelong interest and participation in the sport of archery.

NASP has developed an in-school 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 across 46 different states have participated in NASP; Massachusetts is now the 47th state to participate.

The Division of Fisheries and Wildlife provides a 1-day Basic Archery Instructor (BAI) Training for physical education teachers within schools/districts that plan to participate in NASP as well as coordinating the ordering and delivery of program equipment for the schools. Schools that obtain the required NASP equipment kit, which costs about $3,000 and includes 11 Matthew Genesis bows, 122 arrows, 5 targets, 1 arrow curtain, and 1 tool/repair kit, qualify for the training. As of the end of FY 12, there are 12 schools participating in the program. East Bridgewater High School was added in FY 12 with funding support from the Plymouth County League of Sportsmen and other community donations. Longmeadow High School was also added when it purchased its own NASP equipment kit.

Young Adult Pheasant Program

The Massachusetts Young Adult Pheasant Hunt Program was developed by the DFW 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 an experienced pheasant 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 adult hunters so they may 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: Part 1 of the program, shooting instruction and practice, takes place during the summer or early fall; Part 2, the pre-hunt workshop, is held a week or two before the youth pheasant hunt; the actual hunt (Part 3) is scheduled by the individual clubs for any one of the six Saturdays prior to the mid-October start of the regular pheasant hunting season.

Youth Turkey Hunt Program

This program was developed by the DFW in cooperation with the Massachusetts Chapter of the National Wild Turkey Federation (NWTF) to provide an opportunity for 12-17-year-old hunter education graduates to practice firearms safety and turkey-hunting techniques, develop shooting skills, and participate in a special 1-day turkey hunt under the one-on-one guidance of an experienced turkey 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 the 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.

In FY 12, a 1-day mentored Youth Turkey Hunt was held on April 28, 2012, the Saturday preceding the opening of the spring season. A total of 87 new students (sponsored by 13 clubs) completed the pre-hunt training and participated in the field exercise and the hunt. Ninety-three previous-year Youth Turkey Hunt Program participants returned to participate in the FY 12 Youth Turkey Hunt day and did not need to repeat the pre-hunt training and field exercise. Of the 180 participants, 115 were 12-to-14-year-olds and 65 were 15-to-17-year-olds. A total of 65 (36%) of the 180 participating students were successful in harvesting a turkey on the Youth day.

See Table 8 (facing page) for the sportsmen's clubs that participated in the program in FY 12, in cooperation with the NWTF state chapter.

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Assistant Director

Jonathan Brooks, *Wildlife Population Ecologist*
Laura Hajduk-Conlee, *Furbearer Program Leader*
Lori Cookman, *Permit Specialist*
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Andrew Vitz, *State Ornithologist*

PRIVATE LANDS HABITAT MANAGEMENT

John O'Leary, Supervisor

Overview

Private lands management is essential to the conservation and restoration of important fish and wildlife habitats in Massachusetts. Eighty percent of the land base in Massachusetts is privately owned, and many Special Concern, Threatened, and Endangered species occur on these lands. Two of the programs administered by the DFW to enhance species habitat on private lands are the Landowner Incentive Program (LIP) and the DFW Technical Assistance Program to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). Where applicable, these programs work with other DFW or NHESP staff when conducting site visits and providing technical assistance. These programs are designed to partner with private landowners to provide 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 (LIP)

Michael S. Sawyers, *LIP Coordinator*

The Massachusetts LIP was established to create partnerships between state biologists and private landowners to identify common habitat management goals and provide financial and technical assistance that will help landowners achieve these goals. LIP is a cost-share program designed to give landowners with limited financial resources the ability to obtain funds and guidance that will help them 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 up to 75% of the cost of the on-the-ground practices performed to complete the project; the landowner provides the remaining percentage either in funds, in-kind labor, or equipment.

In awarding grants, the LIP staff focuses on the management of private lands identified by the NHESP BioMap2 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 Commonwealth with goals to (1) enhance wildlife habitat for species-at-risk, (2) identify and reclaim appropriate sites for management of declining habitats (especially open land: old-field and early-successional forest, wetlands, coastal habitat, and pine barrens), and (3) 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 Department of the Interior's Fish and Wildlife Service (USFWS) to support the habitat management efforts of state fish and wildlife agencies. The DFW received LIP grant funds in each year they were available until 2007, when federal funding for this program ceased. However, LIP has been able to continue providing financial assistance with funds carried over from previous years.

With funds to implement habitat management on private lands becoming limited, LIP did not fund any habitat management projects during FY 12. During that time, the ranking criteria and eligibility for funding was adjusted to ensure even distribution among private landowners and conservation partners for the forthcoming FY 13 funding cycle. For the FY 13 funding cycle, landowners are defined as: (1) Traditional private landowner or Sportsman Club, (2) Small Land Trust/NGO, and (3) Large Land Trust/NGO, based on the number of properties owned/managed. Successful applicants were limited to a maximum reimbursement of $12,500. A total of seven applications were received. Because the total funds requested was lower than the target budget for FY 13 and all proposed projects directly addressed the goals of LIP, all applicants were selected to receive funding. Based on the new criteria, funding has been offered to two traditional private landowners, two small land trusts/NGOs, and three large land trusts/NGOs. At the end of FY 12, the LIP Coordinator conducted site visits to each property to inspect the area of proposed management and finalize the management plan with the landowner in anticipation of the FY 13 funding cycle.

During FY 12, the LIP Coordinator continued to assist landowners and towns by providing onsite technical assistance for implementing habitat management, responding to information requests over the phone, and participating in informational public outreach events. The LIP Coordinator visited eleven properties of landowners that had not previously sought management recommendations nor applied for funding. Recipients of technical assistance included five town Conservation Commissions and three private landowners. Site visits with town Conservation Commissions included multiple properties throughout the town that provided extensive early-successional habitats for the species targeted by

LIP. Two of these Conservation Commissions have begun implementing the recommended management plans on three properties to control invasive species and enhance habitat diversity for a variety of declining species. These management activities on private and municipal lands increase habitat availability and diversity across the Commonwealth.

LIP staff attended eight DFW-hosted public site walks on Wildlife Management Areas to engage citizens interested in active habitat management on their property and address questions about applied management throughout Massachusetts. Additionally, the LIP Coordinator presented to the Barnstable Land Acquisition and Preservation Committee to highlight the past accomplishments of the LIP, address high priority conservation targets in Barnstable, and recommend management practices for different habitat types.

Preliminary efforts on a LIP Effectiveness Measures Report commenced during FY 12. The goal of this report is to highlight the accomplishments of the program, promote the necessity of active habitat management on private lands for conservation in the Commonwealth, and renew the call for continued funding of habitat management by private landowners in Massachusetts.

The LIP Coordinator continued in FY 12 to take an active role in the development of the Habitat Management Database. This tool will inform DFW land managers, biologists, researchers, and administrators about habitat management occurring across the Commonwealth, including management practices, acres of habitat managed, and species that benefit, and will provide a context to understand how management in a given area integrates with statewide initiatives. The LIP Coordinator and other DFW program managers will also use the database in their analyses to determine management priorities across the state.

With the majority of DFW projects now recorded in the database, DFW Staff have recognized the need to expand the database to include the management activities of in-state as well as regional conservation partners, in order to obtain a more complete picture of the landscape. Broadening the geographic scope of the Habitat Management Database will address shared conservation issues across the region and foster new conservation partnerships. To promote the expansion of the Habitat Management Database, the LIP Coordinator promoted the regional concept during seven presentations to conservation partners, ranging from local land trusts in Massachusetts to regional conservation groups, and coordinated the submission of a grant to help underwrite the cost of such an expansion.

To date, the DFW has funded 157 LIP projects and has provided technical assistance to private landowners from Cape Cod to the Berkshires. Through this program, the DFW has contributed close to $3.5 million for the conservation of declining species on private land over the program's 7-year history.

Figure 1. Map of Massachusetts, showing NRCS Site Visits.

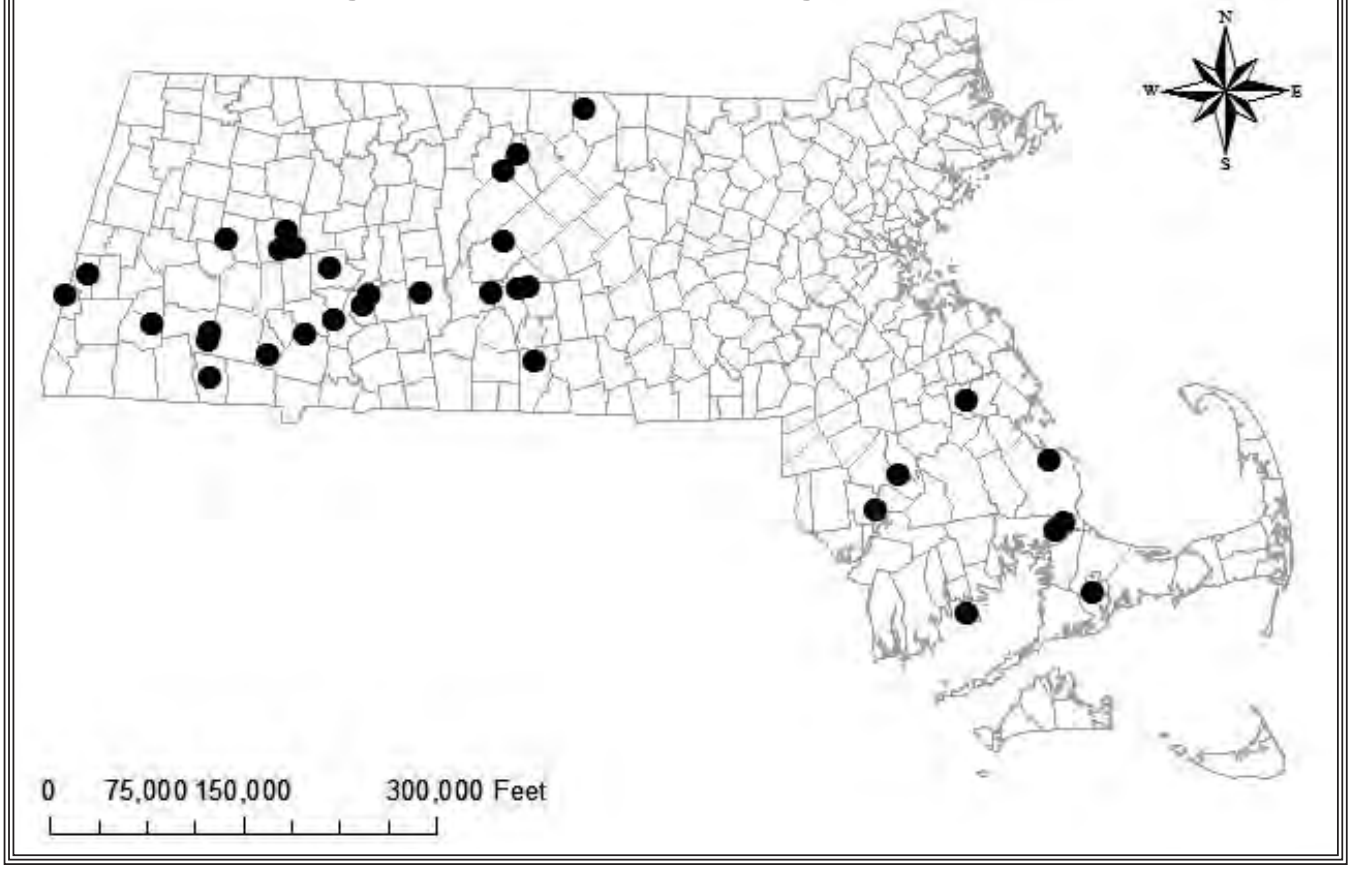
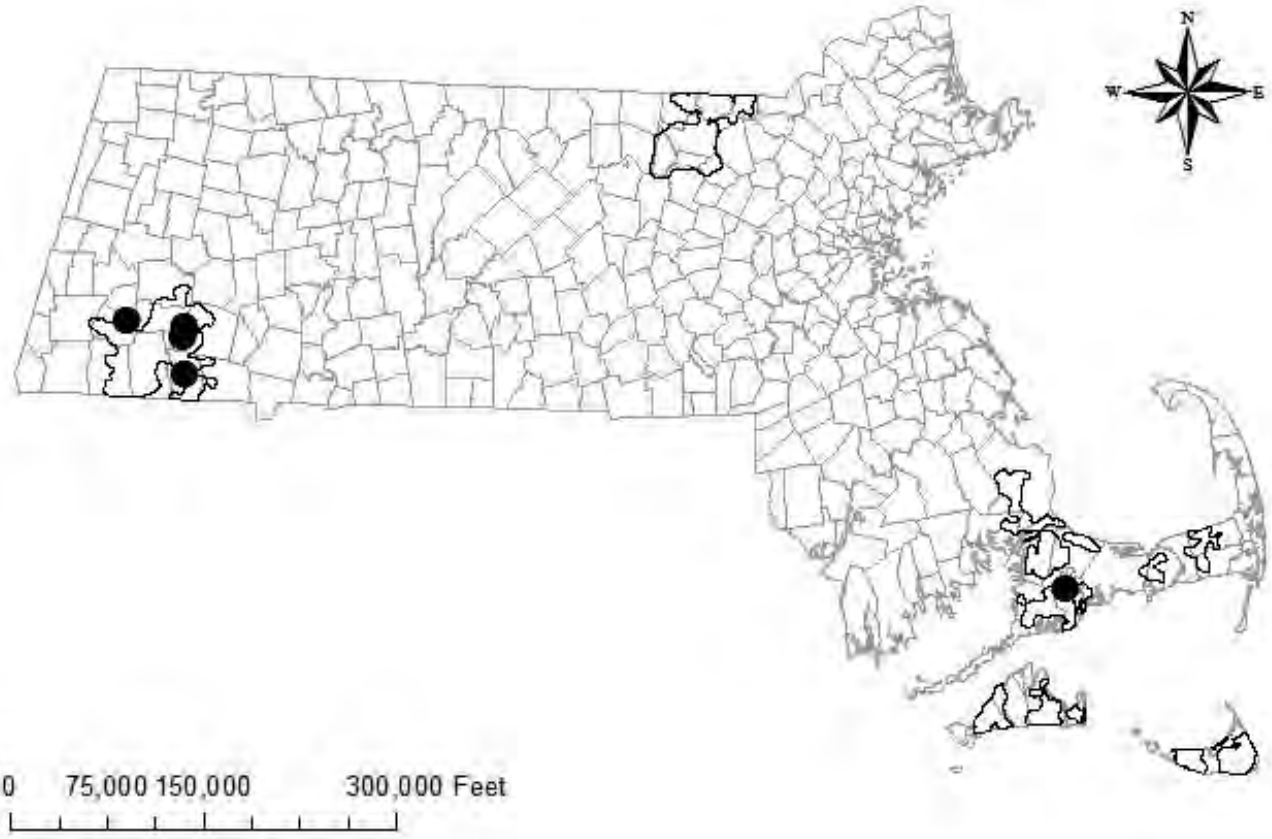


Figure 2. Map of Massachusetts, showing Working Lands for Wildlife Projects.



Technical Assistance Program to the Natural Resources Conservation Service

Marianne Piché, *Habitat Management Biologist*

The DFW and the NRCS completed the fourth year of a partnership whereby the DFW Habitat Management Biologist provides wildlife technical assistance to NRCS for the Wildlife Habitat Incentive Program (WHIP), the Environmental Quality Incentives Program (EQIP), and the Wetlands Reserve Program (WRP). The Habitat Management Biologist continued to provide NRCS staff with assistance in the development of WHIP, EQIP, and/or WRP applications and work directly with NRCS to plan, implement and supervise wildlife conservation management associated with WHIP, EQIP, and WRP contracts that offer cost-share funding for habitat restoration and management on private lands. The Habitat Management Biologist is responsible for providing specific wildlife habitat recommendations consistent with the goals and objectives of the DFW Biodiversity Initiative and the Massachusetts State Wildlife Action Plan (SWAP) and for serving as the liaison between NRCS and the DFW on the Rangewide New England Cottontail Initiative.

During FY 12, the Habitat Management Biologist participated in 33 site visits (Figure 1) to provide assistance for the development of NRCS funding applications. Fifteen projects were funded through EQIP, eight in Hampshire County and seven in Worcester County. Projects funded with assistance from the DFW will result in 119 acres of habitat being created, restored, or enhanced: 3.5 Pitch Pine-Scrub Oak, 92.5 Young Forest/Shrubland, 20 Upland Forest, 1.5 Turtle Nesting, and 1.5 Pollinator. State-listed species that will benefit from management include Wood Turtle and Eastern Box Turtle. NRCS funding obligated for these projects is $377,246.48.

In April 2012, the NRCS, in partnership with the USFWS, announced funding for a new WHIP "Working Lands for Wildlife" partnership aimed at reversing the decline of seven species nationwide through habitat management on private lands. Of the seven at-risk species identified, New England Cottontail and Bog Turtle were the only two in Massachusetts for which any WHIP funds could be directed in FY 12. Five WHIP New England Cottontail applications that received assistance from DFW were funded (Figure 2); one in Mashpee, one in Tolland, one in Monterey, and two in Otis. With projects ranging in size from 12 to 38.6 acres and management at all sites to begin during the 2012-2013 winter season, these will result in 112.2 acres of habitat to benefit New England Cottontail being created or restored on private land. In Mashpee, 38.6 acres of Pitch Pine/Scrub Oak habitat will be restored through the use of prescribed fire. The additional four projects will result in creation of 73.6 acres of Young Forest/Shrubland habitat. WHIP/Working Lands for Wildlife projects assisted by DFW

Turtle nesting areas created by the landowner on private land.

in FY 12 will result in $194,420.00 of NRCS funding being used to create/restore habitat for New England Cottontail in the Commonwealth.

As DFW liaison to NRCS on the Rangewide New England Cottontail Initiative, the Habitat Management Biologist continued to coordinate regular Massachusetts New England Cottontail Private Lands meetings, holding five in FY 12. Attended by NRCS, USFWS, and DFW staff, meetings involve coordination of resources all agencies bring to New England Cottontail habitat management. She conducted four presentations to promote the use of NRCS funding to manage habitat for New England Cottontail on private land, and her work to selectively engage private landowners in habitat management for New England Cottontail is ongoing.

In the process of working with NRCS staff to develop projects, the Habitat Management Biologist consults with other DFW staff, thereby bringing the knowledge and expertise of the NHESP/NRCS Endangered Species Review Biologist, the NHESP Restoration Ecologist, NHESP taxonomic specialists, the DFW Forestry Program Manager, the Upland Program Coordinator, the DFW Upland Game Project Leader, and others to NRCS projects across the Commonwealth of Massachusetts. In the upcoming fiscal year, the Habitat Management Biologist will continue promoting Farm Bill programs, participating in NRCS site visits, providing written habitat management recommendations, and implementing the Rangewide New England Cottontail Initiative on private land.

NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM

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

Vernal Pool and Rare Species Information System

Using a grant from the U.S. EPA, the Natural Heritage and Endangered Species Program (NHESP) has developed the Vernal Pool and Rare Species Information System (VPRS). VPRS is a web-based mapping and data submittal application that will provide users with a mechanism for submitting rare species observation reports and vernal pool certification forms to the NHESP electronically.

Additionally, the system will provide the user with the ability to upload data in bulk from a spreadsheet, view their submittals and the associated acceptance statuses, communicate with NHESP staff regarding specific submittals, and provide information on the user's survey efforts, including areas searched, methodologies used, and whether the survey target was found or not. At the same time, the system will create a more efficient method for staff to review and process submitted data, provide a more real-time update to the publicly available Certified Vernal Pool GIS data and town rare species lists. The system also includes a mobile application that allows the user to enter basic rare species or vernal pool information directly into the system while in the field.

BioMap2: Town Reports

As the next phase of *BioMap2*, Town Reports associated with the state biodiversity conservation plan released in 2010 have been developed. These reports will provide towns containing *BioMap2* habitat with town-specific biodiversity information, to better inform land protection and planning activities at the town level. *BioMap2* Town Reports will be available in the fall of 2012.

The Housatonic Report

A 23-page, full-color report, "The River and Its Valley: Conserving Biodiversity in the Housatonic River Watershed of Western Massachusetts," was released in FY 12. The field work associated with this report was undertaken by nearly 50 people. This project was funded by the Natural Resource Damage Assessment and Restoration (NRDAR) Programs of the Massachusetts Executive Office of Energy & Environmental Affairs (EEA) and the U.S. Fish and Wildlife Service (USFWS), using funding via the Massachusetts Sub-Council of the Housatonic River Trustee Council under the auspices of the Massachusetts and U.S. Department of the Interior (DOR) NRDAR programs, as part of a legal settlement with the General Electric Company for its release of polychlorinated biphenyls into the Housatonic River and its floodplain.

In addition to this report, a companion technical report and 19 Town Reports were also produced as part of this project.

Rare Species Habitat Mapping

The NHESP continued to delineate and revise habitat "footprint" polygons for each new observation record of the 432 rare plant and animal species listed under the Massachusetts Endangered Species Act (MESA). Revisions and updates were also made to habitat maps based on new information, including changes to the MESA List, new aerial photography, and new research that has improved our understanding of individual species' habitat requirements and utilization.

The Natural Heritage Atlas

The species-specific habitat areas described above are being used in the creation of the 14th Edition of the Natural Heritage Atlas that was expected to be published in FY 12. Due to legislation that was pending throughout much of FY 12 specifically related to MESA and its associated regulations, publication of the 14th Edition of the Natural Heritage Atlas was postponed pending the outcome of the legislative sessions. It is expected that publication of the next Atlas will occur in FY 13.

MESA List Changes

In FY 12 the MESA List of Endangered, Threatened, and Special Concern species was revised through de-listings, new listings, and changes to the status of individual species (e.g., SC, T, E). Overall, 11 species were delisted, eight species were added to the MESA List, and the MESA status was changed for 15 species.

2011 Field Season Summary

Birds

Piping Plover; Federally Threatened

A coast-wide network of cooperators reported breeding pairs of Piping Plovers at 145 sites in Massachusetts during May and June 2011. An additional 111 potential nesting sites were surveyed, but no breeding pairs were detected. The Index Count (statewide census conducted

June 1-9) was 631 pairs, and the Adjusted Total Count (total number of breeding pairs statewide, estimated over the entire season) was 655 pairs. Overall productivity for the Massachusetts breeding population was 1.18 chicks fledged per pair, based on data reported for 641 of 655 pairs (98%). By comparison, overall productivity in 2010 was 1.50 chicks fledged per pair.

Two regions contained 61% of the total breeding pairs in the state: the Lower Cape (39%) and the Upper Cape (22%). Individual sites with the largest numbers of pairs (Total Count) were South Beach, Chatham (55 pairs); Sandy Neck, Barnstable (43 pairs); South Monomoy Island, Chatham (41 pairs); Crane Beach, Ipswich (35 pairs); Nauset Spit, Orleans (24 pairs); Race Point-South, Provincetown/Truro (22 pairs); Plymouth Long Beach, Plymouth (20 pairs); and Parker River National Wildlife Refuge, Newbury/Rowley (13 pairs). Although the 16 largest sites, i.e., those with 10 or more nesting pairs, supported 54% of all pairs in the state, the 97 smallest sites (1-3 pairs) were also important, collectively accounting for over 24% of all pairs.

American Oystercatcher

Final compilation of 2010 survey data was completed during this fiscal year. Cooperators reported that American Oystercatchers were present at 93 of 264 sites surveyed along the entire Massachusetts coastline during the designated survey period of May 22-31. Totals of 402 adults and 194 pairs were reported. A total of 124 chicks fledged from 161 pairs for which productivity could be determined, for an overall productivity of 0.77 chicks fledged per pair.

Preliminary results from the 2011 survey of American Oystercatchers during the breeding season were 400 adults and 200 pairs present at 93 of 268 sites that were surveyed by a coast-wide network of cooperators. Preliminary statewide productivity was estimated at 0.5 chicks fledged per pair.

Terns, Laughing Gulls, Black Skimmers

Cooperators in Massachusetts surveyed more than 138 coastal sites in 2011 for the presence of breeding Roseate Terns (*Sterna dougallii*; Federally Threatened), Common Terns (*Sterna hirundo*), Arctic Terns (*Sterna paradisaea*), Least Terns (*Sternula antillarum*), Laughing Gulls (*Larus atricilla*), and Black Skimmers (*Rhynchops niger*). Ninety-five were occupied by nesting birds of one or more of these species. Roseate Terns (1,359 pairs), Common Terns (16,760 pairs, a recent historic high), and Black Skimmers (5 pairs) were stable. Least Terns increased 24%, to 4,309 pairs, a recent historic high. Laughing Gulls increased 27%, to 1,581 pairs. For the first time since careful record-keeping began, no nesting Arctic Terns were reported.

Buzzards Bay Tern Restoration Project

Weather during the 2011 field season was cooler and wetter than average. Collectively, Bird, Ram, and Penikese islands supported 1,348 peak-season (June 5-20) pairs of Roseate Terns (1,356 in 2010; -1%) and 6,423 peak-season pairs of Common Terns (6,484 in 2010; -1%).

Bird Island

Common Tern numbers were essentially stable at 1,872 pairs (1,945 pairs in 2010; -4%). Productivity (1.43 fledglings per pair; 0.65 in 2010) was very good. Roseate Tern numbers increased sharply, from 708 pairs in 2010 to 937 pairs (+28%) this year, probably due to an influx from Ram Island. Roseate Tern productivity was very good at 1.23 fledglings per pair (1.33 in 2010). No major predation events were recorded this year.

Ram Island

Common Tern numbers were essentially stable on Ram Island (3,345 pairs; 3,466 in 2010; -4%) and productivity was good (1.10 fledglings per pair; 0.85 in 2010). Roseate Tern numbers dropped substantially (-35%) to 377 pairs (584 in 2010) due to what appeared to be repeated Peregrine Falcon disturbance in May and early June; the refugees fled to Bird Island. Productivity for those who remained was very good (1.18 fledglings per pair; 1.04 in 2010).

Penikese Island

Common Tern numbers (1,206 pairs; 1,073 pairs in 2010; +12%) were the highest recorded at the site since the 1950s. Productivity, however, was poor – probably due to combined predation pressure from a pair of nesting Northern Harriers and gulls. Roseate Tern numbers (34; 37 in 2010) were similar to last year and productivity was probably good to fair. Productivity was not quantitatively measured for either species. No nesting Arctic Terns were observed.

Ram Island Habitat Restoration

New Bedford Harbor Trustee-funded 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: *Phragmites* was treated in 2006, 2007, 2008, and 2010. Only one straggler clump remained in the summer of 2011, and it could not be located when there was an attempt to treat it in the fall.

Phases II and III: The second of two restoration areas was completed in spring 2011. Some perimeter plants were replanted twice (in April and November) because of storm washouts. Otherwise, most new plantings did beautifully and terns used the area in good numbers.

Public Outreach

Partnering again with Burr Brothers Boatyard and the Town of Marion, a live tern web camera was set up on Bird Island (www.birdislandterns.org). The Buzzards Bay Tern Restoration Project website (***http://www.mass.gov/dfwele/dfw/nhesp/conservation/birds/tern_restoration.htm***) continues to be maintained.

Common Loon turning an egg in nest.

Penikese Island Habitat Restoration

Habitat restoration on Penikese Island involves making upland habitat available for terns so that they can expand from the narrow, rocky nesting beach. In order to do this, the structure of the upland vegetation must be changed with fire and herbicide to reduce invasive shrubs, reduce percent cover of vegetation, and encourage native grassland and coastal vegetation. Two primary rounds of herbiciding (separated by a year or two) and burnings of sections of the island on a rotating basis every spring and fall will likely be needed. A pilot burn of the Tubbs section of the island was done in April 2011. Herbicide treatment is scheduled for fall 2012.

Common Loon

In 2011, personnel from the DFW and the Massachusetts Department of Conservation and Recreation (DCR) monitored Common Loon (*Gavia immer*) activity in central and western Massachusetts throughout the summer months. Due to staff limitations, however, there was a significant reduction in person-hours dedicated to observing loon activity at non-DCR-managed waterbodies compared to previous years. Therefore, it is important to note that there may have been loon activity that was not detected.

Twenty-eight territorial loon pairs were observed on 12 waterbodies in Massachusetts. This is a slight decrease from 2010, when 33 loon pairs were observed on 14 waterbodies. In comparison, 30 loon pairs took up residence on 11 waterbodies in 2009, and 32 pairs were observed on 14 waterbodies in 2008. Eighteen loon pairs nested, compared to nineteen in 2010. The number of fledged chicks decreased slightly from past years; eight chicks were presumed to have fledged in 2011, compared to ten in 2010 and 14 in 2009. Excluding two pairs for which data for fledgling success are lacking, productivity was 0.53 fledglings per nesting pair in 2011 (the same as in 2010) and 0.31 fledglings per territorial pair (0.30 in 2010). Average productivity from 1990 to 2010 was 0.85 fledglings per nesting pair.

Bald Eagle

During the summer of 2011, there were 36 known territorial pairs of Bald Eagles in Massachusetts. Of these, at least 29 pairs are believed to have laid eggs and 24 pairs successfully fledged 37 chicks. In 2008, 2009, and 2010, there were 25, 27, and 32 territorial pairs, respectively, which produced 33, 38, and 41 fledged chicks. This is the twenty-third year that Bald Eagles have raised young in Massachusetts since their restoration. During these 23 years, 416 chicks are known to have fledged from wild nests. There are several additional areas within the state in which a pair of Bald Eagles is believed to be nesting, but the nests have not yet been located.

Peregrine Falcon

The number of pairs of Peregrine Falcons increased from 15 in 2008, to 19 in 2009 and 2010, to 24 in 2011. Of these 24 pairs, 12 successfully fledged 34 chicks. This is compared to the 17 successful pairs that fledged 39 chicks in 2009, and the 10 pairs that fledged 25 chicks in 2010. The high number of chicks fledged in 2009 was probably due to very little rain in the early spring. Heavy spring rains are a common cause of egg and young chick mortality.

Reptiles and Amphibians

Northern Red-bellied Cooter; Federally Endangered

For the twenty-seventh consecutive year, efforts were made to locate Northern Red-bellied Cooter nests and place wire cages over them to prevent predation. A total of 67 nests were located and caged at Federal Pond by

contractor John Crane. Nine caged nests were dug out and destroyed by a Striped Skunk, and seven cages were mowed over by a cranberry worker and their locations lost as a result, but the nests later hatched out. The surviving 51 caged nests produced 580 hatchlings (or slightly more than 11 per nest). Eleven of these nests were moved from their original locations in and along sand roads in order to protect them from being crushed by heavy trucks and equipment. Of the hatchlings, 127 were saved for headstarting and 453 were released directly into Federal Pond.

Of a total 138 hatchlings from 2010 that had been headstarted by 22 cooperating organizations and individuals, 131 (95%) survived to be released in May 2011. Since 1984, a total of 3,263 headstarted Northern Red-bellied Cooters have been released after 9 months of headstarting.

Bog Turtle

During the 2011 field season, 40 fens were identified as potential bog turtle habitat using ortho-images and GIS technology. Of the 40 fens, two were visited during the 2011 field season. These two sites were assessed for presence of bog turtle habitat (i.e., mucky soil, appropriate vegetation). Both were categorized as having decent bog turtle habitat conditions.

Multiple turtle surveys were performed at a documented but under-surveyed bog turtle site. Three surveys were conducted, on April 29, June 9, and October 21. A total of 14 person-hours were spent surveying the site; 9 hours by experienced bog turtle surveyors. No bog turtles were found. Several surveys were performed at two good populations, on April 25, April 29, and Oct 21, 2011. A total of 20 bog turtles were found during these surveys.

Assistance was also provided to a graduate student whose thesis project is designed to determine the affects of habitat alteration at two Massachusetts bog turtle sites. Preliminary data from the research indicates that the habitat conditions and bog turtle population are both in stable condition at one site. Data also indicates that the habitat conditions and bog turtle population are both in decline at the second site. The decline in habitat quality is largely due to beaver flooding. The resulting degraded habitat conditions appear to be negatively impacting the turtle population by decreasing survivorship rates and population size.

Blanding's Turtle

NHESP staff participated in developing an application for a competitive national State Wildlife Grant that would finance the development of a regional conservation plan and development of a long-term monitoring program for the species across the northeastern range.

Wood Turtle

NHESP staff also participated in developing an application for a competitive Regional Conservation Needs Grant through the Northeast Association of Fish and Wildlife Agencies that would pay for the development of a status assessment and evaluation of conservation strategies needed for the Wood Turtle in the northeastern U.S.

Photo © Jim Harding

Blanding's Turtle hatchling.

Eastern Box Turtle

The Turtle Conservation Biologist and other staff continued to develop conservation strategies and benchmarks for the Eastern Box Turtle and to perform surveys as part of a long-term monitoring program. Over 131 hectares were surveyed during more than 340 person-hours spent during May 16 and June 24, 2011. Fifty-eight sites were surveyed three or six times for a total of 85 surveys. Sixty-nine live box turtles were observed. Mean detection probability and occupancy estimates were calculated as 0.33 and 0.82, respectively. In addition, approximately 20 transmitters were deployed at two sites. Turtles with transmitters were relocated in the summer, fall, and winter months.

Tiger Beetles

Northeastern Beach Tiger Beetle (Cicindela d. dorsalis); Federally Threatened

In 2011, 1,503 adult beetles were recorded on Martha's Vineyard, indicating a population of over 3,000 individuals. An independent contractor working for USFWS on Monomoy National Wildlife Refuge estimated a population of adult beetles greater than 800 individuals based on a peak count of 375.

Puritan Tiger Beetle (Cicindela puritan); Federally Threatened

An independent contractor for USFWS reported only 38 adult beetles and 19 larvae, which is one of the lowest population counts in recent years.

Plants

Rare Plant Inventory

During the 2011 field season, 427 rare plant records were updated, searched for, or discovered. Thirty new plant populations were found and 410 plant element occurrences were verified and mapped.

Special Projects

Protecting the Globally-imperiled and Vulnerable Plants of Massachusetts

NHESP staff completely wrapped up the USFWS-funded project aimed at the conservation of 38 globally-imperiled and vulnerable (G1–G3G4) plant taxa in Massachusetts in FY 12. Since 2006, Program botanists have implemented numerous priority conservation actions identified in USFWS Federal Recovery Plans and New England Wild Flower Society (NEWFS) Regional Conservation Plans. In addition, state conservation plans were developed and many priority conservation actions were implemented. During the 2011 field season, approximately 52 populations of globally-rare plant species were surveyed. Several surveys were conducted for records of the Bushy Rockrose (*Crocanthemum dumosum*) that dated back to the 1980s; most populations were relocated. Tissue samples of Bushy Rockrose were collected and compared genetically to its close relative, *Crocanthemum canadense*.

The following actions were accomplished for the three federally-listed plants:

Sandplain Gerardia (*Agalinis acuta*);Federally Endangered: Population censuses or sampling procedures were conducted at three locations on Martha's Vineyard and three on Cape Cod. Population numbers varied but there was no consistent trend. One restoration population was much higher than in previous years, while another was much lower, and the remaining four populations were within their normal range. A controlled burn was planned to increase the numbers of the underperforming restoration population.

Small Whorled Pogonia (*Isotria medeoloides*); Federally Threatened: Three populations were monitored, two large and one small; of the larger populations, one at a location where the trees were heavily damaged by an ice storm in December 2008, which opened up the canopy. This population is continuing to show a dramatic increase in emergence and fruit production, whereas, the other large population is holding steady. The smaller population had a slight increase in number.

Northeastern Bulrush (*Scirpus ancistrochaetus*); Federally Endangered: The previously known population in Massachusetts was not visited. *De novo* searches for this species paid off this year, with a new population located in Franklin County with 36 vigorous, mature plants.

General Habitat-management Projects

Program staff continued to conducted dormant-season control of invasive and aggressive native woody plants in a wet meadow known to support the state-threatened orchid Arethusa (*Arethusa bulbosa*). Following the 2010 late season mowing and cut-stem herbicide application to glossy buckthorn and alders, the number of flowering plants has tripled. Approximately 3.5 days were spent herbiciding invasive shrubs at this location in 2011.

The Program continued to work in cooperation with the USFWS, the DCR, and The Trustees of Reservations to control pale swallowwort within the habitats of four state-threatened plant species at Mount Tom State Reservation; treatment within a hickory-hop hornbeam woodland, an area known to be important habitat for Shining Wedgegrass (*Sphenopholis nitida*; T) and Lily-leaf Twayblade (*Liparis liliifolia*; T), has been particularly successful.

Monitoring continued at a Showy Lady's-slipper (*Cypripedium reginae*; SC) population that had been fenced to protect it from deer browse. Though the vigor of the plants seems slow to recover, they have been free of deer damage over the past 3 years. Population numbers remain the same.

Other Projects

Mile-a-minute vine (Persicaria perfoliata) is a relatively new invasive plant in Massachusetts, first documented in 2006. The Massachusetts Invasive Plant Advisory Group has designated this invader an early detection and rapid response species, a priority for management actions. NHESP, in cooperation with The Trustees of Reservations, the DCR, the Department of Agricultural Resources (DAR), and the USFWS's Silvio O. Conte National Wildlife Refuge has been controlling populations of the plant in Erving, Bridgewater, and Greenfield.

Kudzu (*Pueraria lobata*) a well-known invasive in the southern U.S., also has populations established in Massachusetts. Program Staff assisted DCR and DAR in controlling a Kudzu population in Needham.

Regulatory Review

The following table summarized the environmental reviews conducted by NHESP Review staff during FY 12.

Review Type	**Count**
Conservation & Management Permits	19
Data Releases	141
MESA Information Requests	257
Forest Cutting Plans	93
MESA Project Reviews	705
MEPA Reviews	69
Notices of Intent	687
Scientific Collection Permits	93
Other	88
Total	**2,152**

Data Management and Data Products

In FY 12, NHESP staff processed a total of 386 new rare species, natural community, and certified vernal pool records, and updated 1,082 existing records. The data processed were in the following categories:

FY 12 Categories	New Records	Updates to Existing Records
Vertebrates	76	580
Invertebrates	15	62
Plants	30	410
Natural Communities	34	24
CVPs	231	6
Total	**386**	**1,082**

Land Protection

In FY 12, the DFW spent about $6.2 million to protect 5,629 acres of land across the state, bringing the agency's total land holdings to about 195,000 acres. Several of this year's acquisitions were of particular relevance to the protection of rare species and exemplary natural communities, as noted below.

Northeast District

Blanding's Turtles, a Threatened species, have their Massachusetts stronghold in the Northeast District. In FY 12, 109 acres were protected in the District for this species, in six different acquisitions.

Southeast District

In Bridgewater, acquisition of 113 acres on Lake Nippenicket helps protect one Endangered, three Threatened, and three Special-concern species of plants and animals, including the globally rare Scarlet Bluet damselfly. In Plymouth, protection of 35 acres on Halfway Pond helps protect the federally Endangered Northern Red-bellied Cooter.

Central District

Sixty-five acres acquired in Sturbridge helps protect two vernal pools where Threatened Marbled Salamanders breed. In Winchendon, 109 acres of habitat for Long-eared Owls (Special Concern) were protected.

Valley District

Acquisition of a conservation restriction on 3,486 acres in Leverett and Shutesbury created the Paul C. Jones Working Forest, protecting most of previously unprotected 3,900-acre BioMap2 Forest Core Habitat.

Western District

Protection of the federally Endangered Bog Turtle in Berkshire County was enhanced by acquisition of about 60 acres in three separate projects.

Natural Heritage and Endangered Species Program Advisory Committee

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

The Associate Members are William Brumback, Andy Finton, Timothy Flanagan, Wayne Petersen, Mark Pokras, and Bryan Windmiller.

During FY 12, the committee held 10 scheduled meetings. All 10 meetings were held at the Westborough Field Headquarters. There is no scheduled meeting each year in the month of August and the January 2012 meeting was cancelled due to inclement weather.

Presentations from Agency Staff

DCR Land Designations: Tom O'Shea, Wildlife Assistant Director

Preliminary Assessment of Factors Influencing Riverine Fish Communities in Massachusetts; Todd Richards, DFW Fisheries Biologist

The Role of Wildlife Rehabilitators in Law Enforcement; Thomas French, Assistant Director for NHESP

The Recovery of Ravens Following Forest Regrowth in Massachusetts; Assistant Director for NHESP French

Plans for the New Field Headquarters Building; Mark Tisa, Assistant Director for Fisheries

VPRS Walk-through; Sarah Haggerty, Natural Heritage Information and Data Manager

Other Presentations to the Committee

White-tailed Deer Impacts in Northeast Forests; Tom Rawinski, Advisory Committee Member

Ecology and Environmental Issues of the Azores; Mark Mello, Advisory Committee Member

Flora Novae Angliae: Changes in the Flora of New England; William Brumback, Advisory Committee Member

Status of the Cape Cod Osprey Population; Mark Faherty, Wellfleet Bay Wildlife Sanctuary, MassAudubon

Wildlife CSI: What Birders Don't See; Mark Pokras, Advisory Committee Member

The Red Knot in Massachusetts; Brian Harrington, Manomet Center for Conservation Sciences

Whither Migrant Landbirds? A 40-year Glance; Trevor Lloyd Evans, Manomet Center for Conservation Sciences

Natural Heritage and Endangered Species Program Staff

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

Kristen Black, Ph.D., *Endangered Species Review Biologist (part year)*
Tara Boswell, *GIS Manager*
Chris Buelow, *Assistant Restoration Ecologist*
Amy Coman-Hoenig, *Endangered Species Review Assistant*
Bryan Connolly, *State Botanist*
Karen Dolan, *Finance and Projects Administrator*
Lori Erb, *Turtle Conservation Biologist*
Marea Gabriel, *Aquatic Ecologist (part-year)*
Jennifer Garrett, *Conservation Planning Botanist (part-year)*
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Tim Simmons, *Restoration Ecologist*
Patricia Swain, Ph.D., *Natural Community Ecologist*
Amanda Veinotte, *Administrative Coordinator*

INFORMATION & EDUCATION

Robert D. Deblinger
Deputy Director of Field Operations
Acting 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 also provides basic information about and science-based explanations of wildlife-related issues, in order to enhance public understanding of wildlife management and compliance with laws and regulations. Perhaps most importantly, the Section also maintains an active program of educational and promotional outreach, to instill and foster an appreciation for native wildlife in the general public.

Outreach Coordinator Marion Larson was named as the new Chief of the I&E Section during the April 2012 Fisheries and Wildlife Board meeting. Due to the lateness in the fiscal year of that appointment, I&E Chief Larson's first annual report will be issued in FY 13. The entire staff congratulates Ms. Larson on this promotion and wishes her the very best in her new position.

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 renamed the Guide to Hunting, Freshwater Fishing and Trapping in FY 11 and further expanded into a full-color, glossy-stock, 60-page booklet. In addition to a digest presentation of the fishing- and hunting-related laws and regulations, the CY 13 issue contained articles of interest to sportsmen, a guide to Massachusetts snakes, and much more. The expansion and upgrade had been underwritten by the sale of advertisements, managed by the publisher, J.F. Griffin Publishing Co., and was thus effected at no cost to the Commonwealth. Editor Peter Mirick and Senior Photographer Bill Byrne contributed a lot of their respective time to the production of the 2012 Guide, providing articles, photos, and editorial support to other staff involved with this critical project.

As noted in the Board Report, FY 12 was a year of transition for sportsmen's licenses, stamps, and permits. Handwritten licenses, stamp production (and stamp contests), and other permit production and printing came to an end with the launch of *MassFishHunt*, a new, all-electronic system for selling licenses, stamps, and permits, and, starting in CY 13, and online harvest-reporting system. All licenses, stamps, and permits are now issued electronically from license vendors or Division offices or via the license buyer's home computer.

Though no longer involved in production of licenses and stamps, the I&E Section was active in promoting the transition in several ways. To further aid the less-than-computer-literate in this transition phase, public libraries were contacted through the state library association by Outreach Coordinator Larson to ascertain their ability and interest in assisting potential license buyers. The response from librarians was positive, due in large part to the role library staff has historically played in helping citizens to download tax forms or perform other electronic transactions. After an advisory was circulated through the statewide library system, several public libraries sent notes of thanks that they were informed of the licensing system and expressed enthusiasm at assisting a new audience of potential library users. An announcement about the transition to electronic licensing and where and how to obtain a license was placed in the agency newsletter, reminders were posted in numerous areas on the agency website and and the *MassFishHunt* system was featured in the 2012 Hunting, Freshwater Fishing, and Trapping Guide. At the sportsmen's shows, Division staff continued to sell licenses via an Internet connection and answered sportsmen's questions about the new system.

Outdoor Recreation Map Distribution

Following delivery of the latest version of the Outdoor Recreation Map, in late June, maps were scheduled to be distributed to the wildlife district offices and several tourism centers throughout the summer.

Information and Outreach

Marion Larson, *Outreach Coordinator*

Responses to Public Inquiry

Agency Email Activity

A total of 1,531 legitimate agency email messages (3,071 FY 11) were processed during this fiscal year; about 50% of emails received by the agency are spam.

Media Inquiries

As per current protocol, media inquiries are routed through the EEA Press Office. The vast majority of inquiries are then passed on to DFW staff for a response. In some cases, EEA provides the information directly (or with assistance from DFW) to the media, or the inquiry is handled through the Department of Fish and Game (DFG).

In FY 12, the agency received 391 media inquiries (291 FY 11) from 115 different media outlets. Three hundred of the inquiries resulted in interviews with DFW staff;

three with DFG staff. EEA handled 80 media interviews directly, with the remaining interviewed jointly by DFW, DCR, EEA, and/or the MEP. EEA press team members often call the Outreach Coordinator for guidance on staff members to be interviewed. The vast majority of inquiries came from newspapers; 64 inquiries came from television (includes public access); 38 from radio; 4 from magazines; and 6 from online publications.

Geographically, the highest number of media inquiries came from outlets based in the Northeast District (147), followed by 64 inquiries from Valley District outlets, 53 from outlets in the Southeast District, 42 inquiries from Central District media outlets, and 11 inquiries from outlets in the Western Districts. The remaining inquiries were from New England-based, nationally-based, or unknown media outlets.

A brief breakdown of the topics of interest to media related to each DFW sections is as follows: 137 topics for Wildlife, 65 for NHESP, 62 for Fisheries, 9 for I&E, 18 for Realty, and 17 relating to Administration. In some cases, there were topics of interest for several sections.

Print Media Coverage

As in past years, DFW has utilized a newspaper clipping service to collect all articles in Massachusetts newspapers that mention the agency by name. Despite the general decline in newspaper subscriptions, this year, 2,988 news articles mentioned the agency in some form, up from 2,360 in FY 11.

When we attempt to analyze the significant spikes in interest in the DFW in this fiscal year, spikes in both the number of inquiries and the number of newspaper utilizations, we can speculate that newspapers continue to cut staff as they continue to struggle with decreased circulation numbers. This trend is due to the many more people obtaining their news from online sources. It is likely that the information provided by our newsletter not only has relevance for the newspaper's readership but is also an easy, credible, and free source of information that can be easily incorporated into news content.

MassWildlife E-newsletter

Thirteen issues of the newsletter were published this fiscal year and sent out on the agency listserv to over 6,500 email addresses.

Media Utilization of MassWildlife E-newsletter Topics

This year, 501 MassWildlife E-News and Advisory topics were published or otherwise utilized in newspapers across the state, double the 243 published in FY 11. Of the over 500, 155 articles were in papers in the Northeast District, 148 articles in Central District newspapers, 103 articles in the Southeast District, 63 articles in Conn. Valley District, 33 in Western District newspapers.

Sorting the topics by DFW section, 136 articles covered 28 Wildlife section topics , 34 I&E topics resulted in 131 published articles, 12 Fisheries subjects resulted in 95 articles, 9 NHESP topics accounted for 67 articles published, 5 topics relating to Realty were covered in 28 articles , and 56 articles covered 5 Administration topics. A wide variety of organizations, sporting clubs, municipalities, and agencies receive the MassWildlife E-news and either directly use MassWildlife information or contact the agency to write a specific story for their own newsletters or publications.

MassWildlife E-news Advisories

Advisories are sent out on occasion through the MassWildlife E-news listserv, to alert various publics to new regulations, special events, meetings to which the public is invited, etc. Some advisories cover only one subject; others contain a series of events or announcements. Some are published in coordination with other EEA agencies. Five advisories were issued to the listserv this fiscal year, including advisories on such diverse topics as a land acquisition in Newbury, wildlife habitat management site walks, the Becoming an Outdoorswoman Weekend, and Outdoors Family camping weekends, new electronic licensing system, tornado damage site walk, ban on freshwater lead sinkers and jigs, DFW participation at the Mass. Outdoor Expo and regional agricultural fairs, advisory for spring turkey hunters that online game reporting system is not online.

Website

Though time that could be devoted to creating new pages for the agency website was more limited this year than in the recent past, new website pages were added on the following subjects: advice about coyotes for adults; FAQs on the *MassFishHunt* licensing and game reporting system; invasive plants for decoration; trapper-report forms; and sources of lead-free fishing tackle. The lead-sinker-and-jig-ban pages were expanded. Updated pages included some of the Pond Maps for Central District; additions to the Coldwater Fisheries tables; Landowner Incentive Program pages and forms; and Hunter Education instructor pages and forms.

Tourism and Outdoor Recreation Outreach

Massachusetts Office of Travel & Tourism (MOTT)

Unfortunately, most tourism centers are still closed due to the poor economy. Hunting and Fishing Guides were only sent to the visitor's centers in Lancaster, Adams, and Marshfield.

Great Outdoors Blog

The purpose of the EEA Great Outdoors Blog (GOB; ***http://environment.blog.state.ma.us***) is to promote different outdoor opportunities on state properties, state outdoor-related programs, reports from staff in the field, and other outdoor-related items. Assigned individuals from DAR, DCR, DFG, and other EEA agencies submit blog posts and images to the EEA Press Team, which then creates the actual posts. The Outreach Coordinator serves as the principal DFW blogger for the GOB. Blogs submitted for posting in FY 12 included: Bass Surveys, Paddling the Squannacook River, Biking the Central Mass Rail Trail, Red-tailed Hawk on the Hunt, New Electronic License System, Moose on the Loose, and

State Record for Carp Broken. Unfortunately, there are few if any comments from the public, though viewership is reported by EEA to be among the top five of all state agency blogs.

Presentations and Professional Assistance

In the course of a year, the Outreach Coordinator represents the Division with many presentations to various audiences and training sessions, both for the public and for professionals in a number of different fields. In FY 12, she gave two lectures to a Wildlife Ethics class in the Student Veterinary Technician Program at Becker College, Leicester; spoke on careers in wildlife for UMass/Amherst Animal Science and Veterinary Technician majors and on wildlife law enforcement to Criminal Justice majors at Nichols College, Dudley; gave a workshop at the Northeast Organic Farmers Association's annual conference; lectured for the Animal Control Officers Academy, Boylston; and gave presentations on living with wildlife for the Paxton Men's Club and the Ashburnham Conservation Trust.

The Outreach Coordinator also provides active assistance to various Division functions. In FY 12, she served as the master of ceremonies for the 2011 Sport Fishing Awards at the Eastern Fishing and Outdoor Expo in Worcester. She also served as a foreman of judges at the Massachusetts Envirothon competition in May, and represented the DFW at the fall meeting of the Massachusetts State Commission on Soil, Water, and Related Resources. In addition, she assisted John Scanlon, the Forestry Project Leader, with publicity and site arrangements for a tornado damage site walk at McKinstry Brook WMA; assisted Dr. Ken Simmons onsite and with publicity efforts for an April trout stocking event with the Governor and Secretary at Jamaica Pond, Boston; assisted with a May land celebration of the Paul Jones Working Forest WCE in Leverett; assisted the Northeast District with the Nancy Begin access dedication in Newbury; and coordinated logistics for the land acquisition event at the Flat Brook WMA.

Promotion of Agency Activities

Susan Benoit, *Promotion Specialist*

A promotion campaign has been developed to showcase and translate DFW programs and ongoing land conservation and management for its current constituents, including sportsmen, naturalists, and other outdoors-people, as well as for the general public. The public presentations and displays that have been developed are designed to 1) maintain and increase the engagement and activity of current constituents by offering them valuable resources and information and (2) establish and maintain 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 principally directed into two areas: the Wildlife Districts (primarily through design, delivery and set-up, and staffing in manned displays at four regional fairs and seven trade shows) and agency publications, which are all designed and edited to provide information in the most concise, professional, and engaging manner possible.

Promotion through the Districts: Fairs and Trade Shows

The Wildlife District offices and the hatcheries that are open to the public have traditionally offered the agency's best and most frequent opportunities to proactively communicate directly with members of the public, so strong promotion support was given to these installations in FY 12. Agency presence at local and county fairs (late summer-early fall) has traditionally been provided by the Wildlife District within which the fair occurs (with some assistance from staff at the Westborough Field Headquarters), but competing demands and limitations on staff time often hamper an individual district's ability to install and man a display to provide fairgoers with opportunities to ask questions and make connections to the agency. The Promotion Specialist provides support to the wildlife districts by coordinating the displays, filling in schedule gaps, restocking literature from Westborough, answering or referring questions, and generally giving fairgoers more chances to be exposed to the mission and work of the agency and to talk to an agency representative if they wish. In FY 12, the DFW attended four fairs: the Marshfield, Spencer, Franklin County, and Topsfield fairs; and seven trade shows: the Boston Home Show, the Eastern Mass. Home and Garden Show (Marlborough), the Eastern Fishing and Outdoor Expo (Worcester), the Essex County Home Show (Danvers), the Springfield Sportsmen's Show (West Springfield), the Flower and Patio Show (Worcester), and the Boston Flower Show. The Boston Flower Show was the largest of three new exhibiting opportunities this year, giving agency staff and its "Living With Wildlife" series of handouts very favorable exposure to tens of thousands of mostly urban visitors in the garden display area at the center of the state's most popular flower show.

Information Kiosks

The large, two-sided information kiosk at the Sandwich Hatchery was updated with four new large-scale posters detailing hatchery and agency history, the life cycle of trout, and common questions and answers about the operations of the hatchery. Developed in consultation with hatchery and fisheries staff throughout the spring, the posters are printed and scheduled to be installed immediately after the end of the fiscal year.

Promotion and Outreach Events: Exhibits, Displays, and Conferences

Many 1-day events, conferences, and programs also served as promotional opportunities for the agency throughout the year. The Outreach Coordinator and the Promotion Specialist consulted with the professional

staff involved in outreach events, provided appropriate display equipment and literature for the targeted audiences, and often staffed or helped to staff the agency display at these events, including the spring conference of the Massachusetts Association of Conservation Commissioners, the Massachusetts Land Conservation Conference, the Franklin Park Zoo Earth Day event, and the Bristol Aggie Spring Expo. A sampling of the conferences and other 1-day events in which the DFW participated in FY 12 are outlined below.

August

Peter Rabbit's Animal Day, Green Briar Nature Center (Thornton Burgess Society) Sandwich: New England Cottontail conservation efforts.

Wildlife Habitat Site Walks. Dunstable Brook WMA, Tyngsborough: abandoned field reclamation and invasive plant control for rare species habitat. Leyden WMA, Leyden: reclaimed abandoned field habitat and reclaimed lowbush blueberry fields.

September

Massachusetts Outdoor Expo (The Big MOE), Sturbridge; sponsored by the Facts About Wildlife and Nature Society (FAWNS), the DFW, and others, the Big MOE is a free, volunteer-driven day of outdoor-activity stations on the grounds of the Hamilton Road and Gun Club that provides children and families with opportunities to see demonstrations and try out dozens of outdoor skills and activities. Experienced mentors and professionals provide guidance and introduce skills and techniques in a safe, family-friendly atmosphere.

Red Brook Annual Family Day Sponsored by Massachusetts and Rhode Island Council of Trout Unlimited (Southeast Wildlife District).

Northeastern Transportation and Wildlife Conference, UMass Amherst (printed materials only).

October

Public Brook Trout Habitat Restoration Event, Gulf Brook Conservation Area, Pepperell: Brook Trout Habitat Restoration event with the Town of Pepperell, and the Massachusetts Outdoor Heritage Foundation.

Wildlife Habitat Site Walk, Southwick WMA, Southwick: reclaimed shrubland habitat to support native shrubland birds.

Public Information Session on Housatonic River Remediation, Lenox Town Hall Lenox: public information session with Executive Office of Energy and Environmental Affairs (EEA), the Department of Fish and Game (DFG), and the Massachusetts Department of Environmental Protection (MassDEP).

Northeast Trackers Conference, Trustees of Reservations Doyle Conservation Center, Leominster: "BioMap 2: Biodiversity Conservation Blueprint," NHESP Information Manager Sarah Haggerty; and cottontail survey project information, Habitat Management Biologist Marianne Piche.

Joint Mass. Veterinary Medical Association/Animal Control Officers Fall Meeting, Mansfield: DFW display coordinated with the Department of Agricultural Resources.

January

Mass. Tree Warden's and Forester's Conference, Sturbridge Host Hotel, Sturbridge: Information about habitat restoration and living with wildlife.

February

The New England Botanical Club, Cambridge: Rare Plants and Natural Communities in the Housatonic Valley; Patricia Swain, DFW Natural Community Ecologist.

Wildlife Rehabilitator's Conference, Grafton, Dr. Tom French, DFW Assistant Director for the NHESP; "When and How to Report Wildlife Violations."

Merrimack River Eagle Festival, Newburyport/Amesbury.

Crossroads Anglers Fly Fishing Club, Foxborough; Ken Simmons, DFW Chief of Hatcheries, "Trout Stream Insects," aquatic invertebrates found in trout and other coldwater fish habitats.

March

Massachusetts Association of Conservation Commissioners Conference, Worcester; "Defusing Landowner/Conservation Conflicts: Protecting Habitat for Endangered Species and Other Wildlife with Conservation Design" with Eve Schluter, NHESP Review Biologist; "Managing White-tailed Deer Populations in Massachusetts" in a roundtable panel including Assistant Director for Wildlife Tom O' Shea; "Vernal Pools: Ecology, Protection, and the Latest in Data Submittal," NHESP Information Manager Haggerty, with the Vernal Pool Association; a general-information exhibit staffed by NHESP Land Protection Specialist Lynn Harper.

Massachusetts Audubon Society Birders' Meeting, Waltham; the twentieth annual Bird Conference (printed materials only: DFW *Checklist of Birds of Massachusetts* and BioMap2.)

Rehoboth Land Trust meeting, the Carpenter Museum, Rehoboth: "Hunting Access and the Impacts of Land Development," Assistant Director of Wildlife O'Shea.

Trout Stocking in Massachusetts, the Central Mass. Chapter of Trout Unlimited MassAudubon's Meadow Brook Conservation Center and Wildlife Sanctuary, Worcester: Dr. Ken Simmons, DFW Chief of Hatcheries.

Holden Snakes Alive! The White Oak Land Conservation Society, The Mayo School, Holden: DFW biologist and editor Peter Mirick; snakes of Massachusetts.

Black Bears, Fishers, and Beavers in Southeastern Massachusetts, South Shore Natural Science Center, Norwell: DFW Southeast District Supervisor Jason Zimmer with the North and South Rivers Watershed Association, the South Shore Natural Science Center, and MassAudubon's South Shore Regional Headquarters.

Western Mass. Fly Fishermen's Spring Expo, Western Massachusetts Fly Fishermen, Ludlow: DFW Angler Education display and "Big MOE" display.

Massachusetts Endangered Species Protection, North Adams: As part of the Mass. College of Liberal Arts' (MCLA) Green Living Seminar series, Jon Regosin, Environmental Review Manager, endangered species protection in Massachusetts. Podcasts posted online at www.mcla.edu/greenliving.

Eighteenth Annual Westfield River Symposium, Westfield: "Challenges and Opportunities for Migratory Fish Restoration in the Westfield River," Dr. Caleb Slater, Anadromous Fish Project Leader; "Coldwater Fish: What Do They Wish For?" Dana Ohman, Western District Aquatic Biologist.

Massachusetts Land Trust Conference, Worcester: Deer Management Panel featuring several speakers including DFFW Assistant Director O'Shea; and a staffed, general exhibit.

Living with Wildlife, Dennis Conservation Trust, Dennis: presentation by DFW Wildlife Technician Susan Ingalls.

April

Annual DCR Supervisor's Gathering; Outreach Coordinator Larson.

Tufts Veterinary School Open House, Grafton; Outreach Coordinator Larson.

Franklin Park Zoo Earth Day event; Boston: Turtles of Massachusetts posters and information; Promotion Specialist Benoit.

Bristol County Agricultural High School Spring Expo, living with wildlife, outdoor recreation, and furbearer pelts; Promotion Specialist Benoit and Wildlife Biologist Mirick.

Safety Day, Lincoln Labs, Framingham; Outreach Coordinator Larson.

May

Southeastern Mass. STEM Expo; Bridgewater State University, Bridgewater: Promotion Specialist Benoit; a series of native turtle-identification workshops for middle-school students exploring science, technology, engineering, and math.

June

Kids 4 Trees, U.S. Forest Service, Marshall Elementary School, Dorchester; Mattahunt Elementary School, Mattapan; Franklin Park, Boston: Promotion Specialist Benoit presented activities with native furbearer pelts and skulls and Wildlife Biologist Mirick presented Massachusetts snakes to a series of elementary-school children over three days in Greater Boston.

Other Promotion Efforts

Reception staff works constantly to update and organize the ever-popular Pond and WMA map wall display and the front office's DFW-literature displays, making it easier for the many hunters, anglers, hikers, and other visitors to Westborough to find the maps and other publications they want. Staff also regularly updates the bulletin boards in the main hallway with examples of current newspaper articles about the DFW and related topics. The Current Events and Opportunities and the Sport Fishing Awards boards are updated frequently throughout the year. The latter board also provides – at kids'-eye level – colorful, descriptive plates (created by Fisheries Technician Leanda Fontaine) for all the species of fish in the ever-popular fish tank nearby, which is maintained by Peter Mirick with volunteer design, consultation, and maintenance services from Glenn Krevosky of EBT Environmental Consultants, Inc.

Publications

***Massachusetts Wildlife* Magazine**

Peter Mirick, *Editor*

Bill Byrne, *Senior Photographer*

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 in recent years is extremely steady. Magazine/Publications Editor and Wildlife Biologist Peter Mirick, Senior Photographer Bill Byrne, and staff produced four issues of *Massachusetts Wildlife* (Number 3, 2011–Number 2, 2012), with Mr. Mirick soliciting and developing 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. During FY 12, to continue our long tradition of producing wildlife-identification articles that will be useful references for years to come, we had major articles on the woodpeckers of Massachusetts and the slugs of Massachusetts, both including general information on

living with these species, as well as how to positively identify them. There was also an article on a new online application for identifying wild plants in the field. Major, definitive, reference articles were also published on the subjects of muskrats and horseshoe crabs.

Focusing on a currently pressing wildlife management issue, we also published a definitive article on White Nose Syndrome in bats, a fungal disease introduced from Europe that is rapidly devastating most of the bat species that hibernate in winter. Wildlife research was the topic of a historical review article on black duck research and management in Massachusetts, and was covered again in an article on a biodiversity survey of the Housatonic River and its floodplain. The Division of Law Enforcement provided two articles this year, one reminding boaters to wear a life vest, the other on what it is like to be a coastal Law Enforcement Officer. There were also articles on the bio-control of Purple Loosestrife, Environmental Education at a Cape Cod high school, and native shrub choices for the suburban gardener. There was a short essay on neighborhood crows, and a photo essay reporting on a near-deadly duel between two adult bald eagles in Pittsfield. Finally, we also provided a feature article on Todd Matera, an extraordinary Master Angler who provided exceptional reasons to fish the Connecticut River's diverse fishery, as well as lots of tips on how to be a successful angler there.

For the Senior Photographer's part, it was a nearly 2-year-long effort to photograph all the species needed for the Woodpecker article and the specialty Slug article, each with their particular challenges. For example, the shy nesting Woodpeckers required elevated blinds and long lenses, while all the Slugs required macro and flash techniques on the many specimens collected by the author, Dr. Tom French. Many images for the Bats and White Nose Syndrome article were taken on two site visits to bat hibernacula during the height of the WNS declines. Photos for the Connecticut River fishing article were taken on two night-fishing trips using low light and flash lighting techniques at close quarters when Stripers or Walleye were caught.

Each issue requires a substantial effort by several key staff members to ensure a consistently professional DFW publication, with the photographs always a key component of the magazine's popularity with subscribers.

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 list, the Waterfowl Abstracts, etc.) were updated and reprinted. In addition, flyers and registration materials were produced for several events, including BOW workshops.

Photography

Bill Byrne, *Senior Photographer*

Several annually held, DFW-supported events were photographed by Mr. Byrne during the year. These included the Massachusetts Junior Conservation Camp awards, presented to outstanding campers at the end of their 2-week stay at the Chesterfield Scout Reservation in Chesterfield in August. In addition, Mr. Byrne captured the numerous outdoor-activity events at the fifteenth annual Big MOE in September 2011. This event as always provided diverse opportunities to photograph kids and their adult friends enjoying and learning about a great variety of outdoor sports and activities. The weather improved earlier than expected and the public turnout was enthusiastic. Photos were also taken at the 2011 Sport Fishing Awards during the Eastern Fishing and Outdoor Expo at the Worcester DCU Center in early February.

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

Special Photography Projects

For a future feature *Massachusetts Wildlife* article on Bobcats, the slow task of capturing quality images of these elusive cats continued through the winter. In addition, the progress of the nesting success of our single resident pair of Sandhill Cranes was documented. These birds produced and fledged two chicks in 2012, the first time they've accomplished this demanding feat since their nesting debut in 2007. In their first 4 years together, these inexperienced birds managed to fledge only two chicks total, one in their very first year. Their successful 2012 brood thus doubled their overall production in a single year.

Education Programs

Staff members of the I&E Section offer programs to civic, school, community, conservation, and sportsmen's groups on a variety of wildlife-related topics throughout the year, for both youth and adult audiences. Through our wildlife education programs (general wildlife, wildlife in the backyard, endangered species, tracking, living with wildlife, wildlife and habitats), public appearances at conferences, 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, *Education Coordinator*

Outreach by Education Coordinator Pam Landry focuses on groups of educators, students, and youth gatherings, but was also highlighted at other public events.

Project WILD

Twenty-two Project WILD facilitators offered 40 (3 WILD, 4 combination WILD/Aquatic WILD, 29 Growing Up WILD, and 4 cancelled due to under-enrollment) workshops that reached a total of 673 pre-K–12 educators from across the Commonwealth. Overall, facilitators contributed 835 volunteer-hours to Project WILD. Workshop participants included undergraduate and graduate college students, formal and non-formal educators, nature center natural history guides, state park interpreters, homeschooling parents, librarians, early-childhood educators, Montessori staff, family child-care workers, student conservation alliance volunteers, scout leaders, and summer camp staff.

Growing Up WILD: Exploring Nature with Young Children

This new Project WILD early-childhood (ages 3-7 years) education program is being very well received in Massachusetts. The program builds on the child's sense of wonder about nature and invites the child to explore wildlife and the natural world 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.

Twenty-one facilitators are trained to offer Growing Up WILD workshops. Early childhood educators attending Growing Up WILD workshops represented staff from Family Child Care, Child Care Centers, MA Association for the Education of Young Children (Mass AEYC), Head Start and Early Head Start, MA Department of Early Education and Care, Montessori Schools, YMCA's, State & Community Colleges, Self-Help/Community Partnership for Children, Student Conservation Alliance, and Child Care Resource & Referral Agencies.

Nineteen educators attended a Flying WILD workshop held at the Parker River National Wildlife Refuge in Newburyport that offers a whole-school approach to environmental education using birds as the focus. Targeted for the middle-school audience, though widely adaptable, Flying WILD offers practical, hands-on classroom and outdoor field-investigation experiences connecting real-world experiences in bird biology, conservation, and natural history. Project-based classroom applications, service learning, and community involvement are encouraged through the sections of the teaching guide dedicated to the planning and implementation of birding festivals.

Junior Duck Stamp Program (JDS): Connecting Children with Nature through Science and Art

Students in grades K-12 from across the Commonwealth submitted 531 (FY 11-389) pieces of artwork to this *"Conservation through the Arts"* program. Entries were received from public, private and home-schooled students; scouts; individuals; and pupils of 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 in FY 12 at the USFWS's Assabet River National Wildlife Refuge Visitor Center, Sudbury. Artwork depicting a hen mallard in pastels by Viviana Hanley, of Bishop Feehan High School, Attleboro, was selected as Best of Show and represented Massachusetts at the National Competition. Nearly 250 people (student artists, families, judges, and teachers) attended the awards ceremony, held at Notre Dame Academy, Worcester. Combinations of the top 100 pieces of art were part of a statewide traveling exhibit appearing at 11 different venues. Supporters of the JDS program include the DFW, the USFWS, the Massachusetts Chapter of Ducks Unlimited, and the Massachusetts Wildlife Federation.

Massachusetts Envirothon

The DFW's involvement in this natural resource program, which reaches over 500 urban and rural high school students annually, continues principally through the efforts of Education Coordinator Landry, who hosts teacher and student workshops, serves on the education subcommittee of the steering committee, prepares the wildlife exam, provides wildlife-related information to the Current Issue question (FY 12: Sustainable Stormwater Management), and coordinates the Wildlife station at the competition. Promotion Specialist Benoit also contributes to this important program by serving on the steering committee; coordinating the recruitment and placement of volunteers; and helping with the competition day, including organizing the morning and noontime meal offerings. The 2012 Envirothon was held at Blackstone River and Canal Heritage State Park's Riverbend Farm in Uxbridge. Aquatic Education Coordinator Jim Lagacy also contributes considerable time to the Envirothon each year by compiling the tests and administering the Aquatic station during the competition.

Recruitment and Retention

Astrid Huseby, *Hunting and Angling Recruitment and Retention Specialist*

A new position in the I&E Section was created and filled in April 2012, to direct and focus the DFW's work to increase hunting and angling license sales. The Hunting and Angling Recruitment and Retention (R&R) Specialist is charged with designing and coordinating an overall plan to promote hunting and angling in Massachusetts by enhancing current programs as well as through the development and implementation of new ones.

Happy deer-hunting family with 200-pound buck.

R&R Specialist Huseby, a Midwesterner, began her work by developing an understanding of the agency and the state. Her first week on the job consisted of traveling to each Wildlife District, meeting with the District Supervisors to discuss their areas, popular game species, the sportsmen's and -women's concerns and praises, as well as the agency's most popular existing programs. Once she established a geographical understanding of the state, Huseby started researching the agency through reading its recent Annual Reports, talking to staff at all levels, and participating in popular agency programs, such as the BOW Turkey Hunt, numerous trout stocking events, and the Envirothon.

When not in the field observing agency activities, Ms. Huseby researched the success of recruitment and retention programs on a state, regional, and national scale. She surveyed all of the other 49 states' websites and assessed each website's content and maneuverability, as well as the specific hunting and angling programs offered by that state. Ms. Huseby then contacted her counterparts in those states with easy-to-use, engaging websites and/or successful programs and conducted interviews that sought details of the various programs and candid assessments of their respective successes. Simultaneously, her comprehensive literature survey encompassed Internet searches as well as multiple articles and books on hunting, angling, recruitment, and retention. This research led to a first draft of a Hunting and Angling Recruitment and Retention report for Massachusetts, which was under review at the end of the fiscal year.

Skills Programs

Hunter Education Program*

Susan Langlois, *Administrator*

Courses were offered in six disciplines across the state in FY 12. A total of 4,630 students participated in the Hunter Education Program in FY 12. The participation level is consistent with the 5-year average of 4,522 students. The following is a summary of course offerings and statistics on student participation in FY 12.

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.

Eighty-two courses were offered. Courses were 12-18 hours in length. A total of 3,661 students participated: 3,411 successfully completed the course; 13 failed; and 237 did not complete the course. Students are asked to volunteer information on age, gender, and ethnic background on their registration forms: 571 students were minors (10-14 years old); 485 were 15-17-year-old minors, and 159 were minorities. Six hundred and ten of the participants were women.

* 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.

Bow Hunter Education

This course is designed for both the experienced and novice hunter. Course topics include the selection of equipment, safety, ethics, bow-hunting 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.

Nineteen courses were conducted. Course length ranged from 8-12 hours. A total of 511 students participated; 498 successfully completed the course, 3 failed the course and 8 did not complete the course. Seventy-seven students were 10-14 years of age and 44 were 15-17 years of age. Thirty six minorities and 63 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 276 participants. Courses were 11-13 hours in length. Two hundred and fifty-five participants successfully completed the course; 2 failed and 19 did not complete the course. Nine 10-14 year-old minors, nine 15-17-year-old minors, eighteen minorities, and twenty-one 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 prerequisite for all students under 18 years of age.

Two courses were conducted. Course length was 10 hours. Twenty-nine students participated. Twenty-eight successfully completed the course; one was incomplete. Three women, eight minorities, and two older minors (15-17 years old) attended.

Map, Compass, & Survival

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

Eight courses were conducted (one in Pittsfield and seven in Westminster). Courses range from 8-10 hours in length. A total of 143 students participated; four did not complete the course. Seven minorities, 14 minors (10-14 years old), 7 minors in the 15-17-year-old age range, and 35 women participated.

Waterfowl Identification

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

One course was held with 10 students participating and all completed the course. One women and one minor (10-14 years old) 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 12. A total of three clubs responded with three project proposals. Two project proposals from two clubs were selected for funding. The selected clubs were notified of the awards. Both clubs responded; one began work on the projects. One club declined the grant due to lack of funding and club member support. Follow-up site visits were conducted by DFW agency staff.

Angler Education Program

Jim Lagacy, *Coordinator*

Overview

The Angler Education Program is an outreach/education program within the I&E Section of the DFW. It is the main component of the Aquatic Resource Education Program. The other component is Aquatic Project WILD, which the DFW's Education Coordinator oversees. 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 in part a volunteer-run program. Each year the program gains and loses volunteer instructors, and depending on the year there can be anywhere from 100 to 150 instructors on the roster. Currently there are 121 established volunteer instructors as well as 10 Instructors-in-training (instructors that have completed the training course during this segment, or are apprenticing instructors) in 11 workshop groups. Among the 131 total instructors, 65, or 49.6%, were active during the segment. We advertise for instructors through the agency e-newsletter, the various winter sportsmen's shows, and from positive publicity by word of mouth. The Angler Education Program was on display at two sportsmen's shows during FY 12, the Eastern Fishing and Outdoor Exposition held at the DCU Center, Worcester, and the Springfield Sportsmen's Show, held at the Big E Fairgrounds in West Springfield. New instructors are trained in a 1-day Instructor Training Class, or by apprenticing within the program. All instructors fill out a volunteer application and are CORI-checked, then they are brought up by apprenticing within the program at program events.

Family Fishing Festivals and Derbies

There were a total of 22, mostly weekend family fishing events for the segment. Included here are our family fishing festivals, fishing derbies, and other weekend fishing events we assist with. In FY 12, these events ranged in size from approximately 50 people to as

many as 1,000. The fishing festivals are set up as an introduction to fishing where we make available rod and reel combinations, terminal tackle and bait at no charge, and when the manpower allows, instruction in casting, fish identification, knot tying, and baiting up. Also in this category are fishing derbies and special needs events that we support with volunteer instructors and equipment. Total estimated participation for Family Fishing Festivals and Derbies for FY 12 was approximately 5,237 people.

Basic Freshwater Fishing Courses

We are phasing out this component of our program because there has been a steady decline in participation over the past 10 years. We have decided that with the steady decline in demand for our courses and the steady increase in demand for our short programs we will focus on our fishing clinics and weekend fishing festivals. However, a few of our instructors still enjoy doing these courses, so we will continue to offer these on a very limited basis.

There were two fishing course in FY 12, both on fly tying – one on the basics and one on more advanced techniques – with approximately 27 participants.

Fishing, and Fishing-related Short Programs

Our fishing clinics, while short in duration, are a very popular program component. These clinics are generally 2 hours long, involving a short lecture on fish and fishing, followed by casting instruction, and a healthy dose of fishing. Fishing educational handouts are generally provided, and class participation is kept small enough to allow the instructors to work with participants one on one. Also in this category: trout-stocking programs, casting programs, and angler education talks typically to school or scout groups. There were a total of 53 fishing short programs during the fiscal year in various parts of our state performed by the coordinator, and numerous volunteer instructors. Approximately 1,477 people (mostly children) participated.

Tackle Loaner Program

The Angler Education Program keeps and maintains fishing equipment onsite (West Boylston) for loan to various groups throughout the state. We loaned equipment on 24 separate occasions during FY 12, with a total of 572 rod and reel combinations loaned. Our equipment was loaned to various groups/agencies including the Massachusetts DCR, U.S. Army Corp of Engineers, the USFWS, various sportsmen's clubs, scout troops, and others. Along with the rod-and-reel combinations, we also make available the necessary terminal tackle, and an assortment of fishing education materials.

Becoming an Outdoors Woman Program

Marion Larson, *Coordinator*

Becoming an Outdoorswoman (BOW) is a program designed for women ages 18 and older, providing basic outdoor skills sessions. A Steering Committee of volunteers meets each year to plan workshops for the following calendar year. Due to the retirement of I & E Chief Horwitz, Outreach Coordinator Larson assumed Coordinator responsibilities. After meetings among the Steering Committee and staff on how to proceed with the program with reduced staffing resources, the Fisheries and Wildlife Board endorsed a scaled-back schedule of Outdoorswoman Programs for the 2012 calendar year. Unfortunately, the June BOW Weekend in Becket had to be cancelled due to low enrollment for the second year in a row.

Table 1. BOW workshops held in FY 12.

Date	Title of Program	Number of Participants
August, 2011	DCR/BOW Family Camping	44 (17 families)
October	Deer Hunting Seminar	15
December	Deer Hunt	21
April 2012	Hanson Shooting Sports	39
April	Turkey Hunt Seminar	10
May	Turkey Hunt	11
June	BOW Weekend	(Cancelled)
	Total Participation	**140**

Massachusetts Junior Conservation Camp

In August 2011, the Conservation Camp held its 2-week session for the ninth year at the Chesterfield Boy Scout Reservation. Approximately 110 campers participated. 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 the information quiz that evaluates the participant's comprehension of outdoor information and skills presented during the camp session; and participated in the graduation ceremonies.

Kayaking with the BOW Program.

Information and Education Staff

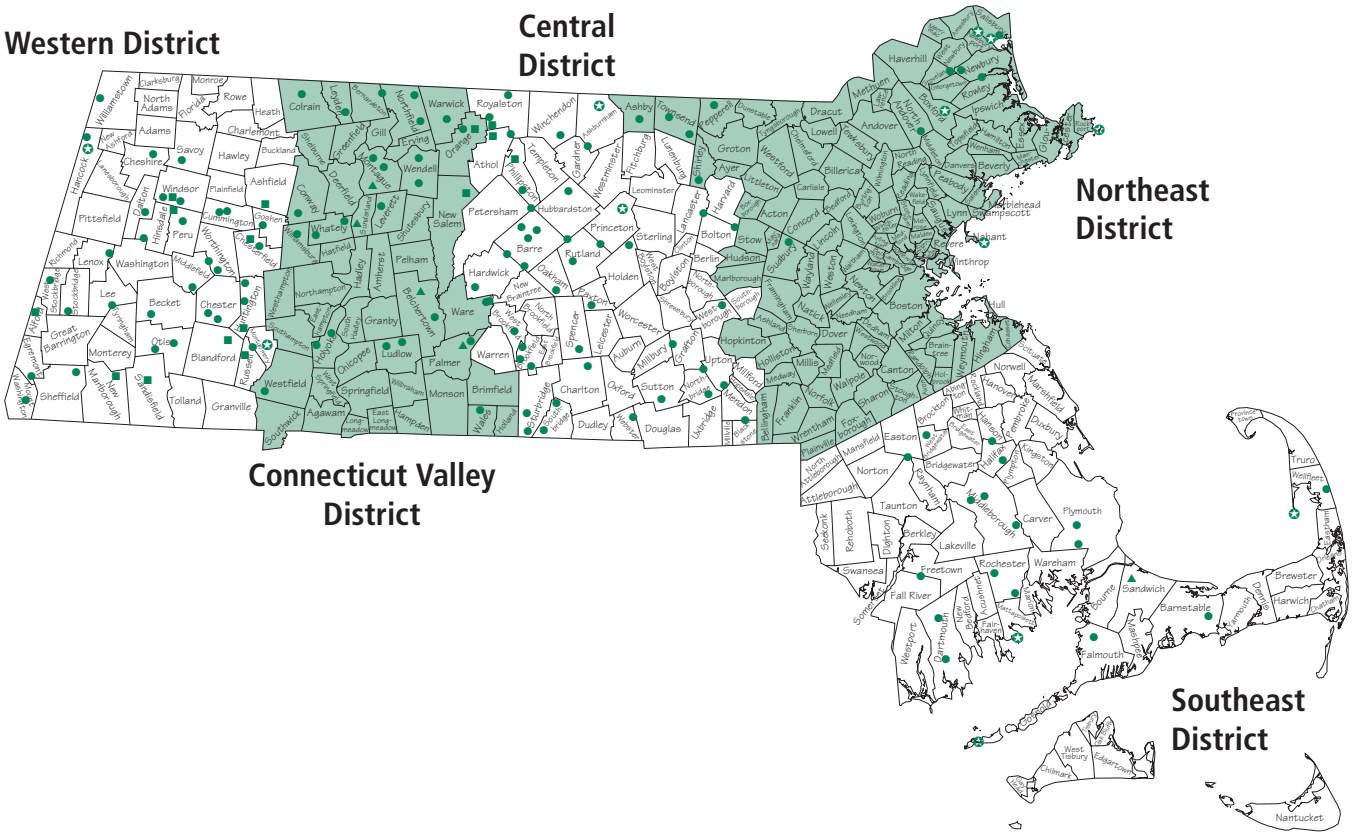
Robert D. Deblinger, *Acting Chief* (part-year)
Marion Larson, former *Information and Outreach Coordinator; Chief* (part-year)

Susan Benoit, *Promotion Specialist*
Bill Byrne, *Senior Photographer*
Jill Durand, Massachusetts Wildlife *Circulation Manager*
Suzanne Fritze, *Receptionist*
Astrid Huseby, *Hunting and Angling Recruitment and Retention Specialist* (part-year)
Jim Lagacy, *Coordinator, Aquatic Education Program*
Pam Landry, *Education Coordinator*
Susan Langlois, *Coordinator, Hunter Education Program**
Peter Mirick, *Wildlife Biologist and Publications Editor*

* 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.

DISTRICT REPORTS

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

District personnel sell hunting, fishing, and trapping licenses and stamps and selected permits; and they distribute licenses; Hunting, Freshwater Fishing and Trapping Guides (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 Massachusetts Environmental Police (MEP) to ensure public adherence to wildlife laws and regulations, and they assist the staff of the Wildlife Lands Section in prioritizing 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 were the annual Midwinter Bald Eagle Survey, a waterfowl inventory, banding/collaring of geese, and stream surveys. 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, 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 main-

taining roads and parking areas. They emplace gates, erect signs, and make other arrangements related to the protection and management of the agency's lands, buildings, and vehicles. They also build and maintain nesting boxes for wood ducks, bluebirds, and bats, and establish cooperative agreements with farmers who raise crops on DFW land. District staff members also 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

The Northeast District had no staff changes this year. Everyone was relatively healthy and there were no work accidents requiring time off.

Acton town officials continued negotiations with the Division about the possible transfer of the former District office. Over the winter, staff built steps and installed doors to the conference room at the Ayer office, and demolished a small closet to widen a hallway.

The District Supervisor's land acquisition activities included reviewing parcels for their ecological and recreational significance on properties in Townsend, Shirley, Pepperell, and Ashby. Title work meetings and site visits for the "Big 3" – Martin Burns WMA, Crane Pond WMA, and William Forward WMA – continued into a second year.

A special land event was held at the Scotland Road parcel that was added to Martin Burns WMA. It was attended by officials from Newbury, Parker River Clean Water Association, and by state fish and wildlife officials. This parcel provides forestry access into the northern half of the 1,600-acre property.

Two requests to cut trees on DFW land for "safety" reasons were denied, and one leaning tree was removed by DFW because it threatened a house. Staff delineated wetlands at Burnshirt Dam for a future permit filing.

District Supervisor Huckery attended Mt.Watatic Reservation meetings with management partners, Parker River National Wildlife Refuge Comprehensive Conservation Planning meetings, Essex County and Norfolk County league meetings, and DFW Senior Staff and District Managers' meetings. Comments were provided on the Camp Curtis Guild INRMP, and Town of Pepperell management requests regarding the Pepperell Prudence Wright Overlook. Huckery held partnership meetings, handled press, started permitting, and responded to letters and concerns related to the proposed removal of Turner Dam in Pepperell. DFW met with Townsend conservationists, local police, and the MEP to crack down on the illegal dirt bike and vehicle use at the Adams gravel pit at the Squannacook River WMA. We promptly responded to MEP requests to mark the boundaries and put up "No Motorized Vehicle" signs.

Two Tufts Wildlife Clinic workshops, on necropsy techniques and drawing turtle blood, were attended by staff. The Georgetown Recreational Path interim trail (rail trail) proposal was reviewed by staff with comments to town officials, Mass DOT, and National Grid.

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. Due to the mild winter, wood duck box checks did not occur because there wasn't enough ice to support the weight of a Wildlife Technician (204 checked FY 11). Throughout the month of June staff scouted and banded Canada geese.

The third year of black duck banding was heavily impacted by mild January and February weather at sites in Essex County, including the Parker River National Wildlife Refuge. Ice and snow cover is needed because it limits natural foraging opportunities for ducks thereby forcing them to baited traps. As a result, only 20 black ducks were banded (114 FY 11).

Twelve deer check stations operated within the District, with Merrimac Bait & Tackle added and the Martin Burns WMA installation dropped. Five hunters (6 FY 11) took part in the paraplegic hunt held at Fort Devens, at which 1 deer (4 FY 11) was taken. The District tagged 13 coyotes (8 FY 11), 13 fisher (52 FY 11), 2 gray fox (3 FY 11), 6 red fox (2 FY 11), 3 mink (1 FY 11), 1 bobcat (0 FY 11), and 280 beaver (141 FY 11).

Fisheries

During the summer, staff conducted stream surveys on 42 brooks (36 FY 11) in nine major watersheds. There were no responses recorded for fish kills. A special celebration was held on Gulf Brook in Pepperell where two culverts were upgraded to promote passage of native brook trout.

Bald Eagle chicks about to be banded.

Natural Heritage and Endangered Species Program

Northeast District biologists, with assistance from Franklin Pierce intern Jen Jones, are participating in a regional Blanding's turtle study at four sites. NHESP Ecologist Marea Gabriel and Pat Huckery conducted a freshwater mussel survey on a segment of the Nissitissit River to update old state-listed species records. Springtime herpetological assessments at Martin Burns WMA were conducted by seniors from Masconomet High School for the third year. The students found a subadult wood turtle (*Glyptemys insculpta*) to document reproduction. Surveys for state-listed blue-spotted salamanders (*Ambystom laterale*) and marbled salamanders (*A. opacum*) were conducted at Martin Burns WMA, Crane Pond WMA, and Townsend Hill WMA.

Bald eagles nested in Tynsgborough, Amesbury, Methuen, and Haverhill. Two chicks were banded from the Amesbury nest, and both successfully fledged. The Tyngsborough chicks fell from the nest, were rehabilitated, and released back at the nest site. The Shirley bald eagle pair moved to a different nest tree in Lunenburg. One chick was euthanized due to a bad infection. DFW attended the Bald Eagle Festival in Newburyport and conducted the midwinter bald eagle survey along the Merrimack River.

Nine peregrine falcon nests were tracked, with Northeast District staff assisting chick banding at the Lowell and Lawrence nests. Three piping plover (*Charadrius melodus*) nests were located and roped off at two Gloucester beaches.

Enhancement of Outdoor Recreation

Staff released 60 (288 FY 11) salmon in four ponds throughout the District. Combined spring and fall trout numbered 121,800. In the fall, anglers saw12,500 12-inch rainbows released into two rivers and 18 lakes and ponds, followed in the spring by109,300 rainbow, brown, and brook trout in 42 ponds, 7 major rivers, and 66 brooks and minor rivers.

Five thousand pheasants were released into five WMAs and 11 open covers. No one applied for a Special Pheasant Stocking Permit at Martin Burns WMA. The Danvers Fish and Game Club ran a successful Youth Pheasant Hunt at Martin Burns WMA, with 9 (12 FY 11) youngsters participating, and Walpole Rod and Gun held their hunt at Charles River WMA. The District Supervisor conducted the Youth Hunt Seminar sponsored by the Danvers Fish and Game Club. Controlled pheasant hunts were held at Martin Burns WMA and a controlled waterfowl hunt was offered at the Delaney WMA.

The popular pheasant hunting areas at Kent's Island and Corn Island areas of William Forward WMA in Rowley and Newbury had a total of 680 birds released. Due to the poor condition of the Kent's Island Bridge, birds were carried onto the island using a DFW off-highway vehicle. A coordinated DFW-Division of Ecological Restoration project is afoot to replace the Kent's Island Bridge and restore water flow to the upper salt marsh.

Twelve (25 FY 11) sportsmen applied for waterfowl permits at the Delaney WMA. Forty-two (20 FY 11) field-trial permits, no camping permits (1 FY 11), and 357 (285 FY 11) range permits were issued. The U.S. Coast Guard and Peabody Police Department used the

shooting range at Martin Burns WMA for training purposes, and helped with clean-up. Dog field trials are held at Delaney WMA and William Forward WMA, with five clubs competing for access, as well as one horse and hound club.

The Nancy Begin Salt Marsh Overlook and a six-car parking lot were created in honor of Nancy's many years of dedicated service to wildlife conservation and the Fisheries and Wildlife Board. Fencing was donated by the Essex County League of Sportsmen, and a commemorative plaque was donated by the Gun Owners' Action League (G.O.A.L.). A viewshed was opened by NEWD staff into the salt marsh, and an information kiosk installed.

Road and field maintenance occurred at Crane Pond WMA, Martin Burns WMA, and William Forward WMA using the Terex PT100 with forestry package. Forest openings were created at Crane Pond WMA for safer pheasant hunting.

The District Supervisor worked with the Townsend Conservation Commission to allow judicious trimming of down woody debris in the Squannacook River WMA to benefit canoeists.

Five parcels of land were acquired within the Townsend Hill WMA, which brings the property to over 450 acres. Farmer Dionne's pasture and native brook trout stream were added to the Ashby WMA. Go sit under the big oak in the back pasture on a late summer afternoon and watch the swarming dragonflies and ballooning spiderlings. Mr. Proctor's oak and pine forest was added to the Squannacook River WMA after timber was harvested to create wildlife habitats.

After more than 2 years of effort, through legislative passage of Chapter 219 of the Acts of 2012, the Sheridan trespass case is nearing its end. The 2-acre Willets trespass on the Nashua River Access Area was almost resolved, with over 20 horses, five sheds, and associated fencing removed; parts of one shed and barn remain to be addressed, and snow fencing was installed to keep horses from creeping back over the line. During routine boundary work on a DFW right-of-way to the Nissitissit River, six trespasses were found, ranging from fencing and lawn to a section of an old cinderblock building, and four more trespasses were found off Scott Road near the Squannicook River WMA. One trespass at Delaney WMA was resolved.

Boundary work was conducted at the Squannacook River WMA (J&A Realty Scott Road, St. Germain Turnpike Road), Marin Burns WMA (Wayside Avenue and Fruit Street side, Morris CR), and the Throne in Groton.

Outreach and Education

A great deal of wildlife education happens every day in the District during each wildlife-conflict call. The Northeast District public is naive about wildlife, so the staff guides them to a better understanding of each animal through listening and conversation, teaching people how to help themselves, directing people to the DFW website for our "Living with Wildlife" series of educational materials, or connecting them to appropriate local authorities that can assist them further.

People convened at Martin Burns WMA for a site visit and lecture by John Scanlon about the shrub-land and forest management that has occurred at this property over the last 5 years for the benefit of wildlife.

Staff contributed to a new DFW parking area phone app for smart phones. Masconomet Regional High School used the garage at Martin Burns WMA to conduct a dissection of a deer for anatomy class.

The DFW Topsfield Fair booth was revamped to accommodate a new promotion display, which was well-received by the public. Coordination, scheduling, and booth coverage for the Topsfield Fair were handled by District personnel with capable booth assistance from Westborough staff. Staff also worked the Worcester Sportsmen Show and contributed their services to the annual Massachusetts Outdoor Exhibition ("The Big MOE"). Five talks were given by the District Supervisor.

Technical Assistance

Staff fielded phone calls from the general public on everything from bats in bedrooms to misbehaving turkeys in Gloucester. Many hours were spent patiently listening to and helping the public with questions about wildlife they see around their houses and yards and in woodlands.

Highlights include the District Supervisor investigating a beaver dam blow-out in Ayer that washed out a downstream road and resulted in over 10 acres of habitat destruction. Great blue herons voraciously fed upon the stranded fish. DFW coordinated with the MEP and town officials to determine the cause of the dam breach. There was no evidence of foul play, and the beavers immediately started rebuilding the dam. A coyote bit a girl in Haverhill who thought it was a dog. DFW and MEP investigated finding dropped apples in the yard and many other sources of food. This was reported to the Haverhill Animal Control Officer for follow-up with the neighborhood. At the same time, a coyote was shot and killed by Methuen Police believing it to be the animal that bit the girl. A black bear with cubs paid a visit to the Fairhaven Nursing Home in Lowell, where the residents tossed them jelly beans from a second-story window. The wildlife-friendly residents were warned about the consequences of feeding bears, and the bears were not heard from again.

Southeast Wildlife District

Administration

There were no changes in District personnel in FY 12. District staff successfully completed mandatory online sexual harassment and workplace violence training courses in FY 12 as required by Human Resources in accordance with state and federal regulations.

Several capital improvement projects and Off-Highway Vehicle (OHV) Fund projects were completed in FY 12, including electrical, heating, and lighting upgrades at the District HQ and Burrage Pond WMA maintenance barn; removal and disposal of accumulated hazardous materials and tires at the District HQ; acquisition of new steel gates for use on Division lands; acquisition of a state-of-the-art remote cellular camera surveillance system for use in preventing illegal OHV use and dumping on Division lands; and the installation of boulders to block illegal vehicular use at the Frances A. Crane WMA. The Division also completed the acquisition of a new John Deere tractor with several specialized attachments that has already proven invaluable in our management of WMAs in the District and, in particular, the special management challenges we face on WMAs containing significant former cranberry bog acreage.

The District Supervisor continued to meet with representatives from the Town of Barnstable relative to their request to site a bike path through the Division's Hyannis Ponds WMA. This process has been ongoing for close to 3 years now, but it would appear that an agreement in principle is very close. A formal proposal in compliance with Division policies and regulations is expected from the town at some point in late summer or early fall 2012 that would then be presented to the Lands Committee and Fisheries and Wildlife Board. The District also played a large role in coordinating and hosting a major event relative to the Red Brook restoration project, where many local politicians and lead conservationists were in attendance.

Lastly, and likely for the final time, given the success and continued development of our fully online licensing system (*MassFishHunt*), the District staff cooperated with the Department of Conservation and Recreation and the MEP to provide sportsmen with the opportunity to purchase surplus antlerless deer permits over the counter at the Myles Standish State Forest HQ in Carver. This annual "event" has become increasingly difficult to manage due to the increasing demand for WMZ 11 permits through the lottery drawing and, consequently, the lower number of permits available for over-the-counter sales. The line of sportsmen waiting to purchase permits this year grew to roughly 500 people at its peak and we could not have managed the situation had DCR not provided us with the use of their facility and the assistance of both DCR Rangers and MEP officers. With the advent of our new and improved online licensing system, we anticipate this process to run much more smoothly in FY 13 and to provide more options and better equity to the sportsmen looking to obtain surplus permits.

Research and Conservation

Wildlife

District staff completed breeding surveys for ruffed grouse, mourning dove, woodcock, and various waterfowl species as assigned by Wildlife Section biologists. District staff also conducted annual winter American black duck trapping and banding, successfully banding a total of 284 ducks (556 FY 11) throughout Plymouth, Bristol, and Barnstable counties. Because of the mild winter, ducks were less concentrated and had more available food resources, resulting in a significantly less productive trapping/banding season. Annual Canada goose banding was also completed. The District also assisted Westborough staff in completing duck banding at our West Meadows WMA and at New Bedford Reservoir using the DFW's airboat. Nesting boxes for wood ducks and eastern bluebirds were monitored and maintained on DFW lands and other public and private lands.

The District Supervisor, working with the DFW Deer and Moose Project Leader, reviewed a number of deer-damage complaints throughout the District. Several site visits were conducted to assess the validity of the damage claims and most complainants were issued letters summarizing their legal options under M.G.L., Ch. 131, sec. 37. The majority of deer-damage complaints in the District come from coastal towns in Plymouth and Bristol counties. District staff also assisted Westborough biologists in conducting annual commercial deer farm site inspections.

The Red Brook and Burrage Pond WMA restoration projects continued to move forward this fiscal year. The Division was granted a 1-year extension for the Burrage Pond project, to allow time to get past some

New covered storage facility at the Southeast Wildlife District office.

local permitting hurdles. In the meantime, District staff continued to maintain water control structures on the WMA and manage water levels to enhance emergent wetland habitats on the property. Invasive plant control was completed at Burrage Pond this year, with particular emphasis placed on limiting the few scattered patches of Phragmites and Japanese knotweed before they spread. The Red Brook project made some significant advances in FY 12, with Princeton Hydrological being contracted by DFW and the Division of Ecological Restoration (DER) to complete both the initial and final project design. The initial project design was completed in summer 2012 and the final project design is expected in September 2012.

The District Wildlife Biologist assisted in the rescue and rehabilitation of an injured osprey in July. District staff conducted biological checking of deer, turkey, and furbearers throughout the various seasons. The District Supervisor investigated a coyote attack on a young girl in Weymouth in August, visiting with the family at the hospital and working with local police and the MEP to attempt to locate and dispatch the animal. Based on the information obtained from the parties involved and local residents and witnesses, it was suspected that the animal was rabid. District staff also freed a yearling male white-tailed deer that was stuck in a fence in a family's backyard in Kingston and assisted with the recovery of an orphaned deer fawn in Hingham and its transfer to a rehabilitator.

The District Supervisor responded to beaver complaints from a cranberry grower in Marshfield that was having his cranberry operation jeopardized by the dam-building and feeding activities of the beavers in his reservoir. It was determined that there was a minimum of two mature adults and four yearling beavers at the site, with an expected additional litter on the way. The landowner was provided with information on all applicable laws and regulations and decided to exercise his rights under M.G.L. Ch. 132, sec. 37 and remove the beavers while they were in the act of causing damage to his crops. He successfully removed a total of eight beavers from the area and indicated that he left a few beavers to remain in the area because he enjoyed their presence and believed they "deserved a place to live," so long as they did not pose a threat to his livelihood.

The most noteworthy wildlife issue that arose in the District in FY 12 was the travels and activities of a young male black bear that had first arrived in southeastern Massachusetts (in Attleboro) back in June of 2011. The bear spent the majority of the year, from June 2011 through mid-May 2012, primarily in the Rochester-Middleboro area in southern Plymouth County. In mid-May, the bear began an almost unbelievable eastward journey into eastern Plymouth and eventually to Cape Cod, where he was believed to have swum the Cape Cod Canal. The bear became an instant media sensation and drew intense public interest, resulting in a potentially dangerous situation for both the animal and the general public. District staff fielded many, many phone calls, responded to countless media inquiries and provided support and technical assistance to the residents and local law enforcement on the Cape. Working closely with the MEP, District staff eventually assisted with the capture of the bear and relocation to occupied bear habitat in central Massachusetts, only to have the same bear show up over 40 miles east of the initial release point in Brookline, a suburb of Boston. The bear was again captured and relocated further west in the state, in an area with a high bear density in the hope that he would settle in. Multiple district staff put in some very long and stressful hours as part of this ordeal.

Fisheries

Stream surveys, using electro-fishing and other techniques, were completed in the towns of Rehoboth, Somerset, Berkley, Kingston, Marshfield, Duxbury, Hingham, and Westport, as well as several locations on the island of Martha's Vineyard. A number of pond surveys and pond habitat profiles were also completed in FY 12, including Ashumet Pond, Santuit Pond, Monponsett Pond, and Little and Long ponds in Plymouth. The District also provided technical advice and support to the Marshfield Rod and Gun Club, which was considering various options for managing the pond on its grounds. Fish kills were investigated in Shubael Pond and Robbins Pond and a fish stranding in the White Island Pond fish ladder was also investigated.

The ongoing salter brook trout research and management in southeastern Massachusetts continued this fiscal year with a variety of new developments at our study sites. District staff provided sampling support to University of Massachusetts graduate student Erin Snook in her acoustic tagging study of salter brook trout in Red Brook and Buttermilk Bay. Steve Hurley, Fisheries Manager, continued to lead this effort and spent countless hours coordinating research and management efforts, as well as providing technical assistance and giving educational talks pertaining to wild brook trout to a variety of organizations and agencies. Solar panels were purchased through grant funding and partner donations and installed by District staff to power the ongoing operation of several passive integrated transponder (PIT) tag antennae used in this research, with a goal to eventually convert all of them to this technology to save on staff time dedicated to changing heavy batteries. The Red Brook restoration project witnessed some significant progress this fiscal year with the development and presentation of a conceptual design plan by Princeton Hydro. A second contract was awarded to this firm, following a competitive bid process, to bring the project through to a final design, expected in fall 2012. The District was contacted by the producers of the ABC series *Ocean Mysteries* late in the fiscal year to plan to film a segment of the salter brook trout research, management, and ongoing restoration efforts at Red Brook, planned for late summer 2012.

Steve Hurley also assisted with the Trout Unlimited's national salter brook trout survey, attended a river

herring workshop, and meetings associated with the management of Santuit Pond (dam repair issues) and the Coonameesset River. Steve Hurley and Aaron Best, Wildlife Technician, continued their required involvement in the trial relative to the theft of the Division's PIT reader equipment at the TTOR Lyman Reserve. The trial has been continued two times, with the next date set for October 30, 2012.

Natural Heritage and Endangered Species Program

The District cooperated with the Natural Heritage & Endangered Species Program (NHESP) staff on a variety of projects this fiscal year. District staff focused a great deal of time and resources on assisting with the tern project, regularly moving and maintaining boats and equipment, being involved in the management team and project review team for Penikese Island Sanctuary and conducting vegetation control and prescribed fires on Penikese Island and Ram Island. District staff also designed, built, and transported a new storage building/shelter and platform for tern project personnel and equipment on Ram Island to replace a rotted old structure.

The District coordinated with NHESP and the Massachusetts Audubon Society to monitor and protect piping plover habitat at our Fox Island WMA in Wellfleet. District staff assisted with the establishment of symbolic fencing and the monitoring of a piping plover nest that was established within the symbolic fencing area. District staff was prepared to monitor the chicks and provide vehicular escorts to fishermen operating shellfish beds on the nearby flats, but the nesting attempt failed.

District staff participated in the annual midwinter bald eagle census, covering portions of Middleboro, Lakeville, Fall River, Westport, and Dartmouth. District staff also monitored a total of four known eagle nest sites, including three new or relocated nests. The Pocksha Pond pair (presumably) relocated to a new tree approximately 1,000 feet down the shoreline of the pond. A new nest was identified in Assawompsett Pond, which could be occupied by the former Great Quittacas Pond pair that used to nest on Anuxanon Island. Another new nest was identified on the island in Halfway Pond in Plymouth. Lastly, the North Watuppa Reservoir nest in Fall River was still active. District staff successfully climbed all four nests in late May and banded a total of seven healthy eaglets (North Watuppa 4; Halfway 2; Pocksha 1; Assawompsett 1).

District staff also monitored our four known peregrine nesting sites, the Braga Bridge in Fall River, an old mill building in New Bedford, the Verizon building tower in Brockton, and the Sagamore Bridge. The Braga Bridge pair successfully utilized the nesting box placed under the bridge by District staff while the other pairs utilized natural nesting cavities/areas on man-made structures. All four pairs successfully raised young; however, due to access constraints we were not able to visit the Sagamore nest. District staff worked with Assistant Director for NHESP Tom French to band chicks at the other three nests. The New Bedford Fire Department again greatly assisted the Division by providing the use of a ladder truck to access the New Bedford nest and Verizon personnel were exceptionally cooperative in allowing us access to the nest on their tower.

District staff again assisted in the planning and operation of the annual Northern Red-bellied Cooter release event at the Burrage Pond WMA in Hanson and Halifax. District staff cleared parking areas, repaired the access roadways, installed signage, and assisted in all aspects of the event, which drew well over 100 people. Deb Silva, District Clerk, assisted NHESP by routinely visiting both the Ocean Spray and Decas Cranberries processing plants to take possession of, identify and catalog, and then release offsite the turtles and frogs rescued from the processing equipment, some of which were state-listed rare species.

Enhancement of Outdoor Recreation

District staff stocked its fall 2011 allocation of trout into 25 ponds and stocked its spring 2012 allocation of trout into 46 ponds and 35 streams.

The staff provided birds for another safe and successful upland game bird hunting season, stocking just over 7,900 pheasant and 3,500 quail on six WMAs and over 12 open covers throughout the District. Eight-week-old pheasants were again delivered to the Samoset Rod and Gun Club and the Shawme Fish and Game Club as part of the DFW's Club Bird Program. The District also provided pheasants to the Carver Sportsmen's Club and the Falmouth Rod and Gun Club for use in the DFW's Young Adult Pheasant Hunt, and assisted with the operation of the hunts at both clubs. In an effort to improve operations and the quality of stocked quail, the District technicians designed and built a new 75-foot-long flight pen and attached holding/boxing shelter to house the District's allocation of quail. The pen can be taken down each year and stored inside to help maintain its condition. The new pen proved invaluable to our quail stocking operation and greatly increased our efficiency. Feeders and waterers were obtained from old game farm equipment at the Division's former Ayer Game Farm. The District received a number of compliments on the quality of the birds this year, which is due at least in part to the new holding conditions offered in the flight pen as opposed to our old, outdated brooder pens.

The District met with the National Park Service at the Cape Cod National Seashore (CCNS) regarding hunting opportunities on the seashore, planning for the pheasant season and in anticipation of the first-ever spring turkey hunt on the seashore. The District stocked its annual allocation of pheasant on the CCNS and assisted with the development and implementation of the spring turkey hunt, which provided many Cape Cod and visiting sportsmen with the opportunity to hunt on the seashore.

The District operated and managed controlled-access hunting opportunities for white-tailed deer, wild turkey, and coyotes on the Massachusetts Military Reservation

"The Cape Cod Bear," safely tranquilized and ready for transport.

(MMR). These efforts provided hundreds of sportsmen with the opportunity to hunt on roughly 9,500 acres of open territory on the MMR. A total of 54 deer and 5 turkeys were taken during the regular 2011 deer seasons and 2012 spring turkey controlled hunts on the MMR, respectively. Further, the District worked closely with base personnel and many volunteers from the Barnstable County League of Sportsmen and the Otis Fish and Game Club to offer a new area for the Division's annual paraplegic deer hunt. Four paraplegic sportsmen participated in the hunt and one deer was taken, which happened to be the young woman's first deer ever. The District also worked with MMR staff to again provide a youth turkey hunting program at the MMR on April 28, 2012.

The District Supervisor issued permits for a total of 22 special winter game bird hunts, three at the Erwin Wilder WMA and 19 at the Frances A. Crane WMA. A total of 30 pheasant and 554 bobwhite quail were stocked during these hunts. The District Supervisor met with several Labrador retriever clubs to identify a WMA where retriever field trials and hunt tests could be held. The clubs were introduced to the Burrage Pond WMA and decided that the property more than met their training needs and received a permit from the Division to hold their first hunt test/training day in June. Additionally, five hunting dog field trials were permitted and 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 controlled field competitions on our WMAs.

The District completed a wide variety of habitat improvement projects on our WMAs designed to concurrently improve habitat conditions, particularly for early-successional species, and to provide good hunting access and opportunity for upland game birds and small game. Late summer mowing continued to be employed at Frances A. Crane WMA and Burrage Pond WMA to maintain and/or create early-successional habitats and improve hunter access. Several fields at Crane were plowed and planted to native ecotype grasses this fiscal year. District staff assisted in the completion of several prescribed fires in FY 12 to enhance or restore wildlife habitat on DFW lands and other public shooting grounds, including Frances A. Crane WMA and the Myles Standish State Forest, as well as the Penikese Island Wildlife Sanctuary.

Signage and gates were installed or maintained at many WMAs this fiscal year. WMA signs were installed, refurbished, or completely replaced at Red Brook WMA, Black Brook WMA, Frances A. Crane WMA, Halfway Pond WMA, Rocky Gutter WMA, Hockomock Swamp WMA, West Meadows WMA, Copicut WMA, Church Homestead WMA, Mashpee Pine Barrens WMA, and Hyannis Ponds WMA. Gates were repaired and maintained at Rocky Gutter WMA, Frances A. Crane WMA, and Cooks Pond WMA. Significant roadway and parking lot repairs and maintenance were completed at Burrage Pond WMA, the Popponesset Beach Fisherman's Access, and Old Sandwich Game Farm WMA. Boundary marking is ongoing on many WMAs throughout the District with Dan Fortier, Wildlife Technician, completing a great deal

of background research and data collection to support this effort. Major roadway repairs were also completed at the Burrage Pond and Old Sandwich Game Farm WMAs.

Outreach and Education

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

Southeast 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, Falmouth Rod and Gun Club's Youth Day, and Standish Sportsmen's Association Show. The District assisted in manning the new permanent display at the Marshfield Fair, which was again very popular and provided a unique opportunity for the Division to interact with and educate members of the general public. The display furs and a mount of a fisher were particularly effective tools to draw people in for discussion and questions at the Fair.

Debra Silva, District Clerk, prepared wonderful illustrations that were featured in several articles in the Division's *Massachusetts Wildlife* magazine. Her illustrations appeared in both a woodpecker article and a horseshoe crab article in Issue No.1, 2012 and a native slug article in Issue No. 2, 2012. The Fisheries Manager gave presentations on the brook trout restoration and research activities to the Sea Run Brook Trout Coalition and assisted with several Semester in Environmental Studies programs and field activities.

The District Supervisor gave a presentation on furbearers making a comeback in Massachusetts, beavers, black bears, and fisher in particular, at the South Shore Natural Science Center, and issued a License Agreement to Zoo New England to harvest native wetlands plants at Burrage Pond WMA to support the creation of a breeding and educational exhibit for Whooping and Sandhill cranes at the Stone Zoo.

Technical Assistance

District staff assisted other DFW 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.

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 MEP 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. Others dealt with suburban wildlife and conflicts with humans and with other public health and safety concerns related to fish and wildlife, particularly nuisance or damage complaints and reports of sick or injured wildlife. The entire staff assisted with the many calls received, primarily in the spring and early summer, pertaining to coyotes, foxes, fisher, Canada geese, and other common suburban species. The "Living with Wildlife" publication series and educational messages were provided to many individuals and organizations to assist in dealing with these human-wildlife conflicts.

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

District staff provided technical and field assistance to the Town of Westport Board of Selectmen and Ponds Committee in evaluating the habitat conditions and potential solutions for sediment and nutrient management in the Westport River watershed. The District Supervisor attended meetings with the Department of Conservation and Recreation (DCR) and provided comments during the Resource Management Plan process associated with the West Island Reservation in Fairhaven. He assisted DCR and the MEP with a problem-raccoon issue on Spectacle Island in Boston Harbor and provided technical advice and gave a presentation in support of a group in the Town of Scituate looking to educate residents on the importance of hunting, as well as hunting laws and regulations, following a local effort to potentially ban hunting on conservation lands. The result of that effort was the installation of informational signage on the Town's conservation lands and the continuation of hunting access on those lands.

The District provided technical advice and created a draft management plan for the Town of Duxbury Crowell Conservation Area, which contains several former cranberry bogs that were restored through the NRSC Wetlands Reserve Program. The District Supervisor attended monthly meetings of the Barnstable, Bristol, and Plymouth county leagues of sportsmen, providing them with information on DFW activities and answering fish and wildlife questions.

Central Wildlife District

Administration

District Wildlife Biologist Bridgett McAlice returned to work on December 5, 2011, after 6 months of family leave. Along with their counterparts across the agency, District Technicians were upgraded from Technician II to Technician III in the latter portion of the fiscal year.

Hunting, fishing, and trapping licenses and antlerless deer, bear, and turkey permits were sold at the District headquarters. The District worked to help license buyers transition to the all-electronic system instituted in 2012; and 2012 licenses and guides were distributed to central Massachusetts vendors; 2011 licenses were also collected and pre-audited. District personnel oversaw the operation of 14 deer check stations, 15 turkey check stations, 12 coyote check stations and one black bear check station.

Paved areas at the District office were seal-coated by a contractor, and two heating oil tanks were replaced with a single, double-walled unit. A surplus dump truck was acquired from the state's Operational Services Division (OSD) for use as a plow vehicle at the District. The District moved a dead pickup from the Sunderland Hatchery to the OSD lot in Westborough. A 1997 Chevy Blazer was turned in for a 2012 Ford F-150 pickup.

Sixteen WMAs were maintained with efforts directed at fields, roads, parking lots, gates, dumping, and ATV deterrents. Assessment of tornado damage was done by Forestry Project Leader John Scanlon at the McKinstry Brook WMA. A clean-up of roadside debris was held at the 19th Hill WMA in conjunction with the Mt. Grace Land Trust. Mass. DOT hosted planning meetings for bridge reconstruction over the Quaboag River at the Quaboag WMA. Improvements to river access were discussed.

Multiple trespass, motor vehicle, and illegal cutting of trees incidents were investigated on District WMAs. An illegal snowmobile bridge was identified and removed from the High Ridge WMA. The responsible party was given a verbal warning by the MEP. A trespass of fencing and pasture was identified at the Wolf Swamp WMA. The abutter was notified by certified letter and given 90 days to remove his property. A trespass of landscaping and personal property was revisited at the Leadmine WMA access to Leadmine Pond. The abutter was notified by certified letter and given 90 days to remove its property. The OFBA is assisting with improvements to the site for fishing and the boundaries of the access are being surveyed and marked. Permitting and preliminary work to repair the Burnshirt River Dam (Wine Brook) at the Phillipston WMA commenced in cooperation with the town and consulting engineers from the OFBA and Tighe and Bond. Dam assessments were conducted by the OFBA on five dams at the Merrill Ponds WMA. Multiple set brush fires were put out by the town of Millbury at the Deering WMA.

Permitting for road repairs at the Little Chauncy Pond fisherman's access were initiated in cooperation with the Northborough Town Engineer and Conservation Commission. A house and multiple outbuildings were demolished on the Quaboag WMA in East Brookfield by a contractor. Gates were acquired using funds from the Off Highway Vehicle program.

License agreements were maintained with 17 central Massachusetts farmers, primarily for hay and corn. Agricultural fields were put out to bid at the Westborough, Bolton Flats, Ware River, and Moose Hill WMAs.

The District participated in Lands Committee and Parcel Ranking meetings throughout the year.

Research and Conservation

Wildlife

Turkey brood reports were submitted during the 3-month study period. Tissue samples of white-tailed deer and moose were collected as part of the Chronic Wasting Disease monitoring study. Ruffed Grouse, American Woodcock, and Mourning Dove censuses were completed. Canada goose leg-banding was conducted in the Central District. Waterfowl breeding plots were surveyed as were waterfowl found in association with parks. Beaver, Otter, Coyote, Fisher, Bobcat and Fox pelts were tagged and recorded. Wood Duck nesting boxes were checked and new boxes erected at various wetland sites. Donations of metal poles, wood duck boxes, and rough-cut lumber were accepted from sportsmen and the general public. Bluebird, Kestrel, and other cavity-nesting-bird boxes were constructed and erected on WMAs. The bluebird nest box trail and sign were maintained at the High Ridge WMA.

Radio telemetry studies were continued, focusing on tracking collared deer, moose, and bear. One sow black bear retained her GPS collar and was tracked to a brush pile den in Spencer. She could not be immobilized at that time but was darted later in the spring. She had produced two cubs. The second collared sow could not be immobilized at her den site nor was the District able to dart her to replace her radio collar with a GPS collar. The young male bear captured by the Southeast District and the MEP on Cape Cod was transferred and released in central Massachusetts. It subsequently appeared in Brookline and was immobilized again; this time it was released further west in Massachusetts.

A suspected incident of bear poaching was reported to the MEP. Two individuals pled guilty to multiple violations, resulting in more than $10,000 in fines and losses of their licenses to hunt for 5 years.

Fisheries

Central District staff surveyed 52 sites on streams to assess fish populations and water conditions focusing on the Millers, Blackstone, Nashua, Quinebaug, French, and Chicopee River basins. Baseline water quality data on acidity/alkalinity, conductivity and temperature were recorded.

Reported fish kills were investigated.

District staff assisted Palmer Hatchery staff with Atlantic salmon spawning.

Sampling studies were conducted at Congamond Lake, Quaboag Pond, Concord River, Massapoag Pond, Chauncy Lake and Populatic Pond 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. A creel survey continued at Wachusett Reservoir with the assistance of DCR, Division of Water Supply Protection. The District assisted with continuing research on bass survival at Congamond Pond in Southwick.

Natural Heritage and Endangered Species Program

The bald eagle nesting territory at Wachusett Reservoir in Boylston was active but failed during incubation. The Quaboag Pond eagle pair produced two young. The Lake Shirley pair produced two chicks. The adult male member of the pair was killed as the result of a power line strike at Hickory Hills Lake. The pair at Pine Hill Reservoir in Paxton produced a single chick that was banded in cooperation with the Worcester Water Dept. One Quabbin Reservoir nest, located in Worcester County, produced two chicks that were banded. Four other Worcester County nests at Quabbin were either vacant or failed. Kurt Palmateer of the McLaughlin Trout Hatchery climbed all nests.

District personnel assisted in the annual Midwinter Bald Eagle Survey.

Peregrine falcons were present in downtown Worcester but a nest site was not located until after the four young produced were too old to band. The pair was using a nest tray placed by the District at the original Peoples United Bank Building site but building management did not notify DFW of the pair's presence. The nest box installed on the Printers Building was relocated to near the stair access to the roof but was not used.

Active osprey nests were documented at two sites in Sturbridge, both on cell towers. The known nests in Westborough, Auburn, Sterling, and Grafton were also active. The Westborough pair continued to use a nest pole that had been installed by District staff.

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 database.

Four common raven chicks were banded with assistance from Mass. DOT on the I-190 bridge over the Quinapoxet River in Holden. A peregrine falcon nest tray was placed under the same bridge in the event falcons prospect at the bridge for a future nest site.

Enhancement of Outdoor Recreation

Scheduling and stocking of 12,850 Ring-necked Pheasant was completed and 6,000 7-week-old pheasants were distributed to 13 sportsmen's clubs and two correctional institutions for rearing. Pheasants were released on 17 WMAs, four town coverts, and participating club properties. Bolton Flats was available for the winter pheasant hunting opportunity in the Central District. Two applications were received.

Hatchery-raised trout were stocked in 36 ponds and lakes as well as 23 rivers and 27 streams in the 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; the salmon were obtained from the Roger Reed Hatchery in Palmer.

Six boat ramps were visited and trash removed. Assistance was provided to the OFBA for improvement and maintenance projects at Fort Pond in Lunenburg and South Pond in Brookfield. Public access sites were also investigated with representatives from the OFBA.

Outreach and Education

District personnel helped staff the Division's displays in the Agricultural Exhibits Building at the Spencer Fair and the Eastern Fishing and Outdoor Expo at the Worcester DCU Center. The Tags 'n Trout program was sponsored at Pratt Pond, Upton; Lake Quinsigamond, Worcester; and the Mill River, Blackstone.

A 300-seedling chestnut orchard and companion informational signage was maintained at the District in cooperation with the American Chestnut Foundation (ACF) and DCR. Additional chestnut seeds were planted at the Moose Brook and Winimusset WMAs. Five blight-resistant seedlings were planted behind the Field Headquarters at the Westborough WMA and informational signage was designed and developed with the ACF to explain the planting.

The District Manager attended meetings and functions of the Worcester County League of Sportsmen's 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, the Massachusetts Audubon Society, the North Quabbin Trails Association, the Birch Hill Rangers Snowmobile Club, the Spencer Snowbirds Snowmobile Club, the American Chestnut Foundation, the Ecotarium, the Midstate Trail Committee, Wachusett Greenways, the East Quabbin Land Trust, the Northboro Trails Committee, the Central Mass. Regional Planning Commission, the Westborough Trails Committee, the Princeton Land Trust, and the Friends of the Upton State Forest.

Technical Assistance

Nuisance animal reports were addressed and recorded. 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 MEP.

Several moose-vehicle and bear-vehicle collisions were documented and data collected from specimens that

could be salvaged. Large Animal Response Team calls were undertaken by District staff for moose or bear in multiple towns in cooperation with the MEP.

Connecticut Valley Wildlife District

Administration

There were no personnel changes in the Connecticut Valley District in FY 12.

District Staff distributed CY 11 hunting and fishing licenses to 60 vendors throughout the Valley District. Starting in CY 11, the District Clerk began selling electronic licenses, stamps, permits, and saltwater fishing licenses. In addition to the electronic permits, 103 antlerless deer permits, 11 duplicate antlerless deer permits, 85 bear permits, 203 turkey permits, and 1 duplicate turkey permit were sold over the counter.

There were 3,170 Quabbin 1-day fishing licenses sold at the District, which generated $15,850. There were 1,670 Quabbin antlerless deer permits sold, generating $8,350. There were 25 wilderness camping permits issued for the campsites at the Herman Covey WMA. Ten Field Trial Permits were issued for the Herman Covey WMA. No Special Pheasant Stocking Permits were issued for the Herman Covey WMA.

Boundary-marking activities were conducted at the Satan's Kingdom WMA, Bald Mt. WMA, and Shattuck Brook WMA. District staff cleared a total 28 acres of woody invasive plants to enhance field habitat (10 acres at Southwick WMA, 6 at Herm Covey WMA, 12 at Leyden WMA). An additional 102 acres of fields were mowed to maintain grasses and forbs (30 acres at Southwick WMA, 20 at Herm Covey, 42 at Leyden WMA, and 22 acres at Southampton WMA). Existing signs and access were maintained at all WMAs in the Valley District. The District Wildlife Biologist documented over 10 miles of illegal motorized vehicle trails at Satan's Kingdom WMA; about 3 miles are in the process of becoming legally permitted snowmobile trails. Two remote motion-activated cameras were deployed at Facing Rock WMA to catch illegal motorized vehicles and trash dumping. MEP officers were able to pattern illegal activity and successfully issued several citations.

The Division's Employee Conference was held at the Connecticut Valley District Headquarters for the fourth consecutive year.

Research and Conservation

Wildlife

Valley District staff completed Ruffed Grouse drumming routes, assisted with the resident Canada goose survey, and the wild turkey brood survey. Staff collected rabbit pellets and carcasses throughout the district as part of a New England Cottontail survey. In addition, staff banded 100 Canada geese at 6 sites. Bird and kestrel nesting were maintained at several WMAs as well.

Staff monitored the survival and reproduction of 20 radio-collared female bears during the reporting period. Two adult collared females were shot as nuisance bears causing damage to corn, one was hit by a vehicle, one was shot during the hunting season, and one died of unknown causes. Females were checked in their dens during February and March to determine reproductive success and first-year cub survival. Seven GPS collars were affixed to bears to monitor locations every 45 or 80 minutes. This is a cooperative study with the University of Massachusetts at Amherst (UMass). Staff trapped 17 bears (10 males, 7 females) during the spring and summer of 2012 to increase the sample of radio-collared female bears and to replace collars on bears missed during the den season.

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

The District office is staffed to check all required species. In addition, the Valley has 8 deer, 7 turkey, 3 bear, and 3 furbearer check stations throughout the district. In addition, District staff manned 5 biological deer check stations during the first week of deer shotgun season.

Fisheries

Stream surveys are being conducted as other District operations allow. In addition to the planned surveys, investigation into the impact Tropical Storm Irene had on Valley waters is also planned. We completed a baseline survey for the stream restoration project being performed on the Sawmill River, adjacent to DFW land in Montague. An electro shocking survey was conducted in conjunction with Westborough FHQ and Central District staff on Lake Congamond in Southwick to monitor bass production.

Natural Heritage and Endangered Species

The Valley District is monitoring all breeding territories and banded all eaglets in trees we can safely climb at the Quabbin Reservoir and west to the New York line. District Biologist Fuller usually assists in the midwinter eagle survey (aerial survey) at the Quabbin Reservoir and the Connecticut River, however, inclement weather cancelled the survey in 2012.

Staff banded peregrine chicks at the UMass Library, Amherst, and Monarch Place in Springfield. Staff also checked the nest at Mt. Tom in Easthampton, and at Mt. Sugarloaf in Deerfield; each produced at least two chicks, but these were not banded.

Enhancement of Outdoor Recreation

In the fall of 2011, 12,500 trout were stocked; over 104,500 rainbow, brook, brown, and tiger trout were stocked for Valley District anglers over the course of spring stocking. Lack of snowfall allowed an early start to the operation, but fish were stocked through Memorial Day weekend.

District staff stocked 200+ surplus brood stock salmon in Lake Mattawa (Orange), Lake Metacomet (Belchertown), Five Mile Pond (Springfield) and Lake Congamond (Southwick); the fish were from the White

River Junction Federal Hatchery and the DFW's Roger Reed Hatchery.

Four fishing festivals were conducted in the Valley District, at Five Mile Pond in Springfield; Heritage Pond in East Longmeadow; Dean Pond in Brimfield; and at the USFWS Open House, in Hadley.

Jim Lafley of the Federation of Fly Fishers taught a Becoming an Outdoors-Women (BOW) class focusing on learning to tie an imitation fly and using it to catch a fish. Mr. Lafley covered materials, tools, and various types of fishing flies. Participants had the opportunity to tie at least two patterns during the class, with all materials and equipment provided.

Staff stocked 10,000 pheasants on 33 town covers and 10 WMA covers during the 6-week pheasant hunting season.

Six sportsmen's clubs within the Valley District participated in the Club Pheasant Program; district staff distributed 1,496 7-week-old pheasants to these clubs in July and provided pheasant for the Fins, Feather, and Fur Club Youth Pheasant Hunt.

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

Outreach and Education

District Staff set up the DFW display at the Franklin County Fair, manned it over the fair's 4 days of operation, and provided river fish shocked at the Oxbow on the Connecticut River for the Fish and Game Building's display tanks. District staff also provided a presence at the Springfield Sportsmen's Show in West Springfield, selling licenses, stamps, and permits.

In continued support of Westfield State University, staff provided field trips for Dr. Dave Christensen's Aquatic Biology Class. Students observe and participate in both stream electro-shocking and boat electro-shocking in the Westfield area, as well as being presented with an overview of Division and District activities as part of their course work.

The District Manager attended regular meetings of the Hampden County Sportsmen's Council, the Hampshire County League of Sportsmen, and the Franklin County League of Sportsmen, where he gave presentations of interest to these groups. The District Manager and the District Biologists participated in various meetings with federal, state, and local agencies and land trusts, focusing primarily on land acquisition, management, and informational talks. A talk on Coyotes in Massachusetts was given at the Shutesbury Town Hall and two talks on District Activities were given, to the Bernardston Kiwanis and the Greenfield Kiwanis.

Technical Assistance

The District Manager coordinated efforts with the Source-to-Sea Cleanup committee and participated in the cleanup by providing one of the 30-yard disposal containers. The District also determined and provided the committee with GPS locations of dumped-trash sites.

Western Wildlife District

Administration

There were no personnel changes in the Western District in FY 12. Contracted capital projects included security system improvements and exterior improvements at the facilities in Pittsfield and Dalton.

Stewardship obligations on wildlife management areas are an increasingly important function of the district. As land holdings expand, a greater proportion of staff time is devoted to ensuring that public access is available and identifiable, illegal activities are minimized, and encroachments are addressed. In FY 12, District personnel marked 25 miles of boundaries, primarily on new acquisitions. We also initiated or continued discussion with abutting property owners on encroachment issues on the Peru WMA, Hinsdale Flats WMA, Fox Den WMA, and the Westfield River Access. Efforts also continued to address illegal ORV use on WMAs.

The District Supervisor and the District Biologists provided input to the DFW Lands Committee on potential land acquisition projects, focusing on wildlife habitat and recreational opportunities.

A failure of splash boards on the Beaverkill Dam on the Three-mile Pond WMA resulted in a dramatic lowering of the impoundment. District staff responded and quickly implemented repairs to the structure, preventing further dewatering.

Research and Conservation

Wildlife

Annual surveys for woodcock, grouse, doves, and waterfowl were conducted in cooperation with Wildlife Section biologists. Staff also cleaned, constructed, and installed nest boxes for bluebird, wood duck, and kestrel. District Wildlife Manager Tony Gola and Wildlife Technician Morris-Siegel participated in the 27th Annual Hiram Fox Bird Count.

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. Rabbit pellets were collected and submitted for genetic analysis to identify potential and historical New England Cottontail sites.

In January, District staff released and pruned approximately 100 apple trees on the Three-mile Pond WMA and the Westfield River Access. Formerly productive orchards were shaded and overgrown from many years without maintenance. Releasing these trees is a first step in restoring some of their historical productivity, providing important food and habitat for wildlife.

Maintaining open-field habitat for a variety of wildlife species, including nesting songbirds, is an annual activity

for the Western District. This labor-intensive effort is conducted primarily by the Wildlife Technicians, and requires daily tractor work throughout the summer months. In FY 12, more than 100 acres of field was maintained.

Fisheries

In FY 12, District staff continued annual monitoring of fish populations in Laurel Lake in Lee. This monitoring effort is designed to assess changes in the fish community since the introduction and discovery of zebra mussels in the lake in 2009.

Fish community surveys were conducted on three ponds and 41 streams in FY 12. Survey efforts focused on small, previously unsampled headwaters. These efforts produced 19 new records of coldwater streams, as indicated by reproducing brook trout. In addition, staff surveyed fish communities at five dam removal projects throughout Berkshire County. The objective of this monitoring is to describe changes to fish communities where connectivity has been reestablished by barrier removal.

The District Fisheries Manager continued her involvement with the Eastern Brook Trout Joint Venture, which included project review and planning. She also visited numerous sites to assist in environmental review and worked closely with MassDOT on a project on the South River in Ashfield.

District personnel provided support for the Fisheries Section by providing technical information, assisting in Atlantic Salmon fry stocking, responding to fish kills, and participating in meetings.

In late August 2011, tropical storms Irene and Lee brought inches of rain in a very short period to many Western District towns. The resulting flooding caused streams and rivers to rise rapidly, overflowing banks and washing out culverts, roads and bridges. Many waterways changed course and shifted bed-load extensively. The most severely impacted were the Deerfield River and its tributaries the Cold River, Chickley River, Clesson Brook, and the North River. These dramatic flows likely had immediate, short term affect on the resident fish populations. Unfortunately, some of the stabilization work and physical alterations conducted after the floods will have longer term implications for fisheries habitat. The District Fisheries Manager and District Supervisor spent significant time inspecting affected sites and providing technical advice to regulatory agencies and local governments.

Natural Heritage and Endangered Species Program

District staff provided support in the form of local knowledge and biological input to 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.

District staff participated in the Midwinter Bald Eagle Survey. It was a difficult year for Bald Eagles in the Western District as both nests failed to fledge chicks in 2012.

Enhancement of Outdoor Recreation

Enhancement of outdoor recreation is a core 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 brood-stock salmon into 3 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 regions of the District. Pheasant chicks were provided to the Lee and Ashfield 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.

One of the district goals for 2012 was to raise awareness of the Wildlife Management Areas. To this end, we installed prominent, routered wooden signs on six WMAs. We also constructed and installed kiosks with informational material at key access points and parking areas.

Outreach and Education

District field staff interacts with the public on a daily basis, providing information and sharing enthusiasm for outdoor activities. In addition, Western District staff also participated in more formal events focused on educating public about the agency and the environment.

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 presentations to Project Wild, the Sheffield Library, Northampton Rotary, Ashfield annual derby, LAPA West, as well as to local community and school groups. The District Fisheries Manager presented to Trout Unlimited Taconic Chapter, and the Westfield Watershed Symposium. The District Wildlife Biologist presented a biological review of bears to the Berkshire Beekeeper's Association.

The agency hosted a well-attended event in the Western District to celebrate the acquisition of the Flat Brook WMA.

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.

Because the district office is the first point of contact with the agency for the local public, staff receives many calls regarding wildlife in distress. Numerous, injured hawks and owls were transported to rehabilitators. Additional field responses included fawns, moose, bear, and fox.

The District Supervisor represented the agency at meetings involving resource conservation in the region. He attended public informational meetings as well as quarterly meetings of the Citizen's Coordinating Council addressing PCBs in the Housatonic River. He also contributed as a member of the Berkshire County Sustainability Consortium, a multi-discipline group developing a comprehensive plan to establish long-term regional priorities.

District Personnel

Northeast Wildlife 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*

Southeast Wildlife District
Jason E. Zimmer, *District Supervisor*
Aaron Best, *Wildlife Technician*
Jeff Breton, *Wildlife Technician*
Daniel Fortier, *Wildlife Technician*
Steve Hurley, *Fisheries Manager*
Joan Pierce, *Land Agent*
Debra Silva, *Clerk*
Dick Turner, *Wildlife Manager*
Steve Wright, *Wildlife Technician*

Connecticut Valley Wildlife 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 Wildlife District
Bill Davis, *District Supervisor*
Mark Brideau, *Fisheries Biologist*
Bob Chapin, *Wildlife Technician*
Scott Kemp, *Wildlife Technician*
Brandon Kibbe, *Land Agent*
Priscilla MacAdams, *Clerk* (part-year)
Debra Manty, *Clerk*
Jessi Manty, *Wildlife Technician*
Bridgett McAlice, *Wildlife Biologist*
Michael Morelly, *Wildlife Technician*

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

WILDLIFE LANDS ACQUISITION & INVENTORY

Craig A. MacDonnell
Chief of Wildlife Lands

Land Acquisition

FY 12 was an excellent year for land protection at the agency. Although land agents continued to experience a challenging real estate market and difficult overall economic situation, they ably negotiated and recorded 45 projects conserving 5,629 acres of valuable habitat at a cost of approximately $6.2 million. These funds derived from two sources. The bulk of the funding for land acquisition is provided through bond capital administered by the Department of Fish and Game (DFG). This year the total of such funds was $5,222,420. The other source of funding is the Wildlands Stamp, which contributed $975,000 in FY 12.

Land acquisitions were well distributed around the state. This year, the Connecticut Valley District amassed the greatest total of acreage, with 3,688 acres conserved. The Central District also had a very good year, with almost 800 acres protected. Unlike in recent years, conservation restrictions made up the lion's share of the acreage, owing primarily to one very large project in the Connecticut Valley District, which is described further below. All of the districts had successful years, however, with the Western District adding 504 acres, the Southeast District adding 470, and the Northeast District adding 170. Ten acquisitions were recorded in the Southeast and Central Districts, nine in the Northeast District, eight in the Connecticut Valley District, and seven in the Western District. Most transactions involved additions to existing areas, although three new Wildlife Management Areas and four Wildlife Conservation Easements were added.

Fee acquisitions ranged in size from the tiny but significant (a 0.05-acre addition to the Leadmine Pond Access Area in Sturbridge, a 1.38-acre addition to the Poutwater Pond WMA in Holden, and a 2.5-acre parcel providing access to the Green River in North Egremont) to the numerous and concentrated (3-acre, 13-acre, 22-acre, 26-acre, and 42-acre additions to the Townsend Hill WMA). Other relatively large fee acquisitions included the new 324-acre West Brookfield WMA and the new 230-acre Ram Hill WMA in Chesterfield. On the conservation restriction side of the ledger, this year included one that was truly massive: the 3,486-acre Paul C. Jones Working Forest WCE in Leverett and Shutesbury.

As is the case year in and year out, non-profit organizations contributed mightily to our success this fiscal year. Land trusts and other environmental organizations assisted directly on numerous acquisitions and provided valuable input on others. Direct assistance was provided by The Nature Conservancy, Berkshire Natural Resources Council, Inc., Greater Worcester Land Trust, Sheffield Land Trust, Franklin Land Trust, Kestrel Land Trust, Open Space Institute, and Wildlands Trust of Southeast Massachusetts.

All things considered, staff in the Districts and in Boston enjoyed great success in FY 12. There was consistent and effective collaboration between and among DFW Realty Staff, the joint DFW-DFG Lands Committee,

Acreage Cost, by District

Western Wildlife District	
Expended	$950,500.00
Acreage	504.125
Cost per acre	$1,885.44
Connecticut Valley Wildlife District	
Expended	$2,040,900.00
Acreage	3,688.48
Cost per acre	$553.07
Central Wildlife District	
Expended	$1,165,000.00
Acreage	795.95
Cost per acre	$1,463.66
Northeast Wildlife District	
Expended	$646,420.00
Acreage	170.31
Cost per acre	$3,795.55
Southeast Wildlife District	
Expended	$1,394,600.00
Acreage	470.32
Cost per acre	$2,965.28
Total Expended	**$6,197,420.00**
Total Acreage Conserved (Fee and Easement)	**5,629.00**
Average Cost per Acre	**$1,100.98**
Total Acreage Purchased (Fee Only)	**2,011.00**
Average Cost per Acre	**$1,901.40**

These acreage figures and costs are for properties acquired with FY 12 funds and recorded on or before June 30, 2012. Ancillary costs, such as appraisals, surveys, title examinations, and other related transaction expenses are not included.

and the DFG Commissioner, Land Agents, Counsel, and Capital Planning Director. Tight fiscal times again encouraged early, vigorous acquisition activity that enabled transactions to be well distributed among the year's four quarters. The 5,629 acres protected in FY 12 bring the total protected acreage to over 196,000 acres, or approximately 306 square miles.

Western Wildlife District

The Western District completed six acquisitions in FY 12 and protected a total of 504 acres at a cost of $950,500. One of the most notable conservation projects in this district was the 113-acre addition to the Alford Springs WCE, in an area of significant conservation interest and investment, in partnership with the Berkshire Natural Resources Council. Other important acquisitions included the 96-acre addition to the Hubbard Brook WMA in partnership with the Sheffield Land Trust, and the addition of a 230-acre fee adjacent to the Massachusetts Junior Conservation Camp in Chesterfield previously owned by the Boy Scouts.

The Western District now has over 58,000 acres under conservation management and control.

Connecticut Valley Wildlife District

The Valley District completed eight projects in FY 12 and protected just over 3,688 acres at a cost of $2,040,900. The featured project in this district was the acquisition of a conservation restriction on 3,486 acres owned by W.D. Cowls, Inc. in Leverett and Shutesbury. From virtually any perspective, this project represented conservation on the largest possible scale in Massachusetts. The property was the largest contiguous parcel of unprotected land in the state before a consortium of advocates and a combination of federal, state, and private funders were joined in completing this $8.8 million conservation effort. DFG contributed $1,460,400 in bond capital and DFW added $500,000 in Wildlands Stamp funds. There have been substantial access improvements made at the property since the acquisition, including several new parking areas, and informational kiosks are planned for major access points.

The Valley District now has nearly 27,000 acres under conservation management and control.

Central Wildlife District

The Central District had another excellent year of land conservation, completing 10 acquisitions. A total of almost 800 acres was protected in eleven municipalities at a cost of $1,165,000. Key projects included the creation of the new 324-acre West Brookfield WMA, the conservation of a 123-acre parcel providing access to the high-ridge portion of the Hitchcock Mountain WMA, the acquisition of a 109-acre parcel for inclusion in the re-named Winchendon Springs WMA, and an excellent partnership with Greater Worcester Land Trust that resulted in a 50-acre expansion and protection of the Merrill Pond WMA.

The Central District now has nearly 45,000 acres under conservation management and control.

Northeast Wildlife District

As ever, the Northeast District continues to be a challenging area due to land fragmentation and high property values. Despite this relative difficulty, the Northeast District enjoyed another strong year of conservation, completing nine projects and protecting 170 acres of land at a cost of $646,420.

There was a concentrated effort in the Northeast District to add on to and protect the Townsend Hill WMA. In FY 12, our Northeast Land Agent oversaw the acquisition of five new additions to this area (3, 13, 22, 26 and 42 acres, respectively).

The Northeast District now has over 15,000 acres under conservation management and control.

Southeast Wildlife District

The Southeast District completed 10 land conservation projects in FY 12 involving a total of 470 acres in seven towns at a cost of $1,394,600. Important additions included the acquisition of 110 acres in Fall River and Freetown for inclusion in the Copicut WMA using Bioreserve mitigation funds, the creation of the new 102-acre Poor Meadow Brook WMA in East Bridgewater, and the conservation of 105 acres in Bridgewater that will be managed as part of the Hockomock Swamp WMA. Our Land Agent in the Southeast also oversaw the first phase of a 2-year project expanding by 35 acres our conservation of the shoreline of Halfway Pond in Plymouth, a coastal plain pond essential to the protection of numerous rare species.

The Southeast District now has over 50,000 acres under conservation management and control.

Land Agents

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

Land Inventory

Western Wildlife District	**Acres**
Wildlife Management Areas (35)	
Agawam Lake	779.8
Ashley-Hawley	278.0
Becket	239.6
Chalet	7,093.0
Cummington	378.73
Day Mountain	382.4
Dolomite Ledges	120.46
Eugene Moran	1,669.9
Farmington River	1,760.3
Fisk Meadows	1,145.2
Flat Brook WMA	290
Fox Den	4,723.6
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	195.9
John J. Kelly	267.0
Jug End (mostly held jointly with DCR)	1,253.8
Knightville	721.0
Lilly Pond	349.7
Maple Hill	370.1
Mount Tekoa	1,422.0
North Egremont	2.56
Otis	83.5
Peru (with Tracy Pd.)	5,434.92
Powell Brook	402.6
Ram Hill	230.25
Savoy	1,603.8
Stafford Hill	1,591.6
Taconic Mountain	157.3
Three Mile Pond	1,141.8
Walnut Hill	867.0
Total	**42,500.48**
Wildlife Conservation Easements (15)	
Alford Spring	784.0
Alford Swamp	113.82
Ashfield	101.0
Blanford	986.0
Chesterfield	260.75
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	1,782.0
Total	**12,921.66**
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
Total	**1,021.8**
Wildlife Sanctuaries (2)	
E. Howe Forbush	268.0
Grace A. Robson	69.5
Total	**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
Total	**1,170.1**
Total Western Wildlife District	**57,764.06**

Connecticut Valley Wildlife District	**Acres**
Wildlife Management Areas (32)	
Brewer Brook	214
Catamount	413.0
Coy Hill (V)	211.6
East Mountain	454.9
Facing Rock	1,556.1
Herman Covey*	1,521.5
Honey Pot	236.77
Lake Warner	94.8
Leadmine	344.0
Leyden	759.0
Millers River	65.84
Montague	1,815.9
Montague Plains	1,504.8
Mount Esther	191.0
Mount Toby	450.5
Orange	1,605.2
Palmer	1,052.32
Pauchaug Brook	161.3
Poland Brook	679.4
Satan's Kingdom	2,134.4
Shattuck Brook	178.8
Southampton	170.6
Southwick	264
Tully Mountain	1,187.4
Tully River	59.0
Wales	207.1
Warwick	379.0
Wendell	585.7
Westfield	227.0
Whately	380.7
Whately Great Swamp	478.16

Williamsburg	88.0
Total	**19,650.79**

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

Wildlife Conservation Easements (6)	
Amherst/Pelham ALA	36.9
Ludlow Reservoir	1,750.0
North Quabbin CRs	
New Salem	59.0
Tully River	250.0
Tully Mountain	72.87
Paul C. Jones Working Forest	3,486
Total	**5,654.77**
Islands (2)	
Shepherd's Island	15.0
Sunderland Islands (2)	9.0
Total	**24.0**
Fish Hatcheries (4)	
Bitzer	150.6
McLaughlin (within Herman Covey WMA)	
Reed	301.0
Sunderland	47.7
Total	**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	199.45
Mill River	29.75
Sawmill River	52.0
Sibley Brook	13.4
Tully Brook	154.9
Ware River	39.0
Westfield River	76.8
Total	**655.6**
Pond Access (4)	
Little Alum Pond	0.5
Lake Lorraine (OFBA)	0.3
Lake Rohunta	2.5
Packard Pond	0.5
Total	**3.8**
Fisheries & Wildlife Areas (1)	
Whately Ponds	**85.6**
Natural Heritage Areas (4)	
Rainbow Beach	30.9
Mt. Toby Highlands	100.0
Mt. Tom	72.7
Darwin Scott Memorial	27.3
Total	**230.9**
Total Connecticut Valley Wildlife District	**26,998.11**

Central Wildlife District	**Acres**
Wildlife Management Areas (44)	
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
Hitchcock Mountain	155.26
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)	852.47
Millers River (C)	3650.0
Moose Brook	754.3
Moose Hill	567.1
Muddy Brook	1,877.6
North Brookfield	102.6
Oakham	730.2
Palmer	208.0
Phillipston	3,615.2
Popple Camp	1,161.0
Poutwater Pond (ex North Street)	380.09
Prince River	749.0
Quaboag River	1,886.15
Quacumquasit	179.9
Quisset	635.0
Raccoon Hill	645.5
Richardson	467.2
Savage Hill	1,165.0
Scripture Hill	121.0
Thayer Pond	131.0
Tully Mountain	119.5
Tully River(C)	9.0
Ware River(C)	291.4
Westboro	894.6
Winchendon Springs	877.3
West Brookfield	324.4
Winimusett	670.1
Wolf Swamp	1,114.0
Total	**37,466.81**

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

Wildlife Conservation Easements (18)	
Burnshirt River	5.64
Carter Pond	280.0
Dudley	73.92
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	
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
Templeton	100.0
Wekepeke	564.0
Total	**4,953.74**
Wildlife Sanctuaries (2)	
Susan B. Minns	140.0
Watatic Mountain	100.0
Total	**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
Total	**427.7**
Natural Heritage Areas (4)	
Chockalog Swamp	52.5
Clinton Bluff NHA	42.0
Podunk Marsh	15.0
Quag Pond Bog	31.0
Total	**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	58.5
Total	**101.2**
Forest (2)	
Hamilton	70.0
Northboro	88.8
Total	**158.8**
Total Central Wildlife District	**43,580.75**

Northeast Wildlife District	**Acres**
Wildlife Management Areas (13)	
Ashby	1,052.66
Crane Pond	2,256.1
Dunstable Brook	131.6
Hauk Swamp	6.0
Hunting Hills*	452.92
Martin H. Burns	1,682.0
Mulpus Brook	361.86
Nissitissit River	383.19
Pantry Brook	410.9
Salisbury Marsh	658.8
Squannacook River**	1,615.1
Townsend Hill	478.24
William Forward	2,122.5
Total	**11,611.87**
Wildlife Conservation Easements (11)	
Ashby	148.0
Fitchburg Watershed	677.4
Groton	127.0
Martin H. Burns	26.74
Meadow Pond	58.0
Mill Creek	59.0
Newbury Common Pasture	46.7
Pepperell Springs	255.0
Surrenden Farms	159.7
Throne Hill	177.5
Great Swamp Brook	106.0
Total	**1,841.04**
Wildlife Sanctuaries (5)	
Carr Island	110.5
Egg Rock	2.0
J.C. Phillips	391.0
Milk Island	29.0
Ram Island	20.0
Total	**552.5**
Game Farm (1)	
Ayer	**111.9**
Wildlife District (2)	
District Headquarters	**19.7**
Fisheries & Wildlife Area (2)	
Flint Pond	81.9
Flagg Swamp	54.0
Total	**135.9**
Forest (2)	
Acton	36.0
Townsend	60.0
Total	**96.0**
Pond Access (4)	
Knops Pond	0.6
Mascuppic Lake	0.3
Baddacook Pond	0.2
Long Sought For Pond	1.0
Total	**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	139.1
Trapfall Brook	45.4
Weymouth Back River	16.4
Total	**306.8**

*Includes 53.7-acre easement in Central Wildlife District

**21 acres owned by DCR

Natural Heritage Areas (4)	
Boxboro Station	124.2
Eagle Island	5.0
Elbow Meadow	210.3
Hauk Swamp	55.0
Total	**394.5**
Total Northeast Wildlife District	**15,501.41**

Southeast Wildlife District	**Acres**
Wildlife Management Areas (25)	
Black Brook	388.55
Burrage Pond	2,014.1
Cook's Pond	15.63
Copicut (co-held in part with DCR)	3,992.77
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	64.37
Haskell Swamp	3,069.9
Hockomock Swamp	4,559.2
Hyannis Ponds	357.0
Maple Springs	129.2
Meetinghouse Swamp	109.0
Noquochoke	204.6
Peterson Swamp	250.0
Poor Meadow Brook	102.26
Purchade Brook	120.0
Red Brook	654.2
Rochester	70.0
Rocky Gutter	3,054.7
Taunton River	455.0
West Meadows	227.9
Total	**23,177.68**
Wildlife Conservation Easements (18)	
Acushnet River	30.2
Agawam River	4.0
Angeline Brook	50.7
Barnes Swamp	174.0
Betty's Neck	262.0
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
Lake Nippenicket	8.35
New Bedford Water Supply	3,065.0
Pickerel Cove	78.3
Plymouth County	52.7
Plymouth Pine Hills	188.0
Plymouth Town Forest	296.0
Santuit Pond	293.0
Weweantic River	10.08
Total	**10,170.67**
Wildlife Sanctuaries (4)	
Billingsgate Island	0.5
Penikese Island	60.0
Ram Island	2.0
Tarpaulin Cove	4.5
Total	**67.0**
Wildlife District (1)	
District Headquarters	**29.8**
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
Total	**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
Total	**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 – Pickerel Cove	15.9
Total	**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
Total	**224.2**
Hatchery Lands (2)	
N. Attleboro Hatchery	36.5
E. Sandwich Hatchery	20.55
Total	**57.05**
Mass. Military Reservation	**15,000.0**

Fisheries & Wildlife Areas (3)	
Muddy Pond	72.0
Provincetown Route 6 Corridor	122.0
South Barrier Beach (Leland)	99.5
Total	**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	1.5
Total	**558.4**
Total Southeast Wildlife District	**50,915.79**

Total Massachusetts Wildlife Lands Acreage, by Area Type

	Acres
Wildlife Management Area (149)	135,336.66
Wildlife Conservation Easements (67)	35,672.13
Wildlife Sanctuaries (13)	1,197.0
Fish Hatcheries (5)	534.30
Game Farms (3)	382.1
River Access (35)	3,044.05
Salt Marsh (7)	774.7
Lake, Pond, and Coastal Access (27)	295.6
Fisheries & Wildlife Areas (6)	515
Natural Heritage Areas (33)	2,728.5
Mass. Military Reservation (1)	15,000
Other	680.65
Total Massachusetts Wildlife Lands	**196,160.69**[1]

[1] This total is a compiled figure based on an inventory that has evolved over many years. During FY 12, staff began, but did not complete, a revision of the underlying land inventory database. It is anticipated that this new database will be in place for the FY 13 inventory.

FEDERAL AID PROGRAM ADMINISTRATION

Kristin McCarthy
Assistant Director of Finance and Administration/Federal Aid Coordinator

Project Objectives

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

Federal Aid in Wildlife Restoration (Pittman-Robertson)

The DFW apportionment of Federal Aid in Wildlife Restoration funds, $3,833,227, was a decrease 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 $3,497,637 represents a decrease fromlast year's apportionment. These funds were divided as follows: The Department of Fish and Game's Office of Fishing and Boating Access (OFBA), which is responsible for constructing and maintaining motorboat access facilities, received $524,646 (15%); and the balance of $2,972,991 was equally divided between the Division of Marine Fisheries and the DFW ($1,486,496 each).

Twelve projects were obligated with the OFBA and DFW shares of the Dingell-Johnson and Wallop-Breaux funds. The OFBA, in cooperation with the DFW, had eight boat accommodation grants active in FY 12, 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 12 State Wildlife Grant apportionment of $699,380 was an increase over the previous year. The SWG funds were obligated toward five projects. Activities reimbursed under those projects include fish community research, anadromous fish restoration, biodiversity impact review, biodiversity inventory and research, biodiversity conservation mapping and planning, habitat evaluation, regional conservation needs, and in the development and implementation of our Comprehensive Wildlife Conservation Strategy (CWCS), also referred to as the State Wildlife Action Plan (SWAP).

Through a multi-state regional effort, the states of New Hampshire, Connecticut, New York, Maine, and Massachusetts were successfully awarded a total of $2,000,000 through the FY 10 and FY 11 national State Wildlife Grant Competitive programs to implement the Rangewide New England Cottontail Initiative. Massachusetts' share of the funds ($501,000) will be used to restore New England Cottontail habitat in Massachusetts. Implementation of the NEC program will continue through FY 14.

The DFW was also awarded $58,000 through the 2011 national State Wildlife Grant Competitive program to fund the Northeast Blanding's Turtle Initiative. The DFW is partnering with the states of Maine, New Hampshire, Pennsylvania, and New York.

The Endangered Species Act (Section 6)

DFW's apportionment of $43,000 was a decrease from the previous year's apportionment. Funds will be used to reimburse the Federally-listed Plant Monitoring and Management Project and Piping Plover Monitoring, Management, and Research.

Near the close of FY 11, the DFW was awarded $15,600 under the USFWS White-nose Syndrome Funding Opportunity to acquire materials used to initiate long-term summer bat surveys. Grant implementation occurred in FY 12 and final grant closure is anticipated in early FY 13.

Landowner Incentive Program (LIP)

The federal government did not fund the LIP in FY 11; 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 complete the implementation of the FY 10 projects. In FY 07, the DFW had received a combined award of $1,029,510 under this highly competitive program, which was an increase when compared to the FY 06 award of $180,000. The LIP awards are divided into two tiers. Our FY 07 Tier I apportionment of $180,000 was used for project coordination. Our Tier II award, $849,510.00, was used for program implementation. For more detailed information relating to the DFW's activities under the Landowner Incentive Program, please see page 41.

Chronic Wasting Disease Surveillance and Management

In FY 11, the DFW received $70,000 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, please see page 35.

Environmental Protection Agency

In FY 11, the DFW was successfully awarded $280,000 through the competitive Wetland Program Development grant program for the development and implementation of a vernal pool and rare species information system. Implementation of the project will continue into future fiscal years.

Audits

The office of the State Auditor conducts a state audit of the DFW Federal Aid Program once every 2 years and the U.S. Department of Interior, Office of Inspector General, conducts a federal audit of the program once every 5 years. No audits were active in FY 12.

Other Matters

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

Federal Aid Program Personnel

Kristin McCarthy, *Assistant Director of Finance and Administration/Federal Aid Coordinator*

Jessica Lane, *Assistant to the Federal Aid Coordinator*
Debbie McGrath, *Federal Aid Bookkeeper*

MAINTENANCE & DEVELOPMENT

Gary Zima
Senior Planner

Overview

Maintenance and development projects enable the Division to address numerous upgrades and improvements at our properties statewide.

FY 12 Projects

Infrastructure improvement funding was limited during FY 12, but a noteworthy purchase of major equipment was new vehicles. The overall condition of our vehicle fleet has continued to deteriorate over the last few years. The Division purchased 13 new vehicles plus two surplus vehicles from the state auction lot. A large percentage of our vehicle repair budget was spent repairing these older vehicles in an effort to keep them running and on the road. Twelve vehicles at various installations statewide were totally dead; so being able to upgrade 15 of our worst vehicles was a major upgrade to our ailing fleet.

Maintenance & Development Staff

Gary Zima, *Senior Planner*

Bruce Walker, *Wildlife Tecnician*

LEGISLATIVE REPORT

Jack Buckley
Deputy Director and Legislative Liaison

Chapter 68, Section 92, Acts of 2011 (General Appropriation Act for FY 12)

Summary

Outside section 92 eliminated the charge for a Youth Fishing license.

PERSONNEL REPORT

Johanna Zabriskie
DFG Human Resources Officer

New Hires - Employees

Name	Title	Action	Date of Action
Bodary, Kimberly	Administrative Assistant II	New Hires	07/03/2011
Ingalls, Susan	Wildlife Technician I	New Hires	07/17/2011
Garcia-Smith, Eileen	Clerk III	New Hires	10/16/2011
DiGirolomo, Rebecca	Game Biologist II	New Hires	03/04/2012
Stainbrook, David	Game Biologist III	New Hires	01/05/2012
Huseby, Astrid	Game Biologist II	New Hires	04/01/2012
Vitz, Andrew	Game Biologist III	New Hires	04/01/2012

New Hires - Contractors

Name	Title	Action	Date of Action
Longsdorf, Jennifer	Adminstrative Assistant		10/21/2011
Agri, James	Contracted Seasonal		4/15/2012
Correia, Jenna	Contracted Seasonal		5/6/2012
Demoranville, Kristen	Contracted Seasonal		5/2/2012
Dion, Justin	Contracted Seasonal		5/20/2012
Herman, Rachael	Contracted Seasonal		5/1/2012
Johnson, Jason	Contracted Seasonal		4/12/2012
Kipetz, Brian	Contracted Seasonal		4/12/2012
McDermott, Derek	Contracted Seasonal		4/12/2012
Mercer, Owen	Contracted Seasonal		4/15/2012
Pszybyzs, Tara	Contracted Seasonal		4/15/2012
Servison, Margo	Contracted Seasonal		5/1/2012
Leddick, Jesse	Scientist		2/21/2012
Powers, Brent	Scientist		3/4/2012

Terminations - Employees

Name	Title	Action	Date
Christensen, Sonja	Game Biologist III	Resigned	08/21/2011
Patalano, Jessica	Asst Dir, DFW Fiscal Affairs	Resigned	07/13/2011
Woolsey, Henry	Conservation Biologist IV	Retired	07/01/2011
Gabriel, Marea	Conservation Biologist III	Resigned	03/15/2012
Black, Kristin	Conservation Biologist III	Resigned	05/15/2012

Terminations - Contractors

Name	Title	Action	Date
Connolly, Margaret	Contracted Seasonal	End of Seasonal Work	5/8/2011
McCollum, Arthur	Contracted Seasonal	End of Seasonal Work	10/23/2011
Norris, Alicia	Researcher	Resigned	6/1/2012
Garrett, Jennifer	Scientist	Resigned	5/5/2012
Rempel, Jessica	Scientist	Resigned	9/30/2011

Promotions

Name	Title	Action	Date
Haggerty, Sarah	Professionals	Promoted	12/11/2011
Mccarthy, Kristin	Officials and Administrators	Promoted	03/25/2012

Reclassifications

Name	Title	Action	Date
Dolan, Karen	Program Coordinator		07/12/2011
Khalifa, Yunus	Program Coordinator		07/12/2011
Mccarthy, Kristin	Aquatic Biologist		07/12/2011
Mcgrath, Deborah	Program Coordinator		07/12/2011
Oliver, Robert	Program Coordinator		07/12/2011
Plett, Kathleen	Program Coordinator		07/12/2011
Veinotte, Amanda	Program Coordinator		07/12/2011
Paulson, David	Conservation Biologist		11/20/2011
Beals, Dale	Wildlife Technician		04/08/2012
Best, Aaron	Wildlife Technician		04/08/2012
Breton, Jeffrey	Wildlife Technician		04/08/2012
Chapin, Robert	Wildlife Technician		04/08/2012
Ciesla, Tammy	Wildlife Technician		04/08/2012
Coughlin, Mark	Wildlife Technician		04/08/2012
Critchlow, David	Wildlife Technician		04/08/2012
Davis, Jeremy	Wildlife Technician		04/08/2012
Desrosiers, Robert	Wildlife Technician		04/08/2012
Dewkett, Nancy	Wildlife Technician		04/08/2012
Drudi, Travis	Wildlife Technician		04/08/2012
Fontaine Gagnon, Leanda	Wildlife Technician		04/08/2012
Fontaine Gagnon, Leanda	Wildlife Technician		04/29/2012
Fortier, Daniel	Wildlife Technician		04/08/2012
Galas, Gary	Wildlife Technician		04/08/2012
Garofoli, John	Wildlife Technician		04/08/2012
Ingalls, Susan	Wildlife Technician		04/08/2012
Isles, Douglas	Wildlife Technician		04/08/2012
Jackson, Alan	Wildlife Technician		04/08/2012
Kendall, Joseph	Wildlife Technician		04/08/2012
Kielbasa, Christopher	Wildlife Technician		04/08/2012
Manty, Jessi	Wildlife Technician		04/08/2012
McSharry, Gregory	Wildlife Technician		04/08/2012
Morelly, Michael	Wildlife Technician		04/08/2012
Morris-Siegel, Jacob	Wildlife Technician		04/08/2012
Nye, Timothy	Wildlife Technician		04/08/2012
Ostrowski, Andrew	Wildlife Technician		04/08/2012
Patterson, Chris	Wildlife Technician		04/08/2012
Pecorelli, Richard	Wildlife Technician		04/08/2012
Pelosky, Kevin	Wildlife Technician		04/08/2012
Sadler, Heather	Wildlife Technician		04/08/2012
Scarpitti, David	Game Biologist		03/25/2012
Slade, Shasta	Wildlife Technician		04/08/2012
Townsend, Susan	Wildlife Technician		04/08/2012
Tynan, Walter	Wildlife Technician		04/08/2012
Walker, Bruce	Wildlife Technician		04/08/2012
Wright, James	Wildlife Technician		04/08/2012
Wright, Stephen	Wildlife Technician		04/08/2012
Zukauskas, Karl	Wildlife Technician		04/08/2012

FINANCIAL REPORT

Administrative Staff

Kristin McCarthy, *Assistant Director of Finance*

Procurement and Payables

Yunus Khalifa, *Purchasing Coordinator*
Kathleen Plett, *Contract Coordinator*
Mary Cavaliere
Gail Gibson
Lillian Hew

Revenue

Robert Oliver, *Revenue Coordinator*
Carl Lui
David Manzer

Permits

Robert Arini

Information Technology

Rick Kennedy
Robert Morley
James Pollock

How the Sportsmen's Dollar Was Spent

Inland Fish and Game Fund

July 1, 2011 to June 30, 2012

PROGRAMS/ASSESSMENTS	EXPENDITURES	PERCENTAGES
Administration	$1,384,551	
Information-Education	$747,225	
Total	**$2,131,776**	16%
Fisheries and Wildlife Programs:		
Hatcheries	$2,069,372	
Game Bird Program	$479,141	
Seasonals	$57,876	
Cooperative Units	$127,202	
Fisheries and Wildlife Management	$4,618,371	
Total	**$7,351,963**	55%
Other Programs		
Land Acquisitions	$996,950	
Waterfowl Management Program	$65,000	
Hunter Safety Program	$381,496	
Total	**$1,443,446**	11%
Other Assessments:		
Payroll Taxes	$128,392	
GI and Other Fringe Benefits	$2,200,865	
Total	**$2,329,257**	18%
TOTAL EXPENDITURES	**$13,256,442**	

Summary
Revenues, Expenditures and Fund Equity
Natural Heritage & Endangered Species Fund
July 1, 2011 to June 30, 2012

REVENUES:	
Natural Heritage and Endangered Species Tax Checkoff Donations	$218,767
Sales	$13,433
NE Cottontail	$29,591
State Wildlife Grant (SWG)	$742,763
Wildlife Habitat Incentives Program (WHIP)	$183,778
EPA - Conifer Wetlands	$49,172
Massachusetts Endangered Species Act Fees	$473,328
Contracts	$412,836
Direct Donations	$9,022
Interest	$257
TOTAL REVENUES:	***$2,132,946***
EXPENDITURES:	
Natural Heritage and Endangered Species Program	$1,446,719
Tern Restoration	$70,390
Wildlife Habitat Incentive Program	$121,118
State Wildlife Grant	$32,728
Housatonic Natural Resource Damages	
TOTAL EXPENDITURES:	***$1,670,955***
FUND EQUITY AS OF JUNE 30, 2012	***$1,128,456***

Other Funds and Programs
Expenditures Division Wide
July 1, 2011 to June 30, 2012

CAPITAL OUTLAY FUNDS:	
Land Protection - Habitat Management- CR Stewardship	$182,010
BioMap II	$33,133
Staffing for Land and Infrastructure Programs	$461,502
Hatchery/District/Westborough Field Headquarters Repairs	$121,007
Bird Island Restoration	$100,000
TOTAL CAPITAL EXPENDITURES	***$897,652***
INTERDEPARTMENTAL SERVICE AGREEMENTS:	
Massachusetts Highway Department Accelerated Bridge Program	$65,182
Department of Conservation and Recreation Middlesex Fells Survey	$4,968
Division of Capital Asset Management	
Facilities Maintenance & Management	$104,934
Off Highway Vehicle Trust ISA	$36,947
TOTAL ISA EXPENDITURES	***$175,804***
Natural Heritage and Endangered Species Line Item	**$149,873**
Federal Grant Accounts	
Landowner Incentive Program Tier 1	$45,802
Landowner Incentive Program Tier 2	$ —
Chronic Wasting Disease	$52,250
New England Cottontail	$ —
TOTAL FEDERAL EXPENDITURES	***$98,052***
OTHER TRUST ACCOUNTS:	
Upland Sandpiper	$18,171
TOTAL OTHER TRUST EXPENDITURES	***$1,339,552***

Summary
Revenue and Fund Equity
Inland Fish and Game Fund
July 1, 2011 to June 30, 2012

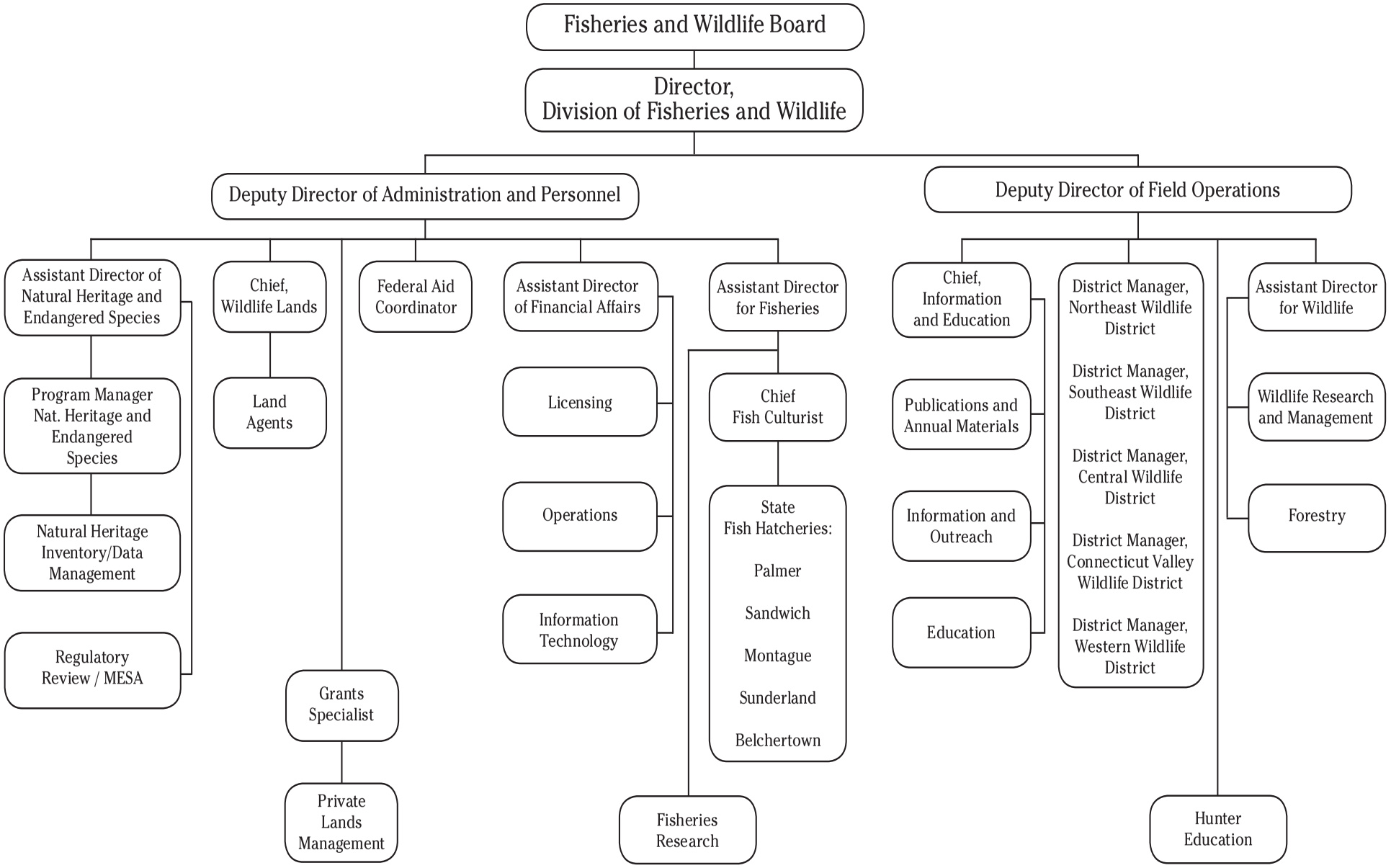
DEPARTMENTAL REVENUES:	
Fishing,Hunting, and Trapping Licenses	$5,594,576
Archery Stamps	$177,117
Primitive Firearm Stamps	$199,376
Waterfowl Stamps	$63,511
Wildlands Stamps	$1,072,670
Trap Registrations	$2,030
Antlerless Deer Permits	$174,905
Bear Permits	$44,993
Turkey Permits	$108,360
Special Licenses,Tags and Posters	$45,875
Magazine Subscriptions	$93,004
Sales,Other	$1,868
Fines and Penalties	$65,178
Rents	$58,756
Prior Year Refunds	$-
Donations	$25,642
Miscellaneous Income	$1,953
PAC	$16,198
NSF Charge/Debt. Collection	$780
Total	**$7,746,790**
FEDERAL AID REIMBURSEMENTS;	
Dingell-Johnson (Fisheries)	$1,850,089
Pittman-Robertson (Wildlife)	$3,459,818
Junior Duck Stamp	$1,673
Total	**$5,311,580**
TAXES;	
Gasoline Tax Apportionment	$873,032
OTHER FINANCIAL SOURCES;	
Reimbursement for Half-Price Licenses	$176,804
Investment Earnings	$2,874
Total	**$179,678**
TOTAL REVENUE	***$14,111,080***
FUND EQUITY AS OF JUNE 30, 2012	**$18,663,812**

License and Stamp Sales

July 1, 2011 to June 30, 2012

Code	Type of License	Unit Cost	Quantity	Amount
F1	Resident Citizen Fishing	22.50	128,617	2,893,882.50
F2	Resident Citizen Minor Fishing	6.50	6,862	11,843.00
F3	Resident Citizen Fishing (Age 65-69)	11.25	8,149	91,676.25
F4	Resident Cit. Fishing (Over 70, etc.)	FREE	13,575	0.00
F6	Non-Res. Citizen/Alien Fishing	32.50	9,831	319,507.50
F7	Non-Res. Citizen/Alien Fishing (3 day)	18.50	2,655	49,117.50
F8	Resident Fishing (3 day)	7.50	1,727	12,952.50
F9	Non-Resident (Citizen) Minor Fishing	6.50	325	2,112.50
DF	Duplicate Fishing	2.50	103	257.50
	Quabbin 1-Day Fishing	5.00	3,415	17,075.00
T1	Resident Citizen Trapping	30.50	459	13,999.50
T2	Resident Citizen Minor Trapping	6.50	17	110.50
T3	Resident Citizen Trapping (Age 65-69)	15.25	29	442.25
DT	Duplicate Trapping	2.50	2	5.00
H1	Resident Citizen Hunting	22.50	17,468	393,030.00
H2	Resident Citizen Hunting (Age 65-69)	11.25	948	10,665.00
H3	Resident Citizen Hunting (Paraplegics)	FREE	156	0.00
H4	Resident Alien Hunting	22.50	93	2,092.50
H5	Non-Res. Cit./Alien Hunting (Big Game)	94.50	2,608	246,456.00
H6	Non-Res. Cit./Alien Hunting (Sm. Game)	60.50	966	58,443.00
H8	Resident (Citizen) Minor Hunting	6.50	616	4,004.00
DH	Duplicate Hunting	2.50	81	202.50
S1	Resident Citizen Sporting	40.00	34,851	1,394,040.00
S2	Resident Citizen Sporting (Age 65-69)	20.00	3,701	74,020.00
S3	Resident Citizen Sporting (Over 70)	FREE	9,853	0.00
S4	Resident Minor Sporting (Age 15-17)	8.00	804	6,432.00
DS	Duplicate Sporting	2.50	195	487.50
	TOTAL LICENSE SALES (GROSS)		***248,106***	***5,602,854.00***
	Type of Stamp			
M1	Archery Stamps	5.10	34,783	177,393.30
M2	Waterfowl Stamps	5.00	12,522	62,610.00
M3	Primitive Firearm Stamps	5.10	39,174	199,787.40
W1	Wildlands Stamps	5.00	198,153	990,765.00
W2	Non-Resident Wildlands Stamps	5.00	16,385	81,925.00
	Duplicate Stamps	2.50	0	0.00
	TOTAL STAMP SALES (GROSS)		***301,017***	***1,512,480.70***
	Previous Years Stamp Sales			
M1	Archery Stamps		6	30.60
M2	Waterfowl Stamps		238	1191.57
M3	Primitive Firearm Stamps		5	30.60
	TOTAL STAMP SALES (GROSS)		***249***	***1,252.77***
	Fees Retained and Adjustments by Clerks			(7,326.05)
	Refunds			(2,012.50)
	TOTAL			(**9,338.55**)
	TOTAL LICENSE/STAMP SALES (NET)			***7,107,248.92***

Commonwealth of Massachusetts
Division of Fisheries and Wildlife Organizational Chart



July 2011