

**COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA GAME COMMISSION
HARRISBURG, PENNSYLVANIA
January 31, 2013**

SUBJECT: Annual Report and Growing Greener II Update

TO: All Senate Game and Fisheries Committee Members
All Senate Appropriations Committee Members
All House Game and Fisheries Committee Members
All House Appropriations Committee Members

FROM: Carl G. Roe
Executive Director

Pursuant with Title 34, Section 328 (e), enacted by Act 166 of 1998, it is my pleasure to present to the Committee Members of the General Assembly the Pennsylvania Game Commission's 2012 Annual Report.

This report will detail the implementation and administration of various Commission programs, such as Marcellus Shale development on Game Lands, enforcement of the Game and Wildlife Code, the Commission's response to the discovery of Chronic Wasting Disease within the captive deer population and hunter retention and recruitment efforts throughout the state.

The Commission has strived to meet its mission while once again keeping spending down. To achieve that, the agency has left many positions go vacant, which has had a significant effect on the ability to provide needed services to the public. The agency continues to fund core programs, but that will be more difficult in the future as costs increase. Complicating matters is that the availability of increased federal funds through the Pittman-Robertson Program requires the Game Commission to fully-fund any federally-approved wildlife conservation projects up front and then be reimbursed for up to 75 percent of the eligible costs. Without being able to provide the upfront costs, the Game Commission will be unable to draw down all federal funds for eligible wildlife enhancement projects and programs.

As an appendix to this Report, I also am pleased to provide the report required of the Game Commission regarding the agency's use of its portion of the \$625 million bond issue, which was approved by voters on May 17, 2005. The report provides an allocation plan detailing the projects to be funded during this round, including the amount of each project and the anticipated environmental benefit.

Title 34: Section 328

Accountability

- (A) **Relationship with Public:** The Commission shall implement policies and programs to improve its relationship with the general public and with its licensees in accordance with its strategic plan.

Public Accountability

The Pennsylvania Game Commission's Strategic Plan states that the agency's mission is "to manage all wild birds, mammals and their habitats for current and future generations." This mission flows from Article 1, Section 27, of the Pennsylvania Constitution, which states: "The people have a right to clean air, pure water, and the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources the Commonwealth shall conserve and maintain them for the benefit of all people."

Also, Title 34 (Game and Wildlife Code), Section 103, grants the Pennsylvania Game Commission responsibility for all wild birds and mammals of the Commonwealth, and states that hunting and trapping "as methods of effecting necessary management of game, furbearer and wildlife populations."

Entrusted with this responsibility, the Game Commission strives to serve all Pennsylvanians, and to manage all wild birds and mammals, not just those listed as game species. In carrying out this mission, the agency recognizes that effective communication of knowledge and information is essential for a public conservation agency.

Over the years, the Game Commission has developed many programs to inform people about the value of wildlife and agency activities, and to seek public input prior to developing management plans. Increasing this knowledge and appreciation for wildlife can be accomplished only through effective education and communications efforts. By continuing to do this work, the agency will improve its relationship with the general public.

PUBLIC INPUT AND OUTREACH

The Human Dimensions Specialist completed a second year in the Bureau of Information and Education. This individual is responsible for supervising the Outreach and Education Specialists, in addition to the following research:

One mail survey was conducted and overseen by the HD Specialist: A survey of license buying hunters about *Game News* magazine. Additionally, the HD specialist was responsible for coordinating a telephone survey of Pennsylvania residents about deer with Responsive Management that was completed in early 2012. The results of this general public survey have been presented in front of various groups of stakeholders in Pennsylvania.

The HD Specialist also was frequently consulted by the Bureau of Wildlife Management to consult on the question wording, methodology and analysis of mail surveys conducted by biologists in that bureau, and taught a monthly class to BWM staff members about survey research using Dillman's Internet, Mail and Mixed-Mode Surveys: The Tailored Design Method and other texts. The HD specialist was also involved in the development

of six focus groups of lapsed hunters throughout Pennsylvania. These focus groups will be conducted by Responsive Management. After the completion of these focus groups the HD specialist will be responsible for writing another lapsed hunter questionnaire.

With three years of PALS data now available, the HD specialist and other I&E Bureau staff have met regularly to review the license buying habits of Pennsylvania hunters through various data requests to the Bureau of Administration.

The HD Specialist also upgraded the SPSS software to include a regression package and was thus able to conduct additional analyses on the FY2010-11 lapsed hunter survey using logistic regression and other multivariate analyses. Results from the analysis of this questionnaire will be used to inform the question development for the focus groups of lapsed hunters.

Game News continues to be the primary voice of the Game Commission, and the hunting stories, natural history content and, as always, Field Notes, remain popular with many readers, not just in Pennsylvania, but throughout the country and to our servicemen and women throughout the world. *Game News* also features articles about Game Commission research and management projects, law enforcement accounts by our WCOs, and agency news.

Game News "Crossings" columnist Ben Moyer captured first place in the "Column" category in the 2012 Outdoor Writers Association of America Excellence in Craft writing awards competition for his work in 2011 issues of *Game News*.

The agency is in its fifth year of posting entire *Game News* issues online through Nxtbook. The online version allows users to conduct searches, go directly to particular features and, by using a zoom feature, make the type larger and easier to read. Accessing *Game News* in digital formats is a top priority to accommodate our younger readers. *Game News* remains popular on newsstands throughout the state and is now offered in all Wal-Mart stores in Pennsylvania.

In addition to *Game News*, many other brochures and publications, including the Connect with Wildlife calendar, the annual Digest, the annual *Pennsylvania Big Game Records* book are produced by *Game News* staff.

The Game Commission continues to offer a wide variety of news releases and features about wildlife, hunting and trapping to the news media and public.

The Game Commission continuously updates and adds information to its website to expand and improve the content related to the wildlife resources and agency's management.

In the radio market, we have entered our fourth year of an agreement with RadioPA to provide daily, three-minute broadcasts consisting of one minute and 50 seconds worth of agency content, coupled with one minute and ten seconds of RadioPA-generated

commercial content. This programming is then provided to nearly 45 radio stations that subscribe to RadioPA's service.

The Bureau launched a "PGC Wild Cam" that provides the public worldwide with opportunities to watch live-streaming video of wildlife in varied settings that normally cannot be accessed. Two such locations were in the propagation area off Willow Point at the Middle Creek Wildlife Management Area to observe snow geese and in a barn owl box located on a Perry County farm. More than 150 people at one time were viewing the barn owl livestream. In total, more than 300,000 people have viewed these images.

HUNTER-TRAPPER EDUCATION AND RECRUITMENT/RETENTION

The Hunter-Trapper Education Division was responsible for producing and distributing copies of the following printed training guides and materials that promote hunting and trapping:

- "Today's Hunter and Trapper in Pennsylvania student guide" – 43,330
- "IHEA Hunter's Handbook" – 41,600 copies
- "IHEA Hunter and Shooting Sports Education Journal" – 7,800 copies
- "Today's Bowhunter student guide" – 500
- "Today's Crossbow student guide" – 25
- "NBEF's 3-in-1 Responsible Hunting Guide" – 500
- "Successful Furtaking student guide" – 100
- "Cable Restraint student manuals" – 550

These materials are distributed as part of the various hunter education programs and instructor training workshops with numbers paralleling trends in class enrollments.

A total of 964 basic Hunter-Trapper Education courses were conducted statewide during this reporting period. The total is comprised of 812 traditional multi-day courses, and 152 two-hour independent study classes. This compares to 908 statewide courses during FY2010-11; 759 traditional and 149 independent study classes and marks a 6.2 percent increase in the number of courses.

HTE program policy requires all proposed HTE classes for the calendar year be scheduled by April 1. An internal review is then conducted and recommendations are made to improve course scheduling with particular emphasis on the months of September through November. The policy also requires that all classes are posted on the Internet and include online registration capabilities.

To gain a better measure of public demand for training, the agency continues to use web analytics to measure and track the public's use of the Internet in searching for hunter education classes. By measuring the number of users, the course types in demand, the users' ISP-generated hometowns, time of the year and more, we are able to quantify demand by time and locale. In response, we can schedule classes in those areas and at those times of the year matching the demand suggested by the analytics. By using these

tools, coupled with strategic scheduling, we are beginning to see increased enrollments in HTE classes.

The Junior Pheasant Hunt program was coordinated by the Bureau of Wildlife Management. On October 8, 2011, 25 events were held with 790 hunters registered. The Mentored Youth Hunting Program Permit continued for the 2011-2012 hunting season. 33,514 permits were sold, an increase of 8.13 percent over the previous 30,790 sold in 2010-2011.

The Game Commission continued coordination of the National Archery in the Schools Program (NASP). In the 2011-2012 fiscal year, the program surmounted enrollment of 100 schools and was identified by the national NASP organization for the greatest percent increase in school numbers of all participating states (48). Approximately 15,000 students were reported by schools to have participated in the program in the 2011-2012 school year. The agency once again coordinated a statewide tournament in March at the Penn State Multi Sports Facility and welcomed 500 archers representing 23 different schools to compete. Seventy of those students traveled to Louisville, Kentucky, in May to attend the National NASP tournament. The Game Commission continues to offer \$1,500 to offset the cost of an equipment kit for each school to enroll in the NASP program, and secured more than \$20,000 in additional grant funding to help the schools further defray the cost. The agency hosted 16 Basic Archery Instructor trainings and certified 116 Basic Archery Instructors. The agency renewed contracts with four different Basic Archery Instructor Trainers for the new fiscal year and will continue to facilitate trainings for the program.

The Game Commission completed a third year of a Cooperative Agreement with the National Wild Turkey Federation to promote and provide Women in the Outdoor (WITO) events. The agreement required the NWTF to hire a new WITO event coordinator for the state in December 2011 and, partially using agency PR funds, fund this position for the remaining part of the fiscal year. The partnership required a minimum of 25 events to be conducted from July 1, 2011, to June 30, 2012 with a minimum of 1,000 participants. In addition to the PR funds, the agency required events to be registered through the Event Manager system and in turn the agency extended use of marketing tools, such as publicity in *Game News*, press releases and social media. Upon completion of the fiscal year, both parties agreed to discontinue the Cooperative Agreement for the 2012-2013 fiscal year because of differences in ideas concerning the instruction and purpose of the program.

During the reporting year the first Successful Turkey Hunting classes were conducted. The curriculum is designed to provide the knowledge, skills and ability for students to be successful early in their turkey hunting careers. More classes are being scheduled for later in 2012. Current advanced training courses now include Successful Bowhunting, Successful Furtaking, Successful Turkey Hunting and Cable Restraint Certification. Curriculum development has begun for a new Successful Muzzleloading training program to be launched in 2013.

During the reporting year of July 1, 2010, to June 30, 2012, 35 hunting-related shooting incidents occurred at a rate of 3.57 incidents/100,000 license buyers. This included one fatality. The same number of incidents was recorded the previous reporting year. The total number recorded during FY2011-12 remains below the current 10-year average of 51.1 incidents per year with a rate of 5.15 incidents/100,000 license buyers.

As an off-shoot of the partnership with Radio PA, the Game Commission and Top Flight Media, a subsidiary of Radio PA, entered into a second year of managing a joint website creation - SafeHuntingPA.Com. This year, the coordinated effort offered eight hunting safety messages for radio stations to use, as well as links to other Game Commission news releases and weekly offerings of the “Outdoors PA with the Pennsylvania Game Commission” segments.

WILDLIFE CONSERVATION OUTREACH AND EDUCATION

The Bureau moved forward with posting a number of videos on the popular “YouTube” websites, and has continued to webcast all Quarterly meetings of the Board of Game Commissioners that are held in Harrisburg and the annual elk drawing. In 2011-12, the agency added the Board’s Working Group Meetings to the line-up of live webcasts.

In addition, three Facebook pages were created that now have “Likes” of more than 3,300 people. A Twitter site was also opened and is followed by more than 700 people. These sites have educational and informational material posted on them every day and have a “reach” of more than one million people.

PGC personnel conduct programs for students throughout the state. All programs conducted in schools address the Environment and Ecology State Education Standards. Programs include adaptations, wildlife and their habitats, predator/prey relationships, ecosystems and their interactions, mammals and birds of PA, wildlife forensics, and endangered and threatened species. Conservation Education also worked with Howard Nursery on the Seedlings for School program. This program offers free seedlings to schools along with education resource materials.

The PGC offered instructional courses relating to different aspects of wildlife and the outdoors through the Wildlife Conservationist Certificate Program. Just some other outreach programs included: billboard advertising throughout Pennsylvania; Connect with Wildlife magnets, posters, bumper stickers; Bald Eagle Restoration 200 Nest Milestone patch; Working Together for Wildlife patches, Field Note patches; Elk Hunt patches; Mentored Youth patch with safe-t plug; Time Collectible Wild Turkey Heritage and Upland Game Bird Series patches; and waterfowl stamp and print.

WILDLIFE PROTECTION

The Bureau of Wildlife Protection continues to work toward its mission of protecting Pennsylvania’s wildlife through law enforcement, seeking effective legislation and developing regulations.

House Bill 1859 sponsored by Representative Edward Staback passed into law as Act 54. An intensive statewide training was conducted for all officers and several major poaching cases were prosecuted during this reporting period that included the first ever felony charges and jail sentences for poaching. Numerous cases are still being adjudicated in the court system; however, it appears both district attorneys and judges are very supportive of these increased penalties.

In addition, SB 1200, introduced by Chairman Richard Alloway, passed into law as Act 60 and was implemented January 1, 2011. To date, 7,092 violation records were received from other member states and reviewed; 1,055 of those violations were serious enough to be applicable to Pennsylvania's standards and the violators were placed on license revocation in Pennsylvania due to the offense that occurred in another member state. This includes two Pennsylvania residents who shot hunters in other states who would not previously have been revoked in Pennsylvania. Pennsylvania has submitted 177 violators in calendar year 2011 and 271 in calendar year 2012 who met the criteria into the compact to be evaluated for revocation by other member states.

Anecdotal evidence, as well as actual intelligence gathered by the special operations division indicates that these two pieces of legislation are having a deterrent effort on commercial poachers and chronic offenders.

Game Commission officers encountered 20,144 violations during this fiscal year through high visibility patrol, selective enforcement operations, overt and covert investigations, surveillance operations and complaint response. The enforcement action taken by officers encountering those violations resulted in 13,607 warnings and 6,537 citations being issued. It should be noted that the officers issued more warnings than citations, a rate of almost two to one, indicating officer discretion in a balanced enforcement effort to focus efforts on the violations with the most impact to the wildlife resource. Of the violations cited, the conviction rate was 96 percent and attests not only to the discretion, but also the technical competence and professionalism of Game Commission officers. The ratio of appeals of initial convictions was less than one percent, actually .87 percent. The final measurement indicator of the dividends of the training investment was the significantly low citizen complaint to enforcement contact ratio that has been consistently maintained since the inception of the complaint tracking system, with less than 1/1000 of a percent of enforcement contacts filing complaints against officers. Only six complaints were received against officers this year, one of which was sustained.

In the fall of 2011 the Bureau of Wildlife Protection conducted a data analysis of our prosecution data base to determine peak night-time poaching activity. Then a statewide task force was coordinated called Operation Talon that focused officers of the PGC, PFBC, DCNR and PSP, including PSP air support, across the commonwealth focusing on poaching activity for a 2-week period. More than 500 officers participated in the operation and resulted in 313 enforcement contacts, 192 citations or arrests and 94 warnings. Several other criminal violations detected were turned over to PSP for

prosecution, including 5 DUIs, 2 felons not to possess firearms and several drug or drug paraphernalia charges.

The top 10 violations prosecuted this year also indicate that officers are focusing their efforts on violations with the most impact to the wildlife resource. They are:

Unlawful taking or possession of Game or Wildlife — 496 prosecutions
Possession of a loaded firearm in a motorized vehicle — 407 prosecutions
Operating vehicles on State Game Lands in areas closed to travel, primarily ATV violations — 379 prosecutions
Hunt or take wildlife through the use of bait or enticement — 294 prosecutions
Cast a light after 11 p.m. — 197 prosecutions
Big game tagging violations — 195 prosecutions
Hunt or take wildlife through use of a motor vehicle — 195 prosecutions
Kill/possess big game in closed season or excess of bag limits — 185 prosecutions
Unlawful use of lights while hunting — 153 prosecutions
Safety Zone violations — 131 prosecutions

Additional surveillance cameras were purchased this fiscal year to enhance the special investigation units' evidence gathering capabilities. Officers have expanded the use of Internet and social media sites as investigative resources. Increased coordination with other state and federal wildlife investigation units has resulted in four interstate investigations this reporting period. We have initiated the process to add three advanced overt investigation officers, which will greatly enhance the units' capabilities, but are contingent upon a complement increase.

The Turn-In-A-Poacher (TIP) Hotline program continues to grow and develop each year from information provided by concerned citizens. Last fiscal year 941 calls and emails were relayed to the appropriate region — a 48 percent increase from the prior fiscal year, and an 86 percent increase from the year before that. The number of successful prosecutions increased along with the number of reward payments paid out to witnesses and informants for information that lead to the successful prosecutions of specific charges. Twenty-eight reward payments were paid out totaling \$7,000.

Twenty-two new deputy WCOs were recruited and trained this reporting period.

This fiscal year the special permit enforcement division issued 1,708 special permits and completed 36 amendments to existing permits. Marcellus Shale drilling activity and wind energy development are causing significant increases in workload in this division.

HABITAT ENHANCEMENTS

Providing hunting and furtaking opportunity are among State Game Lands mandates. During the fiscal year, 4,200 miles of roads were maintained for hunter and habitat management access; 10,000 parking lots were maintained; 109 bridges repaired; 6,461 culverts replaced; and 288 miles of trails maintained.

During the fiscal year, 11,332 acres were added to the State Game Lands system, bringing the agency's total Game Lands acreage to 1,462,086. These are comprised of 305 tracts in 65 of Pennsylvania's 67 counties. The single largest acquisition was 9,197 acres in Bell and Greenwood townships, Clearfield County, which was added to SGL 87. Funding for this large tract was made possible by third party commitments for compensation of habitat and recreational losses from previously approved Commission actions on oil/gas and mineral recovery leases.

The Game Commission provided local government bodies much needed funding in support of local and county governments and programs where Game Lands are located. Eligible recipients of local municipalities received \$1.20 per acre from the Game Fund for payment in-lieu-of taxes that amounted to \$1,739,090 divided into three equal payments and sent to the recipient counties, school districts and townships last fiscal year.

Last year, there were more than 10,000 signs distributed on State Game Lands highlighting wildlife habitat techniques, food plots, prescribed fire treatments, deer fence enclosures, forest management areas and other management practices.

Maintaining identifiable boundary lines is among the many tasks of Food & Cover Corps crews. This year, 1,955 miles of boundary lines on Game Lands were cleared, inspected and marked.

Shooting ranges are located on several tracts of Game Lands for use of holders of range permits or valid state hunting or furtaking licenses. Food & Cover Corps staff conducted 1,266 range visits with major safety upgrade projects completed on one range.

Early successional habitats are in decline across the state, causing them to be listed as key habitats in the Wildlife Action Plan. There were 3,922 acres of early successional habitat treatments conducted by Game Commission Food & Cover Corps crews last year. An additional 2,199 acres were treated through third party contracts. Many of these acres will be maintained through the agency's prescribed fire program.

One of the most significant habitat developments of the past several years was passage of the Prescribed Burning Practices Act. The Game Commission is working closely with the Bureau of Forestry, Bureau of State Parks, DMVA, The Nature Conservancy and the U.S. Forest Service to train personnel and develop landscape scale prescribed fire plans. There were 61 burn plans submitted and reviewed, resulting in prescribed fire treatment on 1,222 acres on Game Lands.

Grasslands are another key habitat, and many of the state's largest grasslands occur on strip-mined sites. The Game Commission embarked on a grassland conservation initiative late in the year. Thus far, 1,523 acres of stripmines were reclaimed to native herbaceous habitat. In addition to stripmines, 327 acres of native grasses were established on Game Lands.

Invasive plants present an ongoing problem on State Game Lands. Invasive species that negatively impact wildlife habitat were detected and addressed on 2,402 acres of Game Lands.

Tree and shrub seedlings totaling 305,991 were planted to improve habitat diversity on Game Lands.

Maintaining optimum habitat diversity on Game Lands is an important goal of our Forest Habitat Management Program. Timber contractors harvested 6,327 acres that yielded more than 18.4 million board feet of logs and 152,733 tons of pulpwood. These operations generated \$6,597,810. The increase in harvesting activity seems to indicate a stability returning to the timber markets, but the dollar values attached to the timber will likely not increase much over the next few years as the industry recovers from the economic slump.

With the stabilization of more balanced deer populations, positive impacts are being noted in forest habitats. The Game Commission is actively removing deer enclosure fencing in areas where habitats have successfully regenerated. During the last fiscal year, 396 acres of fencing were removed.

The Howard Nursery produced and distributed 2,670,525 tree and shrub seedlings for wildlife food and cover plantings, and 961,125 of the seedlings were sold to the public and other wildlife partners for \$187,021. The nursery wood shop produced and shipped 28,694 wood products that included: 3,315 bluebird boxes; 14,705 bluebird box kits; 385 wood duck boxes and kits; 175 bat houses; 73 custom signs; 121 boundary line signs; 287 bulletin boards; and 5,300 sign backboards for use on Game Lands and Hunter Access properties. Wood products are available for purchase by the public on the agency's website.

Coordination on non-Game Commission public lands provides additional hunting and habitat management opportunity. There are 78,523 acres of Army Corps of Engineers land managed by the agency through cooperative agreements. An additional 37,000 acres of State Forest and State Park lands are cooperatively managed by Game Commission crews across the state.

The Game Commission provided technical assistance and habitat management expertise to DCNR for implementation of American woodcock habitat improvements on 700 acres in Susquehannock, Lackawanna, Cornplanter, Gallitzin, Michaux, Buchanan, Forbes, Tuscarora and Tioga state forests.

The agency's Hunter Access programs provide hunting opportunity on private lands. This year, 15,399 Hunter Access cooperators allowed access on more than 2,666,007 acres of private land.

Through a Voluntary Hunter Access and Habitat Improvement Program (VPA-HIP) grant from the USDA, 121 new habitat projects were planned and implementation has begun on 6,445 acres on private lands, and 17,511 new acres were enrolled into the Hunter Access program as a result of this grant. In addition, the grant paid for *Game News* magazine subscriptions to all Hunter Access cooperators.

Considerable wildlife habitat was improved on private lands via Farm Bill Programs. This included 303 CREP plans that were written and became contracts. This year an additional 7,589 acres of habitat were included into the PA CREP, bringing the total to 205,794 acres and making Pennsylvania a leader in the program. An additional 70 landowners offered to enroll 1,348 acres in young forest created habitat through the Wildlife Habitat Incentives Program (WHIP) and Working Lands For Wildlife Program. In addition, more than 80 Forest Management plans were written, and \$1,024,613 was spent to implement wildlife habitat related practices using the Environmental Quality Incentives Program (EQIP – Forestry).

Since the creation of the Game Commission's Wind Energy Voluntary Cooperative Agreement, 33 wind development companies have become cooperators, agreeing to avoid, minimize and potentially mitigate any adverse impacts from development of wind energy on private lands that may occur to the state's wildlife resources. Staff continued to work with wind companies to mitigate endangered bird and bat species mortality that has been documented at operational wind facilities.

During the past fiscal year, the Oil/Gas and Mineral Development Section reviewed 96 oil or gas well locations and their affiliated access ways on Game Lands. Of these, 70 were Marcellus Shale oil and gas well locations at which only three were under PGC oil/gas development leases whereas 67 were on Game Lands' surfaces where the PGC does not own the subsurface gas rights. These reviews and coordination resulted in improvements to parking lots and roads, as well as maintenance on related Game Land infrastructure at the expense of the developer. Total revenues received from oil/gas and mineral recovery operations in 2011-2012 were \$21,334,570, which includes oil/gas royalties (\$3,872,593) coal royalties (\$1,254,670), rental and lease bonus payments (\$15,726,068), sand gravel and stone operations (\$113,943) and surface damages (\$367,296).

The Game Commission Engineering Division has been focused on helping the agency recover from the devastating flooding as a result of Tropical Storm Lee in September 2011. The flooding caused \$5,104,712 in damage to agency facilities. The Loyalsock and Northcentral game farms in Lycoming County were particularly hard hit by the flooding. Repairs to buildings and holding fields were completed in time to have both game farms achieve full production levels for the spring 2012 brooding season.

Construction of the new Northwest Region Office in Franklin was completed in March 2012. The Northwest Region staff moved into the new building in early April. Installation of a new roof on the Southwest Region Office in Ligonier was also completed.

Nine new bridges were constructed on Game Lands during the fiscal year using Pittman-Robertson funds. A dam renovation on SGL 282 in Warren County was completed during the fiscal year and involved installation of a new outlet structure. The project was completed using PGC labor and rented equipment at a reduced cost. The engineering staff also conducted the required safety inspections on the seven high hazard dams owned by the agency. All seven dams were found to be in excellent condition. The Emergency Action Plans (EAP) for all seven PGC-owned high hazard dams are complete.

The Engineering Division has a large backlog of projects to complete in the next decade to keep the infrastructure of the agency intact. Infrastructure failures can have negative affects on all other agency programs, and construction and repair project funding must continue so that vital services and programs are not jeopardized.

Title 34: Section 328

Accountability

(B) Program Accountability: The Commission shall require program accountability of its various functions through program performance measurement in accordance with its strategic plan.

PROGRAM ACCOUNTABILITY

In 2003, the Game Commission adopted its first comprehensive strategic plan to guide the agency through fiscal year 2008. The Commission has completed an update of the plan, and the new Strategic Plan, to cover the years of 2009 to 2014, was published and is available on the website. The following is an update where the agency stands in relation to achieving the goals and objectives in the plan at the end of fiscal year 2011-2012. During the life of the current plan, several objectives were not accomplished, or were partially accomplished, due to a lack of resources.

Mission: To manage all wild birds and mammals and their habitats for current and future generations.

GOALS AND STRATEGIC OBJECTIVES

GOAL 1: Conserve, protect and restore wildlife populations for their many public values.

Strategic Objective 1.1 Manage sustainable wildlife populations.

As stated in Article 1, Section 27 of Pennsylvania's Constitution, the Commonwealth has the responsibility to conserve and maintain its natural resources for the benefit of all the people, including generations yet to come. As the Commonwealth's wildlife management agency, the Pennsylvania Game Commission (PGC) is responsible for sustainably managing all of Pennsylvania's wild birds and wild mammals. Of the 480 species of wild birds and wild mammals in Pennsylvania (PA), primary attention is necessarily limited to select game species and our most imperiled species due to funding sources and limitations.

The 2011-12 Game Take and Furtaker surveys were completed in the spring of 2012. These annual hunter and trapper surveys estimate small game and furbearer harvests, numbers of hunters and trappers and days of effort. We have been conducting these surveys for nearly three decades, so important long term trend information is available. As an example of the type of information available, in 2011-12 hunting seasons there were 109,369 rabbit hunters and 25,290 crow hunters. They hunted 552,686 and 157,061 days, respectively, and harvested 289,547 rabbits and 182,659 crows. In 1990, there were 436,961 rabbit hunters and 39,579 crow hunters, who hunted 2,901,567 and 223,525 days, respectively, and harvested 1,672,360 rabbits and 355,492 crows. For those interested in additional participation and harvest information, you can view a detailed annual report on the PGC website (www.pgc.state.pa.us).

Through the Game Take Survey, we also measure participation in youth hunts. In 2011 hunting seasons, 7,873 junior license holders participated in youth squirrel season, 4,778 in youth pheasant season, 12,710 in youth spring turkey season, and 2,649 in youth rabbit

season. Youth hunt participants harvested 14,921 squirrels, 3,201 pheasants, 1,588 spring turkeys and 1,588 rabbits.

An inaugural Spring Turkey Hunter Survey was sent out to 10,613 respondents of the 2011-12 Game Take Survey to collect data on 2012 spring turkey hunting participation, effort, and harvest. This survey used a mixed-mode design with internet and standard mail reply options, and will improve accuracy, precision, and timeliness of estimates.

Research on white-tailed deer survival and harvest rates in Wildlife Management Units (WMUs) 2D, 2G, 3C, and 4B was completed. In these 4 WMUs, the firearms season was changed from a 12-day antlered and antlerless concurrent season to a 5-day antlered only season followed by a seven day antlered and antlerless concurrent season beginning in 2008. We investigated the effect of this season change on deer harvests and populations, and we completed a series of hunter surveys to monitor hunter activities, success, and satisfaction. We sent daily hunting diaries to nearly 2,400 hunters prior to the 2011 firearms season. Although deer populations in each WMU increased, hunter satisfaction with their hunting experience, opinion of the deer abundance, and rating of the deer program changed little. This research was conducted in cooperation with the Pennsylvania Cooperative Fish and Wildlife Research Unit (PCFWRU) at The Pennsylvania State University (PSU).

Other deer-related hunter surveys were completed to assess hunter behaviors and attitudes regarding reporting their deer harvests, and a general survey of deer hunter attitudes, activities, and satisfaction.

A new study in WMU 5C was initiated this past winter to determine survival and harvest rates of antlered and antlerless deer in this more developed area of Pennsylvania. At the end of the 2011 trapping season 245 deer had been captured and marked with ear tags or radio collars. More than 90 radio-collared deer were being monitored as the fiscal year ended.

During the 2011-12 firearms season, 33 PGC deer aging teams were deployed for seven days to collect sex, age, and kill (SAK) data from a sample of harvested deer. PGC personnel examined 25,996 deer (9,747 antlered and 16,249 antlerless). Each team checked an average of 443 (range: 38-757) antlered deer and 739 (range: 188 to 1,689) antlerless deer per WMU. Age data from more than 16,000 antlerless deer were used to assess the proportion of juveniles in the antlerless harvest. Proportion of juveniles in the antlerless harvest ranged from a low of 0.32 in WMU 5A to a high of 0.49 in WMU 5D. All WMUs exhibited stable trends from 2003 to the present.

SAK data were used to estimate deer harvests from the 2011-12 hunting seasons. Based on hunter harvest reports and SAK data, hunters harvested 336,200 deer (127,540 antlered and 208,660 antlerless). The 2011-12 antlered harvest was an increase of 4% from the 2010-11 harvest of 122,930. The 2011-12 antlerless harvest was an increase of 8% compared to the harvest of 193,310 in 2010-11.

Antlered harvests were composed of 50 %, 1.5-year-old males and 50 %, 2.5-year-old and older males. Compared to years prior to implementation of antler restrictions during the 2002-03 hunting seasons, the age structure of the antlered harvest has increased, as has the number of 2.5-year-old and older bucks harvested. Antlerless harvest composition has changed little since 1997-98 hunting seasons.

In WMUs 1A, 1B, 2A, 2B, and 2D, the change in antler restriction from 4 points to a side to 3 points not including the brow tine allowed a few more antlered deer to be harvested. At most, seven percent of the antlered harvest in these WMUs would not have been legal with the antler restriction in 2010.

Results of this year's deer harvest were incorporated into deer population trend assessments. Deer population trends were stable in 18 WMUs and increasing in 4 WMUs from 2006 to 2011.

For 2012-13 antlerless deer allocations, allocation options were prepared that would increase, decrease, or stabilize the deer population with either a five day antlered and seven day concurrent firearms season or a twelve day concurrent firearm season. Staff biologists provided measures of deer health (i.e., proportion of juveniles in the antlerless harvest and population trend), forest habitat health (i.e., percent plots with adequate regeneration), deer impact, and deer-human conflict information from a survey of Pennsylvania citizens for each WMU. The Board of Commissioners retained the five day antlered/seven day concurrent firearms season in WMUs 2A, 2C, 2D, 2E, 2F, 2G, 3B, 3C, 4B, 4D, and 4E. Antlerless deer license allocations were adopted that fall between population stabilization and decreased population levels in WMUs 1B, 2B, and 3D. The approved antlerless allocations in 15 WMUs (1A, 2A, 2C, 2E, 2F, 3A, 3C, 4A, 4C, 4D, 4E, 5A, 5B, 5C, and 5D) were designed to stabilize the deer populations. The approved antlerless allocations in WMUs 2D, 2G, 3B, and 4B fall between stabilization and increased deer population levels. The approved antlerless allocations increased allocations from 2011-12 to 2012-13 season in seven WMUs, remained the same in six WMUs, and decreased in nine WMUs.

This year's Deer Management Assistance Program (DMAP) required a detailed management plan for public land owners and those under the minimum acreage thresholds. DMAP was developed to provide both public and private landowners a tool to better control deer numbers on their properties through hunting. For 2011-12, the Commission approved 766 applications, which was lower than the 870 in 2010. Enrolled acres declined from 1,658,732 in 2010 to 1,448,521 in 2011. Number of coupons requested and approved remained similar with 27,588 in 2010 and 27,519 in 2011. Hunters redeemed 23,915 DMAP coupons. While all DMAP harvest permit holders are required to submit a report card regardless of harvest success, only 52% reported. DMAP reported harvest was 3,933 antlerless deer.

Over 100 elk were radio-tracked throughout the year to evaluate survival, distribution, and movements across the range in north central PA. PGC personnel captured and radio-

tagged additional elk between January and June 2012 to improve the distribution of marked animals across elk subpopulations and to replace faulty transmitters.

An annual population survey was conducted in the winter of 2012 to determine a minimum count of the elk population. Elk marked with radio-collars were used to complete a Minimum Number Alive (MNA) count and to monitor elk movements, reproduction, survival and habitat use. A total of 824 elk were counted during the MNA count, which included 461 adult cows, 145 calves, 138 branched bulls, and 80 spikes.

Elk hunting seasons were held from September to November 2011 with a total of 57 elk licenses (19 antlered, 38 antlerless) issued. Successful hunters were required to have their elk checked within 24 hours of harvest. All elk were examined, a tooth and select tissues were collected, and a harvest report was completed. Samples were collected from hunter-killed elk to allow surveillance for brucellosis, bovine tuberculosis (BTB) and chronic wasting disease (CWD). No evidence of these diseases was detected. Hunters harvested a total of 53 elk (19 antlered and 34 antlerless). Included in this harvest was a new state record non-typical bull that scored 441" Boone and Crockett and ranks in the top 10 in the world.

Work was initiated to update the elk management plan but was not completed in FY11 due to the illness and untimely passing of our elk biologist. Plans are to fill this vacancy in FY12 and renew work on the management plan update.

Staff biologists attended the annual meetings of the Atlantic Flyway (AF) Council to participate in discussions of migratory bird hunting season frameworks and development of management recommendations for consideration by the U.S. Fish and Wildlife Service (USFWS). Changes for the 2011-12 federal frameworks included addition of a second (non-consecutive) youth waterfowl hunting day, and a two week extension of the woodcock season. The annual Waterfowl Symposium was held August 5 at Presque Isle State Park to provide updates on PGC waterfowl programs, and to obtain input from the public and hunting organizations on waterfowl season proposals for 2011-12. Based on this input, waterfowl season selections for Pennsylvania were developed, submitted to the USFWS, and announced to the public via a news release and a waterfowl regulations brochure. In our season selections, we incorporated constituent requests for a non-split duck season in the Northwest Zone, and for various changes to snow goose seasons to increase harvest opportunity.

Estimates of active duck and goose hunters in Pennsylvania from the federal Harvest Information Program (HIP) were 24,200 and 27,900, respectively; these numbers remain the highest in the AF, but were below the 1999-2010 long-term averages by 15% and 25%, respectively. The HIP estimate of total Pennsylvania duck harvest for 2011-12 was 81,500, 49% below the long-term average (LTA). The top 5 duck species harvested were mallard (40,900), wood duck (16,400), black duck (4,700), green-winged teal (4,000) and bufflehead (3,700). Estimated harvests for most species were significantly below the LTA. This was also true for most other AF states and can likely be attributed to the mild weather through the hunting season, which influenced the timing of waterfowl migration

and reduced vulnerability to hunter harvest. AF fall age ratios (an index of juvenile recruitment), were near the LTA for mallard, black duck and American green-winged teal, but 25% below the LTA for wood ducks.

The HIP estimate for Canada goose harvest in Pennsylvania for 2011-12 was 75,100, 59% below the LTA. This was the lowest harvest estimate for Pennsylvania since HIP estimates began in 1999. Pennsylvania ranked third among AF states for total Canada goose harvest. The mild weather conditions during late fall and winter likely hampered Canada goose harvest in those hunting seasons. Also, the AF age ratio of juvenile to adult Canada geese was 28% below LTA. Because juvenile birds are typically more vulnerable to harvest, hunting success rates tend to be lower when there are fewer juveniles in the fall flight.

Harvest estimates for “light geese” (combined greater and lesser snow goose and Ross’s geese) in Pennsylvania during 2011-12 were 21,738 during the regular season and 3,420 during the snow goose conservation season, which was again held following the close of other waterfowl seasons (26 January – 27 April in the Atlantic Population (AP) and Southern James Bay Population (SJB) Goose Zones, 27 February – 27 April in the Resident Population (RP) Goose Zone) in an effort to increase harvest of this overabundant species. The conservation season allows for additional hunting methods of extended hours, electronic calls, and electronic decoys which were used for 15%, 38%, and 31%, respectively, of the snow geese taken in the conservation season. Although the conservation season harvest was down 34% from 2011, overall light goose harvest increased substantially because Pennsylvania’s regular season harvest was triple the LTA, and ranked first among AF states. In contrast to the effects of weather on harvest of other waterfowl species, the mild weather likely increased light goose harvest in Pennsylvania by inducing a higher than usual number of light geese to stage or winter in the state through the regular hunting season. Another contributing factor to increased harvests may have been a near average percentage of juvenile light geese in the AF fall flight, after below average recruitment in 2010-11.

Representative samples of waterfowl are banded annually in Pennsylvania as part of the cooperative AF banding program. Banding data is essential for determining the timing and distribution of the waterfowl harvest, overall harvest and survival rates, and migration patterns; and allows for evaluation of the effects of changes in hunting regulations. Fiscal year waterfowl banding efforts included preseason duck banding, postseason (winter) black duck banding, and June resident Canada goose banding.

Preseason (August and September 2011) duck bandings occurred at 14 sites statewide, in five of the six PGC regions. A total of 2,720 ducks were banded. Total bandings were 31% below the LTA (1989-2010). As usual, mallards made up the largest proportion of the total with 2,000 individuals banded; this was 26% below the LTA, but all mallard banding quotas were attained. The 2011 mallard juvenile to adult age ratio of 1.67 was 21% below the LTA of 2.11. Wood duck bandings were down 41% from average with 623 banded in 2011. We surpassed the banding quotas for juvenile male wood ducks, but did not reach the quota for adults (51% of quota banded) or juvenile females (89% of

quota banded). The wood duck age ratio of 2.04 juveniles per adult was 13% above the LTA of 1.8. Only 15 American black ducks were banded. This was 75% below average. The number of black ducks banded pre-season in Pennsylvania has been declining since the mid-1990s and the current level is well below flyway quotas (2011 quota attainment was 8-20%). In addition to the three major species to which pre-season banding efforts are targeted, we also banded 37 blue-winged teal, 26 American green-winged teal, 10 mallard/black duck hybrids, 4 northern shovelers, 3 northern pintails, and 1 hooded merganser.

AF states are participating in a 5-year pilot project to address long-term declines in pre-season black duck bandings by conducting post-season (winter) banding efforts; winter 2012 marked the third year of this project. The PGC was again awarded a grant from the Black Duck Joint Venture (BDJV) Northeast States Black Duck Banding Project Fund in support of these efforts. The warm winter hampered capture efforts across much of the AF, but thanks in large part to excellent trapping success experienced by Southeast Region staff at Middle Creek Wildlife Management Area and Lake Ontelaunee, we banded 278 black ducks statewide, which surpassed the previous statewide high for this project of 201 banded in 2011. An additional 345 incidentally captured ducks were also banded including 286 mallards, 24 mallard X black duck hybrids, 19 green-winged teal, 12 American widgeon, 2 ring-necked ducks, 1 wood duck, and 1 northern pintail. Although pre-season (summer) duck banding remains our best way to achieve needed sample sizes for mallards and wood ducks, we capture few black ducks during that period. The much higher black duck capture rates in the post-season effort are allowing us to increase our contribution to monitoring and management of this important species in the AF. Winter black duck banding will continue through 2014.

During June 2012, 3,000 resident Canada geese were banded at 33 locations in 20 counties. This total was 7% higher than 2011 and exceeded the state quota (2,322) by 29%. The use of multiple goose banding crews has achieved aggregate banding quotas over the 2002-2012 period for all six physiographic strata into which the statewide quota is apportioned to obtain a good geographic distribution of the banded sample. Statewide gosling production in 2012 was 37% below the 1991-2011 average. We contributed to the 2011 banding effort for the migratory AP of Canada geese, with a PGC waterfowl biologist aide participating on a banding crew working on the AP breeding grounds in the Ungava Peninsula, Quebec during August.

During FY 2011, there were 1,894 recoveries in North America of waterfowl banded in Pennsylvania representing 10 different species. Of these, 58% were Canada geese, 29% mallards, 9% wood ducks, and 1% each black duck, green-winged teal and ring-necked ducks. Pennsylvania-banded birds were recovered in 34 states and provinces with 66% of recoveries occurring in Pennsylvania, 7% in Ohio, 4% in New York, and 3% each in Ontario, Virginia and North Carolina. Waterfowl band recoveries in Pennsylvania originated from 31 different states, provinces and territories, of which 68% were banded in Pennsylvania, 7% in Nunavut, 7% in Quebec, 5% in Ontario and 4% in New York. Major species represented were Canada geese (69% of all Pennsylvania recoveries), mallards (16%), greater snow geese (8%), wood ducks (4%) and black ducks (1%). Band

recovery distribution and derivation tables and maps as well as recovery and survival rates of Pennsylvania banded waterfowl are continually monitored to ensure hunting seasons are consistent with population status.

Additional activities related to banding program management included responding to data requests from the Bird Banding Laboratory on observations of color-marked Canada geese and peregrine falcons, updating banding software, and keeping the PGC's banding permit up to date with additions and deletions of sub-permittees.

The AF Midwinter Waterfowl Survey (MWS) provides information about waterfowl populations and distribution in this portion of their annual cycle. Although breeding ground surveys have become the primary source of population status information used in setting most waterfowl hunting regulations, MWS results still guide harvest management for some species, including tundra swans and Atlantic brant. MWS data is also important in assessing progress towards species population goals set forth in the North American Waterfowl Management Plan, and is useful for documenting long-term shifts in the spatial distribution of wintering waterfowl, assessing the locations and status of key wintering habitats, and various other applications. We conducted the MWS in early January and provided data to USFWS for inclusion in the AF database. A total of 52,139 waterfowl (10% above 2011, but 28% below the 2002-2011 average) were observed statewide, including 1,875 dabbling ducks (mostly mallards and black ducks); 1,690 diving ducks; 1,390 mergansers; 44,164 geese (79% Canada geese and 21% snow geese); and 742 swans (93% tundra swans and 7% mute swans). Counts were below average for all 3 geographic zones and for five of the six major species (mallards, black ducks, Canada geese, snow geese, and tundra swans); merganser totals were slightly above average. The results may reflect waterfowl being more widely dispersed than usual across the landscape (including unsurveyed areas) due to the mild weather and lack of ice and snow cover.

The Pennsylvania portion of the 2012 cooperative AF Breeding Waterfowl Survey was completed from April 9-30, approximately one week earlier than usual to account for the anticipated effects of the warm spring on waterfowl breeding phenology. The objective of the survey, which has been conducted since 1989, is to provide breeding waterfowl population estimates for the portion of the AF from Virginia to New Hampshire. Population estimates are utilized in the AF Adaptive Harvest Management process to determine waterfowl hunting season frameworks.

The number of mallard breeding pairs (60,496) was similar to 2011, but 35% below the average of 92,806 pairs and the lowest estimate recorded since the initiation of this survey. There is also evidence of declining trends in other indices of statewide mallard abundance (e.g., the North American Breeding Bird Survey (BBS), 2nd Pennsylvania Breeding Bird Atlas, and the number of pre-season banded mallards). Managers are evaluating whether reductions in mallard harvest rates are needed to address this decline. The highest density of breeding mallards were found in the southeast (0.88 pairs/km²), followed by the northeast (0.79 pairs/km²).

American black ducks were not observed during the survey and resulted in a statewide estimate of zero pairs. Breeding black ducks have been observed at very low densities since the survey was initiated, and there is evidence of declining statewide abundance and distribution over the past 15 years.

There was a record high of 67,927 wood duck breeding pairs, which was higher than the average of 51,674 pairs. Long-term trends from this survey indicate stable to slightly increasing wood duck populations, and 2012 marked the first time in the 24-year history of this survey that statewide wood duck estimates exceeded mallard estimates. Wood duck densities were highest in the southwest (1.10 pairs/km²), northwest (0.94 pairs/km²), and northeast (0.89 pairs/km²).

The estimate of total blue-winged teal (3,027) was 58% below average in 2012, while American green-winged teal numbers (7,526) were 71% above average. Teal abundance in this survey can vary dramatically from year to year due to weather-related impacts on teal migration, so estimates are not believed to be indicative of actual breeding populations of teal in Pennsylvania. Estimates of total hooded mergansers (5,695) and common mergansers (24,386) were above average. Both this survey and the Breeding Bird Atlas results indicate that populations of both breeding merganser species have increased in recent decades.

The 2012 estimate for breeding pairs of Canada geese was 83,897, which is similar to the average of 92,057. Pairs were most abundant in the southeast (1.37 pairs/km²) and southwest (1.15 pairs/km²). The 2012 total population estimate of 219,609 was similar to the recent nine year average of 271,049 geese. As expected, the highest densities of total geese were observed in the southeast (4.12 geese/km²) and northwest (2.83 geese/km²). The statewide Canada goose spring breeding population estimate has a declining trend over the past 7 years, following the rapid growth observed for the prior 15-year period with a peak of over 338,000 total birds in 2004. The recent declining trend is a result of significant expansion of hunting seasons and other lethal and non-lethal programs implemented to control Canada goose numbers. This population remains well above the AF Resident Population management plan goal of 150,000 spring birds. We continue efforts to achieve the management plan goal of reduced goose densities in the southeast and southwest, while maintaining stable populations in other areas.

Bi-weekly ground counts of Canada geese at Pymatuning Wildlife Management Area and surrounding areas were conducted between August 2011 and February 2012. Results indicated average populations (approximately 4,000) from September through November, but below average numbers (approximately 5,600) in December through January. By comparison, December-January counts averaged 7,300 from 2005-11, and 6,500 from 1993-2003.

The AF Mid-Summer Mute Swan Survey is conducted at three year intervals to monitor population trends of this invasive species and assess progress toward management plan goals. Wildlife Conservation Officers (WCO) statewide recorded 167 mute swans (150 adults and 17 cygnets) in conjunction with their normal duties during the August 1-14

survey period. This was 41% below the statewide total from our 2008 survey and continues a declining trend in the population since a peak in 2002. The species' range also appears to be contracting within the Commonwealth. Under the flyway management plan for this species Pennsylvania has a two-fold population goal of zero feral swans and a maximum of 250 in captivity. There were 45 feral mute swans recorded during this year's survey, but this component of the population is declining; and we are within the acceptable range for captive and semi-domesticated swans. Declining populations reflect the diligent control efforts of the PGC and partner agencies since the 2004 Migratory Bird Treaty Reform Act removed legal obstacles to population reduction efforts.

We recorded observations of sandhill cranes, coots, snipe, and other webless migratory game birds reported by the state's birding network to track use of Pennsylvania wintering, migration stopover, and breeding locations by these species. We also worked to coordinate future sandhill crane monitoring efforts in the state.

The USFWS Harvest Information Program (HIP) estimated that 13,500 mourning dove hunters took 158,800 doves in Pennsylvania during the 2011-12 seasons. This was a 32% decrease in the number of hunters and a 30% decrease in doves bagged compared to 2010-11.

Mourning dove population trends are assessed annually by the Call Count Survey (CCS). The CCS was conducted in cooperation with the USFWS in late May. Compared to the previous year, the numbers of doves heard and seen per route increased at both state and Eastern Management Unit (EMU) levels. Over the long term (since 1966), the number of doves *heard* per CCS route has been stable for Pennsylvania, but declining at the management unit level. However, the number of doves *seen* per CCS route, and the number of doves recorded in the separate BBS, have increased over the past 47 years and are stable to increasing over the past 10 years at both the state and management unit levels.

We again participated in a USFWS coordinated multistate research project to evaluate and improve the CCS. This research, initiated in the EMU states in 2011, was expanded to the Central Management Unit this year, and repeated on a subset of the EMU routes. We repeated four of the six routes we conducted last year. Fieldwork involved three experimental surveys (in addition to the standard survey conducted by a WCO) on each route between mid-April and early June, using a more intensive protocol (longer observation period, use of off-road points, measurement of distances and angles to doves observed). Results were provided to the USFWS project coordinator for analysis.

Additional demographic data needed for effective dove harvest management is obtained through a cooperative banding effort involving state and federal agencies. Banding quotas are in place for adult and juvenile doves in each of three Bird Conservation Regions (BCRs) in Pennsylvania. Trapping was more difficult than usual at many sites in 2011, probably due to a combination of below-average production (statewide age ratio of 1.19 juveniles per adult compared to 1.74 in 2010) - likely an effect of the wet spring and the hot, dry weather during most of the July-August banding period. Despite these factors,

we banded 884 doves (376 adults, 449 juveniles, and 59 unknown age) at 36 locations. We fell 25% short of the adult quota in BCR 13, but achieved the other five quotas. We also prepared a summary of 2010 dove band recoveries and distributed it to participating banders. As usual, the majority of recoveries of Pennsylvania-banded doves occurred as hunter harvests in-state during the September season.

USFWS HIP estimates indicate that Pennsylvania continues to have the most woodcock hunters (7,500) of the 17 states in the Eastern Management Region. Woodcock harvest at the state level was 14,200 birds, up 11% from 2010. Participants in Pennsylvania's woodcock cooperator survey experienced mixed results, with flush rates below 2010 levels (1.1 versus 1.3 flushes per hour), yet improved success rates (3.5 versus 3.0 birds bagged per hunter). We sent a representative to the 2012 Woodcock Wingbee in Louisiana, where participants classified over 14,000 wings by age and sex to assess 2011 reproductive success of American woodcock in the Eastern and Central Management Regions. The 2011 recruitment index for the U.S. portion of the Eastern Region (1.68 immatures per adult female) was 13.7% greater than the 2010 index and 2.5% greater than the long-term regional index.

The 2012 Woodcock Singing Ground Survey was conducted in cooperation with the USFWS between mid-April and early May. There were no statistically significant changes in 2011 for either Pennsylvania or the Eastern Region, and for the ninth consecutive year, the 10-year trend in the Eastern Region was statistically stable. Over the long term (1968-2011), however, populations have declined significantly due to decreased amounts of young forest habitat. Populations of ruffed grouse and numerous other species that rely on this habitat type also have declined as a result of the loss of young forest.

In light of these habitat and population trends, increasing the amount of young forest habitat on Pennsylvania's landscape is a central objective in the statewide management plans for grouse and woodcock. Other PGC bureaus have the lead on much of the outreach and habitat management activity in support of this objective, in cooperation with partners such as the DCNR Bureau of Forestry, Ruffed Grouse Society, Woodcock Limited, and the Wildlife Management Institute. BWM staff also participate in these efforts; some examples during the fiscal year included presenting a 1.5 hour breakout session on "Grouse and Woodcock Ecology and Management" to 130 foresters at DCNR's annual winter meeting and providing technical assistance with habitat planning on State Game Lands (SGL), State Forests (SF; Cornplanter, Gallitzin, Michaux, Sproul, and Suquehannock), State Parks (SP; Erie Bluffs), PSU Experimental Forest, and the Muddy Creek Watershed Early Successional Habitat private lands project in Centre County

Singing male woodcock surveys are conducted at Appalachian Mountains Young Forest Initiative Demonstration Areas, SGLs emphasizing woodcock management, and other long-term monitoring sites. These surveys are intended to evaluate local level response to habitat improvement, separate from the USFWS Woodcock Singing Ground Survey routes used to monitor overall woodcock population trends. Where possible, data is

collected prior to habitat treatments to provide baseline information for assessing treatment effects in future years. PGC staff and volunteers conducted surveys on 49 routes within 35 habitat management areas in spring 2012 but despite being initiated 10 days earlier than normal due to the abnormally warm spring and early migration, these may not have captured the peak woodcock singing period. Among historic monitoring sites (locations with 15+ years of data), all but one were below their LTA in number of singing males.

Data from the summer 2011 grouse sighting survey conducted by 39 PGC foresters and surveyors was compiled and used in making a season forecast. Participants sighted about 7% fewer grouse and 23% fewer broods per observer day than in 2010. The cool, wet spring weather may have been detrimental for early brood survival, although weather conditions improved during mid-summer. Trends in summer survey numbers generally correlate well with fall flush rates, so our season forecast was for average to slightly below average grouse hunting in 2011-12.

Game Take Survey estimates indicated that 79,687 hunters harvested 52,243 ruffed grouse in Pennsylvania during the 2011-12 season. The estimated number of hunters declined 12% and the estimated harvest decreased 21% from 2010-11. Number of days afield per hunter decreased 3%, and harvest per hunter day decreased 13%.

The annual Grouse and Woodcock Cooperator Survey tracks effort and flush rates for avid hunters of these species and serves as a long-term index to the quality of grouse and woodcock hunting and the status of “hunnable” populations (i.e. those in good habitat) across the state. The grouse cooperator survey indicated that cooperators averaged 30 hours hunted, 39 grouse flushed, and 2.4 grouse bagged during the 2011-12 hunting season. The statewide flushing rate of 1.32 flushes per hour was the same as the 2010-11 rate, but 6% below the LTA (1965-2010, 1.41). Compared with the previous year, three of six PGC regions exhibited decreased flush rates: Northwest and Northcentral each down 9%; Southeast down 31%. The Southwest and Southcentral regions both exhibited increased flush rates (up 15% and 38% respectively), while flush rates in the Northeast remained largely unchanged from the 2010-2011 season. The 2011-2012 flush rates exceeded the most-recent 10-year averages in the Northwest, Northcentral, and Southcentral regions, and were lower than most recent 10-year averages in the Southwest, Northeast, and Southeast regions.

Grouse drumming surveys were conducted on select SGLs to monitor population response to habitat management. SGL 41, with 10-acre grouse blocks, produced the highest density of drummers, with 7.7 drummers per treated survey mile. State Game Land 107, with linear early successional habitat strips across an elevation gradient, produced 3.8 drummers per treated survey mile. State Game Lands 266 and 73 produced fewer drummers per treated mile (2.3 and 1.7 respectively), but these figures are expected to improve as habitat in these areas matures into the ideal successional stages for grouse.

The Management Plan for Ruffed Grouse in Pennsylvania 2011-2020 was completed during the fiscal year. The preliminary plan was open for a 75 day public comment

period, during which we received 327 comments from 90 individuals and 3 organizations. We added 4 strategies to the plan (and re-worded another) where comments reflected a need to clarify and expand upon existing content, but most respondents supported the plan and comments did not result in changes to the overall direction, goals, and major objectives. The final plan, accepted by the Board of Commissioners at their October meeting, contains 26 strategies grouped under population, habitat, and human dimensions objectives with the goal “to increase grouse populations for hunting and viewing by improving the condition and distribution of young forest habitats in PA and supporting the implementation of the national Ruffed Grouse Conservation Plan”. Implementation of the initial strategies is underway.

As FY11 closed we completed the sixth successful year of the 10 year (2006 – 2015) wild turkey management plan. Four strategies have been completed (spring season fluorescent orange requirements were changed in 2008; in 2009 the two-bird spring bag limit was determined to have no effect on the turkey age structure; in 2010 the four year, tri-state gobbler study was completed (with results published in the *Journal of Wildlife Management*); and in 2011 a Successful Turkey Hunting course was created. Of the remaining 43 strategies, 33 strategies are in progress (28 on schedule, 5 behind schedule). Partnerships (monetary and personnel) become more important each year to assist with accomplishing the plan on schedule, particularly via support from the Pennsylvania Chapter of the National Wild Turkey Federation (PANWTF), the National Wild Turkey Federation (NWTF) and Pittman-Robertson (P-R) funding.

Fall turkey-hunting season length continues to be our primary means of managing turkey populations; season lengths vary from a closed season to three weeks, depending on WMU. Results of the 2010 fall turkey hunter survey and numerous public comments indicated some dissatisfaction with the significant changes made to the fall 2010 turkey hunting seasons; consequently, the Board of Commissioners approved returning to a season structure largely similar to that used prior to 2010, except for maintaining a closing date of the Friday prior to bear season date in three week WMUs, and continuing the three day Thanksgiving holiday season established in 2010. The resulting season structures were as follows: in all WMUs with a 1-week or longer season, the fall turkey season opened the fourth Saturday prior to Thanksgiving; WMUs with a two week fall season had a Saturday closing date while WMUs with a three week season had a closing date of the Friday prior to the black bear season (bear season now opens the Saturday prior to Thanksgiving); also, all WMUs with a two or three week season were re-opened on Thanksgiving for an additional three days; in WMU 5A the three day (Tuesday – Thursday) fall season was maintained for the second year; and in WMUs 5B, 5C, and 5D fall season closures were maintained to help increase turkey populations in these units. With these fall season changes, we extended the female turkey harvest and survival rate study one additional year (to 2014) to obtain two years of hen harvest rates with the same season structure (2011-2012), then change seasons to obtain two years of hen harvest rates with a different structure (2013-2014). This design will allow the agency to determine the effect of fall season length on hen harvest rates for making future season recommendations.

The final fall 2011 turkey harvest was 14,300 birds, 10% below the final 2010 harvest (15,884), and 36% below the previous five year average (22,191). The number of fall turkey hunters (144,734) decreased 11% from 2010 (163,433), but was only 3% below the previous 5-year average. However, the number of hunter days continues its long-term declining trend (443,254 in 2011 and 457,435 in 2010), and the 2011 total was 12% below the previous 5-year average (506,101). One reason for the addition of the 3-day Thanksgiving turkey hunting season was to encourage more hunting participation. Although such an effect is not yet evident, it should be noted that when new hunting seasons are established it typically takes at least 3 years before full participation is achieved. Hunter success in 2011 (10%) did not change from 2010, but was 27% below the previous five year average of 13.6%. Hunter success has been as high as 21% (2001, a year with excellent recruitment), and as low as 4% (1979). Although fall 2011 mast crops were below average, which usually concentrates flocks around available food sources allowing turkeys to be more prone to harvest, the below average recruitment negated this benefit resulting in the lower harvest and hunter success.

Hunting hours during the second half of the 2011 spring gobbler season were extended to allow all day hunting, providing increased hunting opportunity at a time when risks of hen mortality and nest disturbance are low. Afternoon harvests comprised 5% of the total reported harvests for the entire season, and 22% of harvests during the all day portion of the season.

The half-day youth turkey hunt on the Saturday prior to the regular season accounted for 6% of the total statewide harvest in 2011, demonstrating the popularity and importance of this youth opportunity.

The final 2011 spring gobbler harvest (based on the Game Take Survey and including youth and second bird harvests) was 34,972. This was 3% higher than the total 2010 harvest (33,849) but 12% below the previous five year average (39,665), which includes the full time frame (since 2006) hunters have been permitted to harvest two birds in the spring with purchase of a special license. The decreased harvest may partially reflect recent changes in Game Take Survey methodology and analyses; we believe 2010-11 harvest estimates are more accurate than those obtained prior to 2010, but additional years of data are needed for verification. Harvest decreases in 2010 and 2011 may also have been related to below average poult recruitment during the summers of 2008 and 2009. Spring harvests typically reflect recruitment two years earlier, because two year old gobblers are most susceptible to spring harvest.

The number of spring turkey hunters in 2011 (234,031) was slightly below 2010 (237,037), but above 2009 (228,903), and 3% higher than the previous three year average of 227,484. Hunter success, for hunter's first harvest, (9.9%) was similar to last year (9.7%), but lower than the previous three year average (13.0%). Highest hunter success was in 2001 at 21%.

Turkey surveys include the annual statewide WCO turkey summer sighting survey, WMU 5A weekly turkey surveys, and the eastern oak mast survey being coordinated in

the region by the Virginia Department of Game and Inland Fisheries. The 2011 WCO summer sighting survey index (18.3 turkeys seen/1,000 miles driven) was 17% below the previous three year average (22.1) and 24% below the previous 10-year average. The number of poult per hen was 1.56, down from 2.16 in 2010 and 2.21 in 2009. In WMU 5A, the 2011 sighting index of 108 turkeys/1,000 miles driven on the Michaux SF was the highest recorded in the 14 years of the surveys, 89% higher than the previous 5-year average, and five times greater than the average prior to the 2003-2009 fall season closure. Turkey productivity in the Michaux SF was 3.3 poult per hen, 11% below the previous five year average. Because the turkey population and harvest in WMU 5A are expanding into the privately owned valley areas surrounding Michaux SF, we added new survey routes in this portion of the management unit beginning in June 2012. The eastern oak mast survey, conducted on survey plots in three eco-regions, documented little to no acorn production from the white oak group; red oak mast production was low in the Allegheny Plateau and Ridge and Valley plots, but high in the Pocono Plateau plot.

The third year of the hen turkey harvest and survival rate study continues. Knowledge of fall harvest rates and annual survival rates will help us develop a more systematic and transparent process for determining fall turkey hunting season recommendations, which will allow for more explicit incorporation of uncertainty (spring weather, reproduction) into decision making and help us address the competing objectives of optimizing hunting recreation and turkey abundance. During fall 2011 and winter 2012, 392 female and 62 male turkeys were leg-banded, including 61 hens also marked with satellite transmitters. Total marked turkeys to date are 1,117 females (181 of these also received satellite transmitters) and 248 males. We worked with the manufacturer of the satellite transmitters on a redesign of the harness attachment, to alleviate problems experienced with transmitter loss due to harness components wearing excessively against each other. As of early July 2012, we were monitoring 37 transmittered hens. The highest mortality rates have occurred during the nesting season (primarily from predation). In 2012, despite the early spring, temporal patterns of nesting behavior were similar to 2010 and 2011. This confirms that the timing of nesting is controlled more by photoperiod than by weather, and supports the current timing of our spring season.

During the fall turkey seasons, 24 leg-banded hens were harvested, but additional years of data will be needed to provide adequate sample size to draw conclusions about effects of harvest and season length. Results from the hen study and the 2006-2009 gobbler harvest and survival rate study will be important components of a regional turkey population model that will be used to predict future populations and harvests based on the interrelationships of hunting seasons, productivity, and weather factors.

The Ring-necked Pheasant Management Plan for Pennsylvania, 2008-2017 is being used to guide wild pheasant recovery efforts in Pennsylvania. The plan has a goal of establishing at least four Wild Pheasant Recovery Areas (WPRAs) with at least 10 hens/mi² in the spring through habitat improvement and the release and temporary protection of wild trapped and transferred ring-necked pheasants. WPRA activities and accomplishments are presented under Goal 3, Strategic Objective 3.7 (enhanced pheasant hunting opportunity), in this report. Also during the fiscal year, we compiled data from

Pennsylvania and other Northeast states to provide to the Midwest Pheasant Study Group for use in development of a National Wild Pheasant Conservation Plan.

Populations of northern bobwhite quail have declined by 75% to nearly 100 % over the last 40 years across most of their historic range in North America, including a 97% decline in Pennsylvania. We completed a Northern Bobwhite Quail Management Plan for Pennsylvania, 2011-2020 to guide efforts to respond to this decline. We received 122 comments from 54 individuals and groups in the 75 day comment period on the preliminary plan. Although a few respondents felt quail restoration is not feasible given current habitat conditions and resource constraints, the majority of those commenting expressed support. The final plan was accepted by the Board of Commissioners at their October meeting; it contains 6 goals, 14 objectives, and 49 strategies in support of the mission statement, “to maintain and restore wild breeding populations of Northern Bobwhite Quail in suitable habitats in Pennsylvania”. Initial strategies will focus on clarifying the status and distribution of bobwhite quail populations through surveys and genetic research.

Black bear populations are monitored using several sources of data, including: a statewide capture and tagging program; mandatory check stations during the hunting season; aging of teeth collected from road-killed, captured, or harvested bears; assessment of reproduction during visits to dens of hibernating bears fitted with radio-collars; and a statewide wildlife food survey.

A total of 801 bears from 52 counties were captured and ear-tagged during 2011 in advance of the fall hunting seasons. Based on the ratio of tagged-to-untagged bears observed in the harvest, the 2011 statewide bear population was estimated at 17,831 bears, almost identical to the previous year’s estimate. Sufficient data was collected to estimate bear population size in 14 WMUs that comprised the entire primary bear range.

Several changes to bear hunting were implemented in 2011: the extended bear season, which had been closed in 2010, was reopened; WMU 3A was added to the extended season; and the general bear season was lengthened to four days. Season expansions implemented the previous year also were kept in place, and as a result, a record 162,170 bear licenses were sold during 2011. Yet, license sales only increased a small amount relative to previous years, which suggests that recruitment of additional bear hunters may be stabilizing despite expanding opportunity.

Hunters killed a record 4,350 bears: 304 bears were taken in the archery bear season; 3,168 bears in the general season; and 878 bears in the extended season. Statewide, the harvest rate was 2.2% during the archery season, 17.7% during the general season, and 21.2% in the area open to extending hunting.

At the end of January, 5,117 teeth collected from bears during 2011 were shipped to a contracted lab for processing and aging. Results were returned in early July and posted on the agency’s webpage so successful hunters could learn the age of their bear. The average age of harvested bears was 2.4 years for males and 3.5 years for females.

Cub production and survival was monitored by visiting the dens of 49 radio-collared bears during February and March. In all, 48 adults, 57 cubs, and 30 yearlings were handled and tagged in 9 counties. Average number of cubs/litter was 2.7, and included 3 litters with 1 cub each, 5 with two-cub litters, 12 with three-cub litters, and 4 with four-cub litters. Sex ratio of cubs was 46% female to 54% male.

Employees in the PGC and the Department of Conservation and Natural Resources (DCNR) Bureaus of Forestry and State Parks were surveyed to determine the abundance and productivity of 28 fruit and nut bearing plants important to wildlife. Two hundred seventy-six surveys were returned. The most noticeable change from the previous year was widespread failure of oak and black cherry crops, which are very important foods in fall and late summer, but above-average production in other less-widely distributed fall foods, such as apples, walnuts, hickories, and beechnuts. Also, most mid-summer soft mast species, such as blueberry, blackberry, elderberry, sassafras, and pokeberry maintained a second consecutive year of average to good production. Overall food conditions were rated as near average, which was below the overall assessment reported in 2010.

A research study initiated in the spring of 2010 to investigate the movements and habitat use of bears living in suburban environments was continued throughout 2011. Bears in and around Scranton/Wilkes-Barre, State College, and Johnstown were opportunistically captured and fitted with GPS-tracking collars. To date, 76 bears have been fitted with GPS-collars and 86,732 locations have been collected; 31 of these bears (41%) have since died, including 13 that died in 2011. Hunting and vehicle collisions have been the primary causes of mortality. Trapping and monitoring is anticipated to continue in 2012.

PGC staff continued efforts to monitor geographic distribution and numeric changes in important furbearer populations with the most intensive work focused on fisher, bobcat, and river otter. We continue to use a suite of independent methods to track these populations including reports of vehicle-caused mortalities, incidental captures, and various measures of reported sightings. Results from the Game Take Survey, Furtaker Survey, and WCO Furbearer Questionnaire continue to provide much of this information.

Fisher populations continue to expand throughout the Commonwealth. We estimated that 1,632 fisher were captured and released by Pennsylvania trappers during 2011-12 season. The annual number of fisher observations and incidental captures reported to WCOs has also been increasing since fishers were reintroduced in 1996. WCOs received 130 reports of fishers that were captured and released by licensed trappers and 837 reports of fisher observations. The geographic distribution of these reports suggests that fisher populations are rapidly expanding from the reintroduction areas in northern regions and naturally expanding into regions of southwestern and southcentral Pennsylvania. Eighty-five percent of WCOs surveyed reported fisher populations existing within their districts.

There were 2,613 fisher permits sold and 138 harvest reports received by online reporting and phone reporting systems during Pennsylvania's second regulated fisher harvest

season. A survey designed to assess participation and trapping effort was sent to all permit holders who did not report a fisher harvest.

The fisher management plan is being implemented to achieve five goals related to population monitoring, habitat assessment, population enhancement, and development and implementation of a harvest management program. The six day fisher harvest season was expanded into two additional WMUs (WMUs 2G & 4D) for the 2012 season.

River otter populations have expanded throughout the Commonwealth, too. Numbers of incidental otter captures, primarily by beaver trappers, have increased during recent years with greater than 25 incidental captures reported annually since 1996. The majority of these captures occur in the Northeast Region, but recent reports indicate continued population expansion throughout the Susquehanna River drainage. Based on results of the 1995 WCO Furbearer Questionnaire, otters occurred in 51% of WCO districts. In 2011, otters occupied 91% of WCO districts. The PGC has requested Convention on International Trade in Endangered Species (CITES) export status for river otter. Staff biologists have begun developing a river otter management plan to guide research and management efforts in the years ahead.

We monitored bobcat populations using a variety of indices and measures. The number of incidental bobcat captures, as estimated from the annual Furtaker Survey, has been steadily increasing since 1990. Greater than 500 incidental captures have been reported annually since 1995. The three year moving average of incidental captures has increased significantly during 1990-2010. The number of incidental bobcat captures during 2011 was comparable to the previous two years. Annual numbers of statewide vehicle-caused bobcat mortalities (i.e., road kills) was also comparable to previous years. These indices suggest stabilization or slight declines in bobcat populations.

We monitored Pennsylvania's first split three week bobcat hunting and trapping seasons and compiled harvest reports. During 2011, a total of 13,134 bobcat permits were purchased by furtakers. Hunters and trappers reported 969 bobcat harvests from within all WMUs that were open to harvest. This harvest was 14.7% lower than observed during the previous season; however, the reduction in the harvest roughly was proportional to the reduction in the number of permits issued. The number of bobcat permits issued declined by 17.7 % during 2011. Ninety-two percent of all bobcat reports were received via phone and online reporting systems. Of the 969 harvested bobcats, 729 were trapped, and 240 were taken by hunters. The proportion of the harvest attributed to hunters increased from 22% to 25%. The number of bobcats harvested per 100 permit holders (7.38 bobcats per 100 permits issued) was almost identical to last season. WMU-specific harvest density (bobcats taken/100mi²) declined in all but four WMUs. Harvest density had been increasing steadily during the past five years in virtually all WMUs as the number of permits increased.

Also, to monitor annual changes in furbearer pelt prices, we collected furbearer pelt price information from Pennsylvania Trappers Association's fur sales. The averages paid for

pelts increased for all species during 2011. Muskrat prices advanced the greatest and averaged \$11.00 per pelt.

We began implementation of the beaver management plan. Spring waterfowl survey plots were used to obtain beaver occupancy rates. Of 235 plots surveyed throughout Pennsylvania, 24% possessed active beaver sign, while 18% had old beaver sign. The rate of beaver occupancy will be monitored annually and compared among WMUs. In WMUs with low beaver densities, complete colony counts within some WCO districts may be possible. Both survey plot and complete-count data will be used in future population monitoring.

Wildlife health activities focused on chronic wasting disease (CWD) surveillance, risk factor mitigation and response planning. Now that CWD has been found in Maryland a little more than 10 miles from our border, the PGC's CWD Operational Plan and the Commonwealth's Interagency CWD Response Plan were updated to prescribe response activities to be taken as CWD is detected closer to Pennsylvania. Revisions to the regulation giving the Executive Director authority to make Emergency Orders in various CWD scenarios were approved at the April 2010 Commission meeting.

A day-long CWD table top exercise was held in the PGC's Southcentral Region where many of the details of the agency's CWD response were played out.

The Wildlife Services Division Chief, biometrician, and the wildlife veterinarian attended the 2012 Interstate (WV, VA, MD, PA, and DE) CWD coordination meeting in VA.

An interagency agreement was finalized with PennDOT allowing coordination between deer road-kill collectors and the PGC. A new biologist will be hired in the Southcentral Region to collect CWD samples from road-killed deer in the four county region (Franklin, Fulton, Bedford and Somerset) closest to the nearest positive case in Maryland.

Guidance was provided to WCOs and supervisors handling cases of cervid parts illegally imported from CWD positive states and provinces. CWD samples were collected from heads brought into the state in violation of the Parts Ban, and confiscated material was incinerated. When they could be recovered CWD samples were also taken from escaped cervids.

Information packets for elk taxidermists were prepared to facilitate return of heads for CWD and BTB testing, and disease sampling kits were provided to the Northcentral Region to be distributed to 2011 elk hunters. All but one of the taxidermist samples were recovered with the help of region staff. Neither BTB, Brucella, nor CWD were detected in these samples.

Hunter-killed deer CWD sample extraction personnel and equipment needs were coordinated with PGC regions, Pennsylvania Departments of Agriculture (PDA) and Health (PDH), and U.S. Department of Agriculture (USDA) Veterinary Services (VS) and Wildlife Services (WS). Subsequently 3,768 CWD samples were collected over three

days from heads collected by deer aging teams across the state. These samples were forwarded to University of Pennsylvania's New Bolton Center for testing and CWD was not detected. Another 42 deer and 4 elk were tested in the course of cause of death investigations, and 56 were obtained from road-killed deer. USDA WS personnel culled deer on the Valley Forge National Historic Park; 233 were tested, and CWD was not detected.

Guidelines for sample collection from incidentally encountered feral swine were sent to bear check station leaders and collection vials were distributed. Samples from two feral swine harvested during bear and deer season were tested for diseases, as well as one in June. The feral swine material in the *Pennsylvania Hunting and Trapping Digest* (Digest) was revised. Revisions to the feral swine Executive Order, associated news release, and brochure were submitted, as well as information in support of proposed PGC regulations to prohibit possession of swine for shooting.

Three hundred eighty-three samples of raccoon gastrointestinal tracts (GITs) from across the state were examined to determine the distribution and prevalence of the zoonotic roundworm *Baliscaris procyonis*, in cooperation with University of Pennsylvania's Laboratory of Parasitology. Results will be available in the coming year.

We initiated a study to identify contaminant levels in Lake Erie waterfowl. During the waterfowl hunting seasons efforts were made to contact waterfowl hunters and obtain muscle and fat samples from ducks, geese and mergansers. Unfortunately no merganser samples could be collected, but 22 samples from ducks and geese were obtained and did not reveal any values likely to represent a human or environmental threat. Additional data will be collected in the coming year with a focus on increasing sample sizes for mergansers and geese.

The wildlife veterinarian performed 41 necropsies on a variety of species including: bears, deer, bald eagles, red-tailed hawks, squirrels, skunks, raccoons, elk, fisher, gray and red foxes, bobcat and turkeys. Necropsy reports were interpreted for submitters from bureaus and regions. Steps have been taken to link disease reports submitted with specimens at the laboratory with results in a flexible and searchable database. A bioaide is scanning all field reports and has linked them with lab reports. The Bureau of Automated Technology Services (BATS) is engaged in further development of the search capability of this database.

Cases of eagle mortality continue to occur with implications for lead toxicosis as a cause of death. However, the data set from the first 60 submissions is still being analyzed.

Epizootic Hemorrhagic Disease (EHD) was documented in numerous captive and one wild deer in Northampton County. It was also confirmed in a captive deer in Erie County. Vector traps were deployed in the vicinity of the Northampton County cases to determine which species of the midge is carrying the virus, and if other virus serotypes are present. No exotic species of either were found.

Footpad samples from two yearling male bears which exhibited abnormal foot pads, and samples from a similar bear from the SW region were referred to the Southeast Cooperative Wildlife Disease Study (SCWDS) for further examination. Samples from deer with Demodex mites of the newly described larger variety were also sent for additional study. A gray fox and a bobcat were determined to have died from infection with the zoonotic bacteria *Listeria*.

Photos received approximately a month after harvest of a deer harvested in flintlock season in Southwest part of the state showed lung lesions that were suspicious of BTB. The hunter was located and the remains of the carcass were retrieved. The few samples that could be taken did not contain the bacteria, but it could not be ruled out. Images displaying typical BTB lesions and a call for information about any other such lesions that may be seen in the coming year were published in the Digest.

A new disease has emerged, or is now being recognized, in turkeys in Pennsylvania, as well as other mid-Atlantic and southeastern states. It can resemble avian pox externally, but is caused by a different virus. The first case has been confirmed by SCWDS in samples from a hen found dead this spring. Descriptive disease information concerning Lymphoproliferative Disease (LPDZ) in turkeys and sampling instructions were provided to region staff.

Because of their critical role in the statewide black bear population research radio-collared female bears are extremely valuable, as are those that are part of the Urban Bear Study. Visits to their dens for collar maintenance and tagging of offspring are a time when these physiologically challenged bears are also of necessity subjected to anesthesia. To insure the best possible outcome of these events, and to continue to refine our anesthetic protocols, physical examinations and anesthetic management are provided. Thirty-two adult female bears were examined and monitored under anesthesia, and initial health examinations were provided to 5 yearlings and 69 cubs. Emergency treatments were required for three bears for respiratory distress, and two bears for seizures.

Rabies prophylaxis protocol for field personnel and results reporting were reviewed with PDH. Heartworm and tick prevention medication were distributed to agency working dogs.

Deer – Deer occur statewide and continue to be harvested in every Pennsylvania WMU and county. Deer population trends (2006-2011) are stable in 18 WMUs and increasing in 4 WMUs in Pennsylvania. Based on 2011-12 hunter harvest reports and SAK data, hunters harvested 336,200 deer (127,540 antlered and 208,660 antlerless). Research continued in cooperation with the PCFWRU into the assumptions of the PA SAK model for tracking deer population trends.

Elk – Pennsylvania's wild elk population continues to be robust. The population now numbering 824 animals, based on the MNA count, increased 10 % over the last year and is up nearly 30 % since 2010.

Game Birds – Pennsylvania’s resident Canada goose population is approximately 220,000 birds. The population remains above the management plan goal of 150,000, but management actions appear to be causing numbers to gradually decrease. Ruffed grouse, American woodcock, ring-necked pheasant, and bobwhite quail populations have experienced significant long term declines, although shorter-term woodcock population trends are stable at the state and Management Region levels. Species management plans are now in place for each of these species. Implementation of plans is expected to improve sustainability of these species’ populations. The sixth year of the 10-year wild turkey management plan was successfully completed during FY 2011.

Game Mammals – Black bear and furbearer populations were successfully monitored using a variety of indices and measures. These populations are stable to increasing for most species with no major changes in distribution. Spring waterfowl survey plots used to monitor beaver occupancy and distribution.

Seasons and bag limits recommendations for all game and furbearers species, consistent with management plans goals, were provided to the Board of Commissioners in January. Seasons and bag limits established by the Board at their April meeting were published in the *Pennsylvania Hunting and Trapping Digest*. Elk license allocations and antlerless deer license allocations were also approved. Seasons and bag limits for migratory game birds were submitted to USFWS by prescribed deadlines and published in the *Guide to Migratory Game Bird Hunting*.

Game Mammals – The PGC has continued efforts to locate and eradicate feral swine in Pennsylvania. We conducted a state-wide survey to assess changes in occurrence or distribution. The number of counties with feral swine reports increased during the past decade, but has stabilized in recent years.

Game Birds – The Mid-Summer Mute Swan Survey was conducted, documenting continued decreasing trends in the population and distribution of this invasive species which negatively affects native waterfowl. Active control efforts by the PGC and partner agencies have been important in these reductions and need to be continued. Populations of Eurasian collared doves continue to expand in the Commonwealth, with probable breeding occurring in at least six counties. Sightings are generally located in urban/suburban settings, limiting the potential use of control measures via hunting/shooting. Long-term impact on mourning dove populations is unknown though there is evidence that presence of collared doves may pre-dispose mourning doves to certain health issues (i.e. Ascaridiasis).

No species were extirpated during the year.

Game Birds – Habitat loss is the main threat to populations of grouse, woodcock, pheasants, and quail. Implementation of management plans for these species will address this threat and reverse declines, if adequate resources are committed to the effort. While wild turkey populations are healthy in most WMUs, research is being conducted to

determine harvest rates of gobblers and hens in order to improve procedures for setting turkey seasons commensurate with population status.

Wildlife Health – A study to determine levels of contaminants present in Lake Erie waterfowl is in progress to determine if an existing Health Advisory is appropriate; feral swine disease sampling; determining the prevalence and distribution of the zoonotic parasite *Baylisascaris procyonis*; the possible presence of BTB in Pennsylvania; lead toxicosis in eagles; LPDZ in turkeys, and canine distemper virus (CDV) in different species; and EHD.

Active studies in collaboration with White Nose Syndrome (WNS) research partners: immunological testing with Bucknell University; DNA analysis for population dynamics with the American Museum of Natural History, Western Michigan University and U.S. Army Corps of Engineers; rehabilitation of WNS-infected bats with Bucknell University, New Jersey Division Fish & Wildlife and SCWDS; WNS spore retention during summer and fall with University of Arizona; digestive tract microfauna analysis with Indiana University. Studies in which laboratory or field research has been completed and reports have been completed or are nearly completed: use of ultra-violet light in diagnosis of WNS with New Jersey Division of Fish & Wildlife, USGS National Wildlife Health Center, University of Akron and Bucknell University; effect of temperature and humidity on survivorship with Bucknell University; comparison of hibernation patterns of big brown, little brown, and Virginia big-eared bats with Bucknell University; field testing of fungicide treatment with Bucknell University and University of Akron; fungicide treatment trials in a laboratory setting with Bucknell University; genetic structure of Pennsylvania's little brown bat population with PSU Beaver Campus; acoustic monitoring of bat activity at Indiana bat hibernacula entrances with Bat Conservation International. New collaborative studies include infection trials of two species in a laboratory setting with Bucknell University; and 2 new projects using ultraviolet-light diagnosis: (1) long-term examination of survivors to determine if infection occurs annually, at what level (includes juvenile infection, mortality and survivorship) with New York Department of Environmental Conservation (NYDEC) and West Virginia Department of Natural Resources; (2) examination of mass-mortality bats, survivors in the U.S., and European bats to compare the amount of fluorescent area between continents and species with NYDEC and colleagues in the Czech Republic.

BWHM worked cooperatively with the Wildlife Management Institute (WMI) to create a Young Forest Council, including creating a Young Forest Communications Strategy, which was applied to a targeted outreach effort of 5 counties for new enrollments into the new USDA Working Lands For Wildlife Program targeting private landowners interested in developing habitat for golden-winged warbler and woodcock. Seventy private landowners are creating over 1,300 acres of habitat on their lands through this program.

During the last year, the Bureau of Wildlife Habitat Management continued to work collaboratively with the Bureau of Wildlife Management to further refine the white-tailed deer management program as it relates to assessing the wildlife habitat component. The

collaboration effort resulted in an improved decision guide focusing on deer impact influences and trends analysis.

Strategic Objective 1.2 Develop and enforce laws and regulations to protect wildlife populations and habitat.

House Bill 1859 passed into law as Act 54. An intensive statewide training was conducted for all officers and several major poaching cases were prosecuted during this reporting period that included the first ever felony charges and jail sentences for poaching. Numerous cases are still being adjudicated in the court system; however, it appears both District Attorneys and Judges are very supportive of these increased penalties.

In addition, SB 1200 passed into law as Act 60 and was implemented January 1, 2011. To-date, 7,092 violation records were received from other member states and reviewed; 1,055 of those violations were serious enough to be applicable to Pennsylvania's standards and the violators were placed on license revocation in Pennsylvania due to the offense that occurred in another member state. This includes two Pennsylvania residents who shot hunters in other states who would not previously have been revoked in Pennsylvania. Pennsylvania has submitted 177 in CY2011 and 271 in CY2012 violators that met the criteria into the compact to be evaluated for revocation by other member states.

Anecdotal evidence, as well as actual intelligence gathered by the special operations division indicates that these two pieces of legislation are having a deterrent effect on commercial poachers and chronic offenders.

The Senior Executive Staff has provided on-going direction to the field force in focusing efforts on the violations with the most significant impact to the resource and our officers have responded to that direction and supervision. Total enforcement contacts including field checks, investigation of complaints, on scene violations in progress, targeted surveillance and enforcement operations are estimated at 201,000 enforcement contacts. As an additional effort in the prevention of violations to protect wildlife, significant emphasis was placed on increasing the HVI, or high visibility index of conservation officers in the field to provide increased deterrence and protect wildlife through task forces. In the fall of 2011 the Bureau of Wildlife Protection conducted a data analysis of our prosecution data base to determine peak night time poaching activity. A state wide task force was coordinated called Operation Talon that focused officers of the PGC, PFBC, DCNR and PSP, including PSP air support across the Commonwealth focusing on night time poaching activity for a two week period. A total of over 500 officers participated in the operation and resulting in 313 enforcement contacts, 192 citations or arrests, and 94 warnings. Several other criminal violations detected were turned over to PSP for prosecution including five DUI's, two felons not to possess firearms, several drug or drug paraphernalia charges. A similar state wide operation is again planned for the Fall of 2012.

The Bureau continues to request, monitor and assist regions with a number of enforcement details designed to combat violations that have the most negative impact on wildlife and habitat resources. Bureau staff has assisted region staff with identifying violations and situations where enforcement details will focus on these areas. Bureau staff assists regions with manpower when available and monitors the results of each detail. Each region is required to complete at least one detail per year. Some regions have elected to hold several details during various times of the year. Types of details have ranged from focusing efforts on night time poaching incidents, to waterfowl hunting, to SGL shooting range violations to ATV/snowmobile details. Enforcement details have not only had the benefit of detecting numerous violations but also have resulted in much public support for the agencies law enforcement program in areas where details have been held.

The top ten violations prosecuted this year also indicate that officers are focusing their efforts on violations with the most impact to the wildlife resource. They are as follows:

1. Unlawful taking or possession of Game or Wildlife-496
2. Possession of a loaded firearm in a motorized vehicle –407 prosecutions.
3. Operating vehicles on State Game Lands in areas closed to travel, primarily ATV violations – 379 prosecutions.
4. Hunt or take wildlife through the use of bait or enticement –294 prosecutions.
5. Cast a light after 11pm –197 prosecutions
6. Big Game Tagging violations – 195 prosecutions
7. Hunt or take wildlife through use of a motor vehicle –195 prosecutions
8. Kill/possess big game in closes season or excess of bag limits - 185 prosecutions
9. Unlawful use of lights while hunting – 153 prosecutions
10. Safety zone violations –131 prosecutions.

Statutory revisions were accomplished in three sections of the Game and Wildlife Code this fiscal year amending sections 2706 and 2711 of the code. Senate Bill 387 amended section 2706 to authorize issuing agents to issue military, National Guard and reserve component, or armed forces hunting licenses to eligible applicants. House Bill 1237 amended section 2706 to reduced the period of deployment of National Guard or reserve components on active duty in overseas service from 180 days to 60 days. House Bill 735 amended section 2711 to eliminate the display requirement for hunting and furtaking licenses and replace it with the requirement that an individual need only to have the appropriate license in their possession while engaged in hunting or furtaking activities. In addition to the statutory revisions Senate Bill 1255 designated a bridge crossing Marsh Creek on Business Route 15, Adams County, as the Wildlife Conservation Officer David L. Grove Memorial Bridge. The PGC continues to work with the general assembly to streamline the Game and Wildlife Code by providing recommended language and statutory construction in numerous legislative initiatives.

The special investigations unit still has one vacant position. Additional surveillance cameras were purchased this fiscal year to enhance the unit's evidence gathering capabilities. Officers have expanded the use of Internet and social media sites as investigative resources. Increased coordination with other state and federal wildlife investigation units has resulted in four inter-state investigations this reporting period. We have initiated the process to add three advanced overt investigation officers that will greatly enhance the unit's capabilities, but are contingent upon a complement increase.

The Enforcement Division continues to supply DWCOs as much surplus equipment as possible to reduce their out-of-pocket costs. Twenty-two new DWCOs were recruited and trained this reporting period.

In addition, the Commission mandates annual training in Legal Updates, Communication Skills, Firearms, Defense and Control Tactics, First Aid and CPR, and Hazardous Materials first Responder training. DWCOs receive additional training by attending a minimum of four of the six district training meetings required by policy. Additional structured training modules were developed this year by the Training Division, including furtaking enforcement training and vehicle stop training and over 30 structured training modules are available for use on the agency's Intranet site. Wildlife Conservation Officers also voluntarily expand their skills by attending various in-service and out-service training initiatives on a routine basis. Regional training has also been provided in current issues such as deer management training.

The investment in training pays direct dividends to the professionalism and technical competence of Game Commission Officers as measured by our enforcement statistics. Officers encountered a total of 20,144 violations during this fiscal year through high visibility patrol, selective enforcement operations, overt and covert investigations, surveillance operations and complaint response. The enforcement action taken by officers encountering those violations resulted in 13,607 warnings and 6,537 citations being issued; a rate of almost two to one. It should be noted that the officers issued more warnings than citations, indicating officer discretion in a balanced enforcement effort to focus efforts on the violations with the most impact to the wildlife resource. Of the violations cited, the conviction rate was 96% and attests not only to the discretion, but also the technical competence and professionalism of Game Commission Officers. The ratio of appeals of initial convictions was only less than 1%, actually .87% to be exact. The final measurement indicator of the dividends of the training investment was the significantly low citizen complaint to enforcement contact ratio that has been consistently maintained since the inception of the complaint tracking system, with less than 1/1000% of enforcement contacts filing complaints against officers. Only six complaints were received against officers this year, one of which was sustained.

Ensuring that our officers have the proper training and equipment to perform their duties is an on-going priority. As an agency we stress the importance of safety, which cannot be stressed enough since November 2010 when WCO David Grove was shot and killed in the line of duty by a convicted felon who was not to possess firearms. It has now been documented that during enforcement contacts and investigations, our officers have

knowingly made contact with numerous individuals recognized by our officers as persons not to possess firearms due to felony convictions. The agency has taken a proactive approach to enhancing officer safety by procuring electronic control devices (TASERS) for Wildlife Conservation Officers, new and upgraded body armor was purchased, body cameras to document enforcement interactions, and implemented the Computer Aided Dispatch(CAD) and mobile data system. This system in particular greatly enhances officer safety by allowing officers to have immediate access to criminal histories and warrants of subjects in the field, tracks officer vehicle locations through GPS and allows all units to be observed on screen at dispatch centers to facilitate faster response times if assistance is needed, and provides an alert system duress button for officers on their person that transmits a signal to their vehicle that automatically calls for immediate assistance if activated. Other tools such as tactical bolt action rifles and suppressors have been procured to facilitate more efficient wildlife control efforts to support the prevention of CWD and other wildlife diseases.

The TIP Hot Line allows the public to contact the agency. The Turn-In-A-Poacher (TIP) Hotline program was relocated to the Harrisburg Headquarters in November 2007. The program was placed online around March 2008, and continues to grow and develop each year from information provided by concerned citizens. Last fiscal year 941 calls and emails were relayed to the appropriate region; a 48% increase from the prior fiscal year, and an 86% increase from the year before that. The number of successful prosecutions increased along with the number of reward payments paid out to witnesses and informants for information that lead to the successful prosecutions of specific charges; 28 reward payments were paid out totaling \$7,000.

A total of 15 regulatory amendments were passed this fiscal year to modify and clarify the code. The Bureau has adopted the approach of reviewing each section of the regulation that is being amended in the course of normal Commission regulatory action, to make additional clarifications or modifications in that section and related subsections to continue an ongoing process of clarifying and streamlining Title 58.

The Director and staff attended meetings and training sessions to update those in the field. They meet with the Regional Law Enforcement Supervisors quarterly to share relevant information as well as attend regional meetings and district deputy meetings yearly. All Bureau staff members spent time in the field working directly with WCOs in enforcement operations and communicated directly with the officers both in management vision as well as hearing officer concerns and suggestions. Nine SOPs were either developed or revised and completed the staffing process through final adoption this year to update or create new direction for our officers in a variety of operations. The increase in providing clear direction through utilization of SOPs and memorandums, for topics that do not warrant the development of an SOP, has resulted in increased consistency in legal interpretation and enforcement throughout the Commonwealth. WCOs forward any unanswered questions from district training meetings to the Bureau of Wildlife Protection, the Bureau then responds to the questions in a timely manner, and distributes the answer to all regions for dissemination to all officers. The Bureau continues to ensure direction through memorandum rather than SOP when appropriate, which is readily

available on the Intranet in a specific section under Wildlife Protection for ease of access. This use of technology has not only provided ease of access for all officers, it also serves as an institutional memory file to ensure previous direction is recorded from a historical perspective.

To further regulate the protection of wildlife habitat the Bureau of Wildlife Habitat Management worked closely with private companies and public utilities to issue 10 Special Use Permits through its Right-of-Way Section in order to assure the protection and conservation of varied wildlife resources while simultaneously providing third party critical public utility needs.

All PGC dispatchers are CLEAN and JNET certified. The most substantial change this year is that with the full implementation of the CAD system, all WCOs are trained and certified in JNET applications so they can utilize the system from their mobile computers in the patrol vehicle.

One grant was applied for to purchase new body armor for WCOs as the five year warranty was expiring on the previous issued models. The Bureau had hoped to receive the maximum of a 50 % cost share from the grant, but only received \$11,000 from the grant which represented less than 10 % of total project cost.

The special investigations unit completed 12 cases this fiscal year to final prosecution, involving multiple defendants in the majority of the cases. Four of these cases were conducted in conjunction with another state wildlife agency indicating the mobile and widespread illegal commercialization of wildlife on a global and expanding black market. Several additional cases were also worked this year that are still active cases as the nature of these covert investigations often involves multi-year investigations before being brought to conclusion and prosecution. The newest methods investigators are using to initiate new investigations is the use of monitoring social media sites and internet forums such as E-bay, Craig's list, etc. for illegal commercialization of wildlife or general evidence of poaching activity. General poaching activity is generally turned over to uniformed field officers for further investigation, while illegal sale of wildlife cases are investigated by the covert special investigations unit. The case load far exceeds existing capacity and the proliferation of computer evidence of wildlife related crime is exponentially increasing every year. Pennsylvania, like many other states, is in the process of requesting a complement increase to add one additional position to the covert unit, and three new positions that will serve as full time uniformed investigators who will be responsible for computer crimes and coordinate interstate and multi jurisdictional investigations.

The overt investigation unit has not been established due to a shortage of complement positions. Overt investigations are either assigned to district wildlife conservation officers who have limited manhours to dedicate to these types of investigations or managed by Bureau of Wildlife Protection management staff, neither is an ideal situation and we are forced to prioritize which cases will receive investigative effort. An overt investigation

unit with singular function investigators, who are not encumbered by district or management duties, but can focus all of their effort on investigation, is of critical importance.

New body armor and Electronic Control Devices were issued to all WCOs. Body cameras were procured this fiscal year for deployment next fiscal year. Wildlife control rifles were procured that officers may sign out of a regional office in order to deal with escaped captive wildlife that may pose a threat to the public such as large injurious species of predators, or to control cervids either escaped or wild to prevent CWD and other wildlife disease issues. New chemical immobilization equipment was also procured and issued this fiscal year with top of the line rifles to deliver immobilization drugs in darts for free ranging animals. Initial equipment issue for a new officer is approaching a total cost of \$10,000 excluding the cost of a patrol vehicle, ATVs, watercraft, bear traps, and other vehicle based type of equipment.

A total of 941 TIPS were received, a 48 % increase from the previous year. TIPS made via telephone and those that were made in electronic version through our web site were relatively even, but the addition of the on line reporting and additional marketing of the TIP program through various mediums has definitely resulted in a dramatic increase in TIPS received which is up 86 % from two years ago.

This fiscal year the special permit enforcement division issued 1708 special permits and completed 36 amendments to existing permits. Marcellus Shale drilling activity and wind energy development are causing significant increase in workload in this division that is only staffed by one division chief and one clerical support position to manage the function.

Act 54 increased penalties for virtually all Game and Wildlife Code violations by increasing the low end of the sliding penalties for summary violations, but more importantly added misdemeanor and felony offenses for poaching Big Game out of season and over the limit. There were 185 prosecutions for illegally killing or possessing big game in closed season or over the limit under Section 2321, a section in which all penalties were increased. However most notably, the implementation of the enhanced penalties is best identified by the 83 misdemeanor convictions and eight felony convictions achieved this fiscal year. Judges imposed jail time for offenders in some of these cases, including the longest sentence ever applied to a game and wildlife code violation in Pennsylvania, 105 days to 18 months for a felony offender.

Strategic Objective 1.3 Assess public values and uses of wildlife.

Human Dimensions Specialist completed a second year in the Bureau of Information and Education. This individual is responsible for supervising the Outreach and Education Specialists, in addition to the research outlined in the following operational objectives:

One mail survey was conducted and overseen by the Human Dimensions Specialist: A survey of license buying hunters about *Pennsylvania Game News*. Additionally, the HD specialist was responsible for coordinating a telephone survey of Pennsylvania residents about deer with Responsive Management that was completed in early 2012. The results of this general public survey have been presented in front of various groups of stakeholders in Pennsylvania. More details and results from these surveys are presented in Strategic Objective 3.1.

The Human Dimensions Specialist was also frequently consulted by the Bureau of Wildlife Management to consult on the question wording, methodology and analysis of mail surveys conducted by biologists in that Bureau and taught a monthly class to BWM staff members about survey research using Dillman's *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method* and other texts. The HD Specialist was also involved in the development of six focus groups of lapsed hunters throughout Pennsylvania. These focus groups will be conducted in October 2012 by Responsive Management. After the completion of these focus groups the HD Specialist will be responsible for writing another lapsed hunter questionnaire.

With three years of PALS data now available, the HD Specialist and other Information & Education Bureau staff have met regularly to review the license buying habits of Pennsylvania hunters through various data requests to the Bureau of Administration.

The HD Specialist also upgraded the SPSS software to include a regression package and was thus able to conduct additional analyses on the FY2010-11 lapsed hunter survey using logistic regression and other multivariate analyses. Results from the analysis of this questionnaire will be used to form the question development for the upcoming focus groups of lapsed hunters in October 2012.

The Human Dimensions Specialist receives several peer-reviewed journals and is also a peer reviewer for the *Human Dimensions of Wildlife* journal. Attendance at two conferences (The Wildlife Society and the Pennsylvania Data User conference) during this time period also provided valuable exposure to research occurring in other states and internationally that is directly relevant to the understanding of Pennsylvania hunter recruitment and retention and wildlife management efforts. In addition to attendance at the Wildlife Society Meeting, the HD Specialist also presented the results of the Lapsed Hunter Survey at the Wildlife Society meeting in November, 2011.

The Bureaus of Wildlife Management (BWM) and Information and Education (BIE) worked with an independent survey firm, Responsive Management, to complete a statewide survey of Pennsylvania residents' attitudes towards deer, deer impacts, and deer hunting.

In addition, four deer hunter surveys were completed, including the 2011 Deer Hunter Diary and 2012 Deer Hunter Survey in the WMUs 2D, 2G, 3C, and 4B; a survey of hunter attitudes and opinions regarding deer harvest reporting, and a general deer hunter survey. These surveys were completed via cooperative efforts of the BWM's Harrisburg

staff, Bureau of Administrative Services (BAS) mailroom, and BATS's data entry and management staff.

A survey of 5,000 migratory game bird license buyers who hunted waterfowl was conducted in late summer 2011. Data obtained will increase our understanding of factors affecting participation and satisfaction with waterfowl hunting, and preferences for season timing within allowable federal frameworks.

A fall turkey hunter attitudes survey is conducted each year during the course of the hen turkey harvest and survival rate study to determine hunter attitudes, satisfaction and daily participation under different season structures. The 2011 survey was mailed to 10,000 randomly selected license holders in early January, 2012. Results are used to gauge hunter satisfaction with recent fall season changes.

Wildlife Diversity – Increased number of GM Comments requests for information on or identification of endangered, threatened, priority and other non-game species; enthusiastic response to calls for participation in citizen-science surveys distributed through web postings and news releases; Appalachian Bat Count participants concerned about missing or reduced summer colonies; increased awareness of the declining Allegheny woodrat population among wildlife consulting companies.

Deer – Completed citizen survey results used in making deer management recommendations by WMU.

Game Birds – Completed Waterfowl Hunter Survey and Fall Turkey Hunter Survey to aid in management recommendations for these species.

Wildlife Diversity – Provision of artificial roosts for bats, when appropriate, through Appalachian Bat Count.

Strategic Objective 1.4 Improve the population trends of endangered, threatened and special concern wildlife.

Pennsylvania passed a major conservation milestone in 2011 – more than 200 bald eagles (state threatened) nests known in the Commonwealth. At the end of the season, the number of nesting bald eagle pairs reached 217. Preliminary (late June) numbers for 2012 include 206 nests in 51 of the state's 67 counties, with the largest numbers in Crawford (21), Lancaster (19), and York (12). Members of the public reported 13 of the 40 new bald eagle territories identified during 2012, with additional reports anticipated. Bald eagles have expanded their range annually and at a considerable pace. This includes expansion into suboptimal nesting habitats that present a challenge in terms of nest protection. Viewing areas have been established in some locations to facilitate and encourage public interest without disturbance to nesting pairs. Signage has been posted around nest sites likely to be disturbed by people. Information on eagle watch sites, eagle viewing etiquette, identification tips, "fast facts", the history of eagle recovery in the state

and the bald eagle management plan are all available on the agency website under “Bald Eagle Watching in Pennsylvania”. Residents aware of bald eagle nests are asked to report them through: pgccomments@state.pa.us, using “Eagle Nest Information” in the subject field.

Pennsylvania’s peregrine falcon (state endangered) nesting population grew from one in 1986 to 32 active peregrine nests in 2011, of which 23 were successful, with 68 young fledged. As of late June 2012, with the nesting season still in progress, there were 30 known, occupied nests of which 18 were already considered successful. At that time, 70 nestlings had been documented. Of those nestlings, 52 had already fledged for a fledging rate of 1.7 young per occupied nest. That rate is significant because 1.5 young fledged per nest is deemed necessary for a healthy peregrine falcon population. In 2012 over 150 volunteers helped to monitor all known, new, and suspected peregrine sites to document results and provide logistical support during bandings. Banding is an important research tool for assessing the lifespan of peregrines, their movements and population health. Nestlings undergo medical exams during banding. Those with minor issues are taken care of on the spot; those with larger issues are taken to rehabilitators. Now largely an urban species, peregrines provide many opportunities for outreach through nest-cams, public banding events, and media coverage.

An osprey (state threatened) survey form available on the agency website makes it possible for members of the public to submit data online. Reports received from throughout the state included nesting data on nine osprey pairs in the area of development at Muddy Run and Conowingo, Lancaster County. Diversity Division staff worked with Environmental Review to mitigate the effects of development on nesting ospreys at this and several other sites.

The state capital is important to great egrets, black-crowned night-herons, and yellow-crowned night-herons. These three species of colonial-nesting waterbirds are protected as endangered species in Pennsylvania. Yellow-crowned night-herons nest in a Harrisburg residential neighborhood. The rookery on Wade Island, in the Susquehanna River, harbors great egrets, black-crowned night-herons and a growing population of double-crowned cormorants. In 2011, unusually high water levels covered Wade Island and delayed the annual survey until the end of June, complicating the comparison of 2011 data to previous and subsequent years. The 2012 survey was conducted on schedule at the beginning of May, so data can be compared to data from 1985 through 2010 with greater confidence. Historically speaking, the number of great egret nests on Wade Island has risen gradually while black-crowned night-heron numbers have trended downward, especially after double-crowned cormorants began nesting on the island in 1996. The average number of heron nests from 1985 to 1995 was 236, while the average from 1996 to 2012 was 104. For egrets during the same periods the average numbers of nests were 93 and 158, respectively. Cormorants nests increased at a steady pace from 1996 to 2008, held in the 120s during 2009, 2010 and 2011, then rose sharply to 188 in 2012. Black-crowned night herons also nest at several other locations, all in southeastern counties.

Efforts to encourage piping plover re-colonization of historic nesting habitat continue at Gull Point in Presque Isle State Park. The Great Lakes population of this species is federally endangered. USFWS granted an extension for the Western Pennsylvania Conservancy (WPC) and Audubon Pennsylvania to complete weather-delayed restoration work supported by Great Lakes Restoration Initiative funds. Eighteen volunteers monitor appropriate habitat at the state park for piping plover. On July 13, 2012 a piping plover was sighted along the water's edge.

Pennsylvania is a key state in the Appalachian Mountain region for the future of the golden-winged warbler, a national watch-list species. As a young-forest species, this warbler overlaps in its habitat with several other species of high priority for the PGC, including the American woodcock and ruffed grouse. The agency plays an important role by coordinating monitoring of this species with Cornell Laboratory of Ornithology and promoting its management with many partners. The PGC collaborated with the Appalachian Mountain Joint Venture, American Bird Conservancy and Indiana University of Pennsylvania (IUP) to produce a best management practices (BMPs) booklet for Pennsylvania and Maryland, as well as a series of three workshops for land managers to learn about these practices. A Federal, State Wildlife Grant (SWG) supports IUP's implementation of the BMPs on SGLs. In 2011 Cornell surveys, 15 golden-winged warblers were found at 12 of 140 sample points. The Cornell surveys also tallied 34 blue-winged warblers at 24 points and 11 hybrid warblers at 11 points. Golden-wings are declining most severely in areas with less than 70% forest cover, and generally below 1,000 feet in elevation. In many such places they are being replaced by the blue-winged warbler, their close relative, or hybrids between the two species. In addition to the Cornell surveys, the Pennsylvania team searched for new populations of golden-winged warbler to increase our opportunities for management. Populations of nesting golden-wings were found on two SGLs in Pike County, not far from an already-known population on another SGL. Other breeding populations were located in state forests in Sullivan, Carbon and Perry counties.

During the 2011 breeding season, nesting of five pairs of yellow-bellied flycatchers (state endangered) was confirmed by finding adults feeding dependent young. Three territories were added to the 2011 inventory by mapping the location of adults. As of mid-June 2012, at least five territories had active pairs.

During spring 2012, a focused assessment of Upland Sandpiper was completed which identified a total of 17 pairs or males (some single males – which of course could well be paired) in seven counties (Butler, Cambria, Clarion, Clearfield, Crawford, Somerset, Venango).

Since 2005, regional wildlife diversity biologists have conducted a conservation initiative for the barn owl, a maintenance-concern species once common in agricultural fields, grasslands and other open areas. During the first *Pennsylvania Breeding Bird Atlas* in 1983-1989, this owl was concentrated in the southeastern third of the state, as it is now, but had a wide distribution and was observed in 56 of our 67 counties. During the second Atlas in 2004-2009, barn owls were observed in only 30 counties. Without input from the

biologists who conduct the conservation initiative, reporting rates during the second Atlas would have been far lower. Beneficial to farmers, a family of barn owls can consume up to 3,000 rodents during a breeding season. They are closely associated with humans, frequently using barns, silos and manmade nest boxes because large, dead, hollow trees are in increasingly short supply. During calendar year 2011, 41 of 56 confirmed nest sites were in nest boxes. Of those boxes, 25 were installed inside barns and 11 were inside silos. Ten new active nesting sites were identified in 2011. Members of the public reported the presence of barn owls (but not necessarily nests) at seven new locations. Most notably, in November 2011 presence of a barn owl was confirmed in Washington County for the first time in nearly a decade. Biologists banded 195 nestlings at 49 sites. During bandings they collected feather samples in cooperation with a York College researcher investigating the genetic diversity of barn owls within the state. Clutch size at time of banding ranged from 1 to 7, with an average of 4. Banding provides information on longevity, causes of mortality, and dispersal. Through December 2011 (bird banding records are compiled and analyzed on a calendar-year basis), 39 banded barn owls had been recovered. Dispersal distance ranged from five to 325 miles with an average of 59 miles. Of the 32 owls recovered dead, longevity ranged from three to 69 months, with an average lifespan of 14 months. Approximately half of mortalities occurred during winter. The barn owl's average life span is two to three years.

White Nose Syndrome (WNS) in bats is an epidemic of unprecedented proportion in North American wildlife. Its rapid spread and virulence threaten the continued existence of the most common cave-dwelling bat species, primary predators of night-flying agricultural and forest insect pests. Since its discovery in upstate New York in February 2006, WNS has spread to 21 states and 4 provinces, with mortality greater than 90% at many hibernation sites. First found in Pennsylvania in December 2008, WNS was known to affect sites in 29 of the state's 67 counties at the end of the 2011-12 hibernation season and nearly every hibernaculum is believed to be contaminated. Comparison of summer mist-netting capture rates and summer maternity colony counts taken before and after the advent of WNS, corroborates the population declines found in hibernacula. This catastrophic loss of bats has the potential to destabilize ecosystems and increase reliance on chemical alternatives. In addition to leading a federally supported response effort by Northeast and Mid-Atlantic states, the PGC's Diversity Division was actively involved in development of multiple sections of the WNS National Plan and is actively involved in its implementation.

In late 2011, a group led by scientists at the National Wildlife Health Center and the University of Wisconsin in Madison announced that *Geomyces destructans* (*Gd*) had been clinically proven as the causative agent of WNS. Early in 2012, a team led by Canadian researchers confirmed that finding and went several steps further, proving that *Gd* causes death, not just WNS, and that European strains of *Gd* kill North American bats. Native North American strains of *Gd* do not kill North American bats. A mycologist from Northern Arizona University developed a technique to examine and compare all *Geomyces* species and identify genetic variations between strains of *Gd*. Findings indicate that the North American and European strains are nearly identical but, while there is considerable variation between European sites, there is no variation in North

American. This suggests that *Gd* has been present in Europe for some time. No European strain sampled to date suggests identification of the source-point for the North American strain.

PGC research partner Bucknell University in Lewisburg, Union County, used digital data loggers deployed in hibernacula across the state to confirm that *Gd*-infected bats awoke from hibernation much more frequently than healthy bats, triggering early emergence and contributing to mortality. In a study investigating evidence that colder, drier hibernation sites were less affected by WNS, Bucknell showed that species that tolerate or prefer hibernation temperatures below 35 degrees are more likely to survive. Site temperature and gender have significant impacts on survival: males are more likely to survive than females. Bucknell also conducted one of two high-priority research projects testing treatments for *Gd*.

No effective treatment for WNS, either natural or pharmaceutical, has been identified to date. If one were discovered, application would present many challenges, including potential harm to rare creatures in cave ecosystems, as well as native fungi and bacteria that support higher life forms in those ecosystems, and potentially harmful effects on groundwater. Large amounts of chemicals would be needed to treat thousands of sites across the continent and annual application might be necessary for treatment to be effective. Vaccines usually require sequential doses at specific times and bats are difficult to capture, let alone recapture. Given the absence of an effective treatment, and the difficulties of delivery should one be developed, a moratorium on recreational caving during the hibernation period would protect bats from additional, human-caused disturbance, thus increasing the potential for our remaining bats to survive arousals during hibernation caused by WNS.

An important advancement resulted from the efforts of a team led by the Diversity Division's endangered mammal specialist. Field work was completed on the use of ultraviolet (UV) light to diagnose WNS infection on bats' wing membranes, laboratory analysis confirmed its accuracy, and a paper was prepared. In May 2012, the National Wildlife Health Center distributed a protocol for submission of biopsies from infected areas of bats' wings, as identified using UV light, for laboratory confirmation of WNS. This non-lethal method of confirmation avoids euthanizing and submitting whole bats. The development of accurate UV diagnosis made possible two new studies: (1) long-term examination of survivors to determine if WNS infection occurs annually and at what level (including juvenile infection, mortality and survivorship) and (2) examination of mass-mortality bats, survivors in the U.S., and European bats to compare the amount of fluorescent area between continents and species.

PGC also collaborated with researchers at the PSU's Beaver Campus on genetic profiling that could provide information critical to the recovery of the little brown bat if geographic areas with distinct subpopulations with comparatively high survival rates can be identified. Other featured collaborations include an investigation to determine if rehabilitated bats and bats surviving through summer retain *Gd* spores, comparison of

different hibernation strategies of various species of bats, examination of behavioral changes in WNS-infected bats, and changes in the digestive flora of infected bats.

As a result of the overwhelming losses to the Commonwealth's cave-bat population, the Pennsylvania Biological Survey's (PABS) Mammal Technical Committee (MTC) submitted proposals, now under review by the PGC, that the little brown bat, tricolored bat and northern long-eared bat (state responsibility species) be added to the state list of endangered species. Nationally, the USFWS is in the process of reviewing petitions for federal listing of the little brown, northern long-eared and eastern small-footed bat.

Since 2000, USFWS Section 6 (endangered species) funds have supported PGC research into the ecology of Pennsylvania's Indiana bats. These efforts have evaluated summer foraging habits and habitat, studied fall pre-hibernation behavior, and linked winter hibernacula to summer sites. A Luzerne County coal mine, thought to be in its fourth year of WNS infection, was selected as the potential source of subjects for a spring 2012 migration telemetry study to observe changes in migration behavior and find summer maternity sites. Three Indiana bats were live-trapped while entering the mine during fall 2010. Unfortunately, none were captured exiting the mine in spring 2012.

Contractors conducting surveys on behalf of developers identified four Indiana bat summer roosts in Greene County, 15 eastern small-footed bat summer roosts in Wyoming (11), Pike (3) and Northumberland (1) counties and 52 northern long-eared bat summer roosts in Lycoming (34), Tioga (9), Cameron (4), Elk (3) and Clinton (2) counties through radio telemetry. During mist-netting and live-trapping surveys at 1,173 sites statewide, contractors captured and released three Indiana bats (federally endangered), 11 small-footed bats (state threatened), 24 silver-haired bats (state high-level concern), 46 hoary bats (state maintenance concern), 272 red bats (state maintenance concern), 1,098 northern long-eared bats (state responsibility species), 36 tricolored bats, 505 little brown bats and 2,257 big brown bats. Contractors submit survey reports to the agency, which maintains a database used to monitor population trends of cave and migratory bat species by comparing time and net (or trap) surface area to the number of bats captured.

The northern flying squirrel was listed as a state endangered species in 2007. During the period leading up to the listing, research supported by federal SWG found that red spruce is a vital component of active northern flying squirrel sites in Pennsylvania. Their primary food source is a fungus that grows symbiotically with tree roots and red spruce is associated with more genera of this type of fungus than any other tree species. In 2011, nearly 2,500 red spruce seedlings, raised at the Howard Nursery, were planted in active northern flying squirrel habitat in and around SGLs. Additionally, PGC staff collected enough cones from mature red spruce to produce approximately 10,000 more seedlings. Thanks to a Wild Resource Conservation Program (WRCP) grant, research partners at PSU Altoona and Wilkes University planted an additional 2,000 seedlings, purchased from a West Virginia supplier, in optimal areas and other areas to expand food available in additional habitat corridors to connect areas with the best habitat. As these efforts continue and expand, the PGC hopes to make landscape-level changes in key areas to benefit the northern flying squirrel for decades to come. The longstanding nest-box

survey will continue, with 300 new boxes added to the approximately 600 already in place.

The most encouraging results regarding the reclusive and largely solitary Allegheny woodrat, a state threatened species; continue to come from the state's central counties. Management implemented on a Dauphin County SGL in 2009 and 2010 resulted in five times more fresh woodrat signs in 2011. An active habitat site was found in a new metapopulation area on a ridge in adjacent Northumberland County. The status of a metapopulation on the Allegheny Front was upgraded from inactive to active because two new active habitat sites were found along the front in Centre and Clinton counties. Of 25 sites surveyed, 16 had active sign, 7 sites were inactive, and 2 potential sites with suitable habitat had no woodrat sign. Thanks to another WCRP grant, IUP will implement habitat management techniques, developed through conservation-partner projects funded by SWG, will be implemented on SGLs in southcentral counties. Another positive development for Allegheny woodrats in the Commonwealth is the June 2012 relocation of a captive breeding program, formerly housed at Purdue University, to Pennsylvania's Delaware Valley College. The move provides the potential to improve the genetic diversity of woodrats on managed habitat.

The primary responsibility of the PGC six regional wildlife diversity biologists is the habitat-based Private Landowner Assistance Program (PLAP). During 2011-2012 fiscal year, regional diversity biologists prepared 127 plans for 17,890 acres. Since program inception in 2004, over 1,090 plans have been produced for a total of more than 163,000 privately owned acres. Regional diversity biologists also contribute to comprehensive planning for the state's over 1.4 million acres of SGLs. Additional duties include reviewing the potential impact of proposed Marcellus shale well pads and pipelines, developing guidance for Voluntary Public Access and Habitat Incentives Program (VPA-HIP) properties, hosting habitat management workshops for landowners, providing public presentations about species of conservation concern, serving as ambassadors through participation in a wide variety of conservation organizations, and assisting research efforts by BWM biologists.

In June 2012, the Board of Commissioners provisionally approved, pending a final vote at the September 2012 meeting, state endangered status for upland sandpiper and state threatened status for northern harrier and long-eared owl, as proposed by the Ornithology Technical Committee (OTC) of the PABS. In May 2011, the PABS MTC proposed state endangered status for little brown, northern long-eared and tricolored bats because of the staggering mortality resulting from WNS. A draft PGC letter of intent regarding management actions, including state listing of those species, was in preparation. When finalized, the letter will appear in the *Pennsylvania Bulletin*.

Diversity Division biologists were called upon to verify species identification of federal and state endangered Indiana bat and state endangered blackpoll warbler fatalities at wind farms. In September 2011, Duke Energy Corporation notified USFWS that a dead Indiana bat had been found during voluntary post-construction monitoring at a wind facility in operation since 2009. At USFWS request, a Diversity Division biologist

retrieved the bat, confirmed species identification and delivered it to the Service. This was the first documented Indiana bat wind fatality in Pennsylvania and the third nationally. Duke Energy, USFWS and the PGC are collaborating on development of a habitat conservation plan to limit future occurrences. Marcellus gas shale extraction has potential to negatively impact the West Virginia water shrew (state endangered), northern water shrew (WAP maintenance concern), northern flying squirrel and Allegheny woodrat.

The Pennsylvania Game Commission, in coordination with The Pennsylvania Natural Heritage Partnership have finalized a game lands planning tool initiative which is designed to further protect, minimize and manage all known threatened and endangered species residing with any of the 1.4 million acres of game lands. This effort includes both verifying the site specific identification and management of each known species occurrence within the gamelands, as well as all those threatened & endangered species within an half mile radius of the gamelands boundary. Beyond just the gamelands and periphery area, a concerted effort to identify the actually critical habitat supporting all federally threatened or endangered species within the entire Commonwealth will be discerned by way of this initiative. The funding is being derived from Pittman-Robertson proceeds. The overall result from this project's implementation will provide the Commission with the ability to improve its protection and management emphasis on a site by site specific determination for all known state and federally listed plants and animals and will further expedite environmental permit reviews for varied industrial development projects and state and federal mandates for protection of these wildlife species. Plans for an internet based program to access this data will be developed and managed by the Bureau of Wildlife Habitat Management in coordination with all PNHP partners. Last year, Environmental Planning and Habitat Protection Division Staff attended ten meetings concerning the further refinement of the Environmental Review online tool and Conservation Planning.

Since the creation of the PGC Wind Energy Voluntary Cooperative Agreement, 33 wind development companies have become cooperators thus agreeing to avoid, minimize, and potentially mitigate any adverse impacts from development of wind energy on private lands may have on the state's wildlife resources. PGC staff attended 35 meetings with wind developers, 35 joint agency wind meetings, and 14 other wind energy related meetings. Ten wind energy development projects were reviewed for potential impacts to special concern species, natural resources, and state game lands resulting in varied habitat & species avoidance measures.

Based on the overwhelming success of the Commission's Wind Energy Voluntary Cooperative Agreement, the Commission has initiated a similar effort to explore the feasibility of a voluntary cooperative agreement for oil & gas development occurring throughout the state. As such, a steering committee has been formed comprised of representatives from all the State, Federal, Fish and Wildlife resource agencies having jurisdiction in PA, as well as industry representatives.

Strategic Objective 1.5 Restore extirpated wildlife species where landscape attributes and public values are favorable.

Game Birds - Ring-necked pheasants have shown positive responses (established self sustaining populations) on multiple study areas, but population densities are below objective.

Wildlife Diversity – Long-term recoveries of three reintroduced raptors continue to be documented (bald eagle, peregrine falcon, and osprey). These species are approaching population levels in which their status could be upgraded to secure, as determined by management plan objectives.

Strategic Objective 1.6 Manage nuisance wildlife impacts professionally, effectively and economically.

There were 1,817 entries in the statewide human-bear conflict database during 2011. WCOs relocated 369 bears that had been trapped at sites with reported human-bear conflicts; 34 bear damage claims totaling \$18,632.13 were approved for payment, and 37 bears were euthanized because of crop damage or repeated nuisance behavior.

The PGC is a founding member of the Northeast Association of Fish and Wildlife Damage Cooperative. Several studies have been produced for multi-state use.

Goal 2: Improve the public's appreciation of wildlife, and their awareness and understanding of wildlife resource management.

Strategic Objective 2.1 Determine the public's awareness, attitudes, values and knowledge of wildlife and support for wildlife resource management.

The BWM and BIE worked with an independent survey firm, Responsive Management, to complete a statewide survey of Pennsylvania residents' attitudes towards deer, deer impacts, and deer hunting.

In addition, the deer and elk section completed four other surveys, including the 2011 Deer Hunter Diary and 2012 Deer Hunter Survey in the WMUs 2D, 2G, 3C, and 4B; a survey of hunter attitudes and opinions regarding deer harvest reporting, and a general deer hunter survey. These surveys were completed via cooperative efforts of the BWM's Harrisburg staff, BAS's mailroom, and BATS's data entry and management.

Results from deer hunter surveys of hunters and citizens provide a better understanding of factors affecting hunter satisfaction and opinions towards deer and deer management.

Strategic Objective 2.2: Enhance the public's knowledge and understanding of the role of hunting and trapping in wildlife management.

We provided wildlife resource related information to numerous and varied publics during the year in the form of presentations, Outdoor PA spots, interviews with radio, television, newspaper and magazine reporters/writers, social media, articles in *Game News* and *The Hunting And Trapping Digest*, and we routinely update the agency website to expand the availability of wildlife information for public use. The following are examples of the efforts made by BWM staff to provide information to better inform the public.

We continued efforts throughout the year to improve deer and elk management outreach efforts to the public and PGC employees. For example, we; 1) responded to 304 public inquiries and questions including “Ask the deer biologists” questions via email and the website postings, 2) responded to 50 reporter inquiries, 3) responded to 5 legislative inquiries, 4) recorded 22 radio programs for Outdoors PA, 5) presented 33 public programs, 6) completed a meeting with invited stakeholders, 7) completed six brochures, 8) wrote 13 articles for *Pennsylvania Game News* including the ongoing series on white-tailed deer, 9) authored or coauthored two peer-reviewed articles that were published in scientific journals, 10) presented a day-long deer management seminar at the Pennsylvania Institute of Conservation Education Bucktails Field School, 11) completed a prototype of a deer aging kit for instructional purposes, and 12) provided 76 posts for PGC social media.

Information on hunting seasons for waterfowl and other migratory game birds was provided to the public via a regulations brochure and news releases. We also provided a duck banding demonstration at the 2011 Pymatuning Waterfowl Expo, recorded Outdoors PA radio interviews on a variety of waterfowl topics, completed interviews previewing waterfowl seasons with the Williamsport *Sun-Gazette* newspaper and *Wildfowl* magazine, prepared a fact sheet summarizing Pymatuning waterfowl banding data for distribution to PGC staff and volunteers, and responded to numerous requests for information on waterfowl hunting, band reporting, and nest box management.

In early October, the annual “From the Coverts” newsletter was mailed to more than 500 Grouse and Woodcock Hunter Cooperators, along with survey materials for the 2011-2012 seasons. The newsletter included results of the 2010-11 hunting season as well as the 2011-12 season forecast, information on long-term grouse and woodcock population trends, current PGC research and management efforts, and news items on Ruffed Grouse Society and Woodcock Limited habitat projects. The newsletter was also made available on the PGC website. We provided three newspaper interviews on grouse and woodcock management, and one on mourning dove populations, habitat, and banding. We provided information regarding upland bird hunting in Pennsylvania for an article in *Upland Almanac* magazine and for the *Bird Dogs Afield* television show/e-mail club, assisted Northeast Region staff with preparations for a segment regarding “tame” grouse on the *Pennsylvania Outdoor Life* television program, and recorded an Outdoors PA radio program on the upcoming national dove hunter survey. We also provided information on ruffed grouse management to 68 people in response to their public comments on the grouse management plan, and responded to approximately 40 additional information requests from the public on ecology, management, and hunting of grouse and webless migratory game birds (especially woodcock and mourning doves).

An article on turkey management and research was featured in the Wildlife Annual in the 2012-13 hunting regulations digest. Other turkey-related publications included an article on wild turkey behavior in the spring for *PA Forests* magazine, and a two page handout summarizing the hen turkey study, which was provided to trapping crews and cooperators for educational use with landowners and other members of the public. We supplied two landowners with information and generalized maps of turkeys trapped on their properties during the gobbler and hen studies. We gave public presentations regarding turkey management to about 130 attendees at seminars, provided a PGC display for the annual wildlife and forestry conference of Woodland Owners of the Southern Alleghenies, and assisted two partner agencies with development of their own presentations on turkeys. We recorded four Outdoors PA radio programs on the spring turkey season and two on the fall season. We assisted two outdoor writers with turkey hunting season forecasts, and responded to approximately 60 public requests for information on ecology and management of wild turkeys.

Outreach efforts related to WPRAs included presentations in numerous venues such as Pheasants Forever chapter meetings and banquets, sportsman's club events, and meetings of conservation district and watershed association groups. We also taped segments on pheasant flushing and brood surveys for WNEP-TV's *Pennsylvania Outdoor Life* program, recorded three Outdoors PA radio programs on WPRAs and one on the bobwhite quail management plan, and provided three newspaper interviews focused on WPRAs and the importance to pheasants of Conservation Reserve Enhancement Program (CREP) habitat. Project fliers, "wanted" posters, and brood survey forms were distributed within all WPRAs, and information was distributed to e-mail lists.

BIE staff was assisted with preparing numerous news releases on game bird hunting seasons and research projects, compiling photos and information for the agency's social media sites, and maintaining and updating game bird information on the PGC website.

Game Bird Section staff presented educational programs to college-level students at a PSU ornithology class and The Wildlife Society's Northeast Student Conclave, and presentations and job-shadowing experience to students at Penn's Valley and Lower Dauphin High Schools, the Northumberland County Conservation District Middle School Envirothon, and a Schuylkill County youth camp.

We provided editorial changes to BIE for the draft *2012-13 Pennsylvania Hunting & Trapping Digest* to reflect regulation modifications as part of annual season and bag limit revisions.

Justifications were prepared for season, bag limit, and regulation changes presented at the January Commission meeting.

Field trips to observe and tag cubs at winter bear dens were provided for groups of volunteers, legislators, and cooperators. Presentations on ecology and management of black bears was provided to a group of state legislators (25 attending), to the Tuscarora Forestland Association's annual meeting in Perry County (100 attending), to a

sportsmen's function sponsored by Representative Masser in Northumberland County (50 attending), and at the Elk Visitors' Center (50 attending). We presented a program on furbearer management to 15 members of a church fellowship group and to 100 members of the Susquehanna County Federation of Sportsmen Clubs at their annual banquet.

Annual data was summarized on bear mortality (harvest and non-season), fall food conditions, human-bear-conflicts, and bear management and regulation changes; and presented results at a meeting of the Mid Appalachian Bear Study Group, which was attended by other state bear researchers and managers.

The curator of the New York Queens Zoo was assisted in making plans to obtain a non-releasable porcupine from Pennsylvania for educational use at several city zoos. We provided information to a high school teacher concerning fisher, bobcat, and coyote harvest estimates and body fat as an index to animal health.

Five interviews were participated in with outdoor writers about the 2011 bear hunting season, the ongoing Urban Bear Study, or the tagging of bears for population monitoring. We also reviewed several news releases about bear hunting prospects and how to avoid conflicts with bears in residential areas, and an editorial about bears in residential areas submitted to the Harrisburg Patriot-News. We participated in an interview with WGAL-TV in Lancaster concerning beaver and river otter distribution and habits within the lower Susquehanna River drainage. We participated in an interview with a newspaper writer concerning the use of cable restraints by trappers. We provided porcupine ecology and nuisance prevention information to a backpacker magazine story writer.

As part of our Northeast Furbearer Resources Technical Committee charge, we entered new harvest data from several jurisdictions and continued to maintain the Northeast Furbearer Harvest and Management Data Base comprising furbearer management information from 19 state and provincial wildlife agencies in northeastern North America.

Thirty years of beaver harvest information was supplied to a Slippery Rock University student as part of a wildlife project.

Comments were provided concerning feral swine importation, possession, eradication, and management as part of a Pennsylvania MTC charge.

Response was given to public inquiries concerning hibernation, sightings of bears, the process by which age is determined for bears, the importance of bear check stations during the hunting season, why the harvest of cubs is permitted, ongoing bear research projects, and status of bear populations.

An analysis was conducted on how extended bear seasons have affected harvest rates of nuisance bears and compiled the results into a presentation that was given at the 4th International Human-Bear Conflicts Workshop with 300 bear managers from around the world attending. Findings indicated that bears captured in human-bear conflict situations were 1.48 times more likely to be removed by a hunter if an extended season was

available, but opening an extended season had little effect on the odds of being harvested for bears with no history of human-bear conflicts.

The PGC participated, through representation in the Northeast Black Bear Technical Committee, in the development of recommendations for the use of aversive conditioning to reduce nuisance bear behavior, and we completed a survey distributed to all northeast jurisdictions on management of black bears. The survey was distributed by researchers at the University of Tennessee who are writing a bear management options publication under contract for the Northeast Black Bear Technical Committee.

Response were given to 43 public inquiries concerning wildlife natural history, track or sign identification, and historic distribution. Wildlife species included coyotes, foxes, fishers, bears, mountain lions, wolves, skunks, mink, muskrats, pine martens, badgers, beavers, and river otters, groundhogs, cottontails, chipmunks, fox squirrels, flying squirrels, snowshoe hares, badgers, spotted skunks, bobcats, and muskrats. We also handled inquires addressing rabies, mange, and mammal identification.

Responses were given to email requests for information about Pennsylvania black bears from the Humane Society of the U.S. - one pertained to the effects of increased harvest on human-bear conflict levels and the other was seeking information about how to improve captive bear husbandry practices; an interview with *Outdoor Life* about bear management in Pennsylvania; inquiry about a bear in northern Lycoming County that had an unusual hair-loss condition that did not appear to be mange; questions about black bear litter sizes in Pennsylvania that was prompted by an observation of a sow with five cubs in Clarion County; questions about how bears are aged from staff at Cowans Gap SP who had found a decaying bear carcass and wanted to submit a tooth for age determination; and inquiries from field staff about how bear tagging quotas are tallied, strength of correlation between weight, age, and skull size (Boone-Crockett scoring) for black bears in Pennsylvania, and one reporting an error in weight recorded for a bear harvested in 2010.

The PGC responded to numerous public inquiries concerning sightings of bears, the frequency of five- cub litters, and mange in black bears and also contributed to a news release on changes to bear hunting seasons in 2012, recorded several Outdoor PA segments about current black bear research activities and bear hunting opportunities this coming fall.

Assistance was given on instruction of cable restraint certification training for 12 students at the Booneville campground, presented an artificial cubby program covering new regulations to 15 attendees at the Pennsylvania Trappers Association District 7 fall meeting.

Coyote population information was given to a graduate student from Auburn University and furbearer harvest trend information to East Stroudsburg University staff.

Approximately 3,400 teeth collected from bears harvested in 2011 were prepared for shipment to the ageing lab. Results are expected by June and will be posted on the agency's webpage for hunters to access. Successful hunters also received a certificate recognizing their harvest while at a check station this year.

An information sheet on muskrat age and sex determination from fall pelt characteristics was provided to Pennsylvania Trappers Association members.

Information on the history of furtaking in North America, beaver management, and the bobcat kitten survival study was provided to a newspaper writer. A response was given to a public inquiry concerning beaver dispersal and distribution in the lower Delaware River.

Radio segments were recorded for Outdoors PA concerning fisher management, mountain lions, bobcats, and wolves.

Work was done with the Bureau of Wildlife Protection (BWP) to prepare a response to a petition to limit furtaking opportunities in Pennsylvania.

Response was provided to an email inquiry from a Michigan biologist asking about the prevalence of black bear litters observed in Pennsylvania that contain cubs and yearlings at the same times. Michigan has documented two incidents in recent years.

A response was given to a public inquiry concerning wolves in Pennsylvania and the eastern U.S.; provided wolf history, distribution, and speciation information to a misinformed individual.

Pheasant Propagation staff hosted open houses at the Southwest and Western game farms (GF), for the first time since budget cuts were put in place in 2005. Unfortunately the Loyalsock and Northcentral GFs could not participate due to the unprecedented floods along the Loyalsock Creek a month earlier. BIE produced a DVD that outlined GF activities through the year, and also an attractive display for each farm. Assisted BIE with news releases related to pheasant allocations, junior pheasant hunts, open houses, chick and egg programs, and impacts of the flood of 2011. Website updates are completed annually pertaining to the same topics.

Every year programs are provided to widely diverse audiences from the public to agency personnel about wildlife diseases. This year's programs for non-agency audiences included: a program on deer evolution, anatomy, necropsy, and diseases to participants in the Pennsylvania Institute for Conservation Education's Wildlife Leadership Adventures *Bucktails* camp; a talk describing the perils of supplemental feeding of elk to citizens at the Elk Visitors' Center in Benezette; a talk on wildlife disease careers and important wildlife diseases to the PSU Pre-vet and Wildlife clubs; and two presentations on PGC activities relevant to the agricultural community to members and guests of PDA's Animal Health and Diagnostic Commission.

Diversity Division biologists participated in many forms of public outreach, delivering more than 20 presentations to a total statewide audience over 500, developing and updating material for the agency website, recording radio spots and providing on-air interviews, contributing to 16 agency news releases, and providing answers to follow-up questions resulting from news releases. Timely articles were posted on the Pennsylvania eBird website and a column appeared in the Pennsylvania Society for Ornithology (PSO) newsletter. Opportunities for the public to participate in bird population surveys were promoted through agency web pages and news releases, eBird, the PSO newsletter and PA Birds List-Serve. Diversity Division biologists assisted WQED, Pittsburgh, with production of a television documentary on bats and White Nose Syndrome, as well as a Smithsonian Channel videography crew recording on the same subject. Regional Wildlife Diversity biologists conducted two habitat management workshops with a total of 50 participants and presented more than 35 public programs with a total audience of over 1,500 statewide. An unusual opportunity arose for one regional biologist who served as moderator for a team of 12 students who participated in an Ethics in the Profession program that required them to discuss and make decisions regarding ethical dilemmas found in the field of wildlife biology.

Strategic Objective 2.3 Expand the availability of wildlife resource information to the public.

The Game Commission continuously updates and adds information to its website to expand and improve the content related to the wildlife resources and agency's management.

In the radio market, we have entered our fourth year of an agreement with RadioPA to provide daily, three-minute broadcasts consisting of one minute and 50 seconds worth of agency content, coupled with one minute and ten seconds of RadioPA-generated commercial content. This programming is then provided to nearly 45 radio stations that subscribe to RadioPA's service.

As part of that partnership with RadioPA, we also entered into an agreement to provide six radio Public Service Announcements focused on hunter safety and incorporate other agency messages on a website domain (SafeHuntingPA.com) that RadioPA created and obtained sponsorship for.

The Information & Education (I&E) Bureau launched a "PGC Wild Cam" that provides the public worldwide with opportunities to watch live-streaming video of wildlife in varied settings that normally cannot be accessed. Two such locations were in the propagation area off Willow Point at the Middle Creek Wildlife Management Area to observe snow geese and in a barn owl box located on a Perry County farm. More than 150 people at one time were viewing the barn owl livestream. In total, over 300,000 people have viewed these images.

The I&E Bureau, in conjunction with the Bureau of Wildlife Management, developed a "Bald Eagle Watching in Pennsylvania" section for the agency's website to help people

enjoy the recreational benefits of eagle watching. The information has been well received; some state parks even download our eagle-watching pages for placement on their bulletin boards to help explain how to look for eagles and interpret what they're doing.

In preparation for certain milestones in 2013, the Bureau began working on short videos to highlight the 100th anniversary of elk restoration efforts in Pennsylvania, as well as the 30th anniversary of the bald eagle restoration program.

The I&E Bureau, to encourage Pennsylvanians to share their trail camera photos on the Game Commission's Facebook and Twitter pages, began posting photos of its own taken near a water hole in Perry County. The Bureau also offered a wildlife photography course as part of the PGC's Wildlife Conservation Certificate program.

Over the past year, the Bureau has provided short clips on a variety of topics, ranging from the arrival of a colony of Allegheny woodrats at Delaware Valley College to general footage of deer, bear and turkey footage, to news media outlets, as well as for use on PGC's YouTube, Facebook and Twitter accounts.

In cooperation with the Department of Conservation and Natural Resources, the Bureau provided several minutes worth of video footage of bald eagles for use at the Sinnemahoning State Park's new visitor's center.

Staff completed film projects featuring duck banding for use at the agency's Middle Creek Wildlife Management Area's Visitor's Center. Other short films produced included a report on sandhill cranes nesting in northwestern Pennsylvania, a promotional film for the National Archery in the Schools Program, and the award-winning "PGC" promo film which received over 40,000 hits in the first few weeks of its debut online.

The Agency now has 64 species of birds and 12 species of mammals to our video library. A photograph of a coyote in a graveyard in Erie was published in the spring 2011 issue of The Wildlife Society's magazine.

The I&E Bureau initiated several projects in 2011-12, and continues to work on those, including: a 10-minute film on barn owls; a feature length film on bald eagles for the 30th anniversary of the recovery program launched in 1983; a film on the 100th anniversary of the agency's success at restoring elk to Pennsylvania; a 10-minute film on the unique logging project at SGL 314 and how it benefits different wildlife species; and a short film on the agency's pheasant propagation program.

The I&E Bureau moved forward with posting a number of videos on the popular "YouTube" websites, and has continued to webcast all Quarterly meetings of the Board of Game Commissioners that are held in Harrisburg and the annual elk drawing. In 2011-12, the PGC added the Board's Working Group Meetings to the line-up of live webcasts.

In addition, three Facebook pages were created which now have “Likes” of over 3300 people. A Twitter site was also opened and is followed by over 700 people. These sites have educational and informational material posted on them every day and have a “reach” of over one million people.

The addition of new features and news on our website continues to hold and attract new visitors. In 2011-12, the website drew 4.85 million visitors, who viewed 12.84 million pages for an average of 2.42 minutes per visit. About 59% were returning visitors; 41 % were new. In comparison, during 2010-11, the website had 4.60 million visitors, who viewed 12.08 million pages and spent an average of 2.35 minutes doing so. About 59 % of them were returning visitors; 41% were new.

The I&E Bureau, in conjuncture with the Bureau of Wildlife Management, developed a Wildlife Disease Reference Library on the website to increase the public’s access to and knowledge of wildlife diseases

The WHM Bureau was instrumental in promoting and facilitating many agency-produced media products, including, but not limited to, news releases, audio, video, brochures, Game News articles, power-point programs, public awareness signs, gamelands dedication ceremonies, and large visual displays. These efforts all helped to further emphasize the protection and, habitat management, as well as featuring numerous wildlife habitat management program highlights which occurred throughout the year.

Strategic Objective 2.4 Promote wildlife conservation education throughout Pennsylvania.

PGC personnel conduct programs for students throughout the state. All programs conducted in schools address the Environment and Ecology State Education Standards. Programs include adaptations, wildlife and their habitats, predator/prey relationships, ecosystems and their interactions, mammals and birds of PA, wildlife forensics, and endangered and threatened species. Conservation Education also worked with Howard Nursery on the Seedlings for School program. This program offers free seedlings to schools along with education resource materials.

Conservation Education is also responsible for the wildlife section of the State Envirothon. PGC personnel staff all of the county events, as well as the state contest. This year, over 15,000 high school students participated in the county events with 300 students competing at the state level. The Commission was also a member of the Wildlife Station Planning Committee for the National Envirothon to be held in Pennsylvania in July 2012.

Standards-based training programs for teachers and pre-service teachers that address state education standards were completed. AFWA national conservation education standards and State Department of Education teacher training policies were also reviewed.

Conservation Education continues to work with the Department of Education and AFWA to ensure that all training programs correlate to appropriate Standards. The Commission continues to serve on the Early Childhood Education Review Committee out of the Office of Child Development and Early Learning. This past year the committee developed an Environment and Ecology Materials Review instrument and has started to evaluate early childhood materials to develop a list of quality E and E materials for Early Childhood. In addition, the Commission was also invited to be on the Standards Writing Committee for the Environment and Ecology Standards for pre-K-2nd grade. These standards are now in draft form.

The Conservation Education Division continues to serve on the Environmental Education Advisory Committee and contributed to the bi-annual report on Environmental Education in Pennsylvania, the development of the Environmental Literacy Plan for PA and reviewed activities for appropriate content and standards correlation for the Dept. of Education Standards Aligned System for Environment and Ecology. Below please find a listing of ongoing programs that correlate to Department of Education and AFWA standards.

<u><i>Existing, continuous programs that address state education standards and AFWA standards.</i></u>	
Teacher Workshop	Target Audience
Project WILD	K-12 teachers; pre-service Teachers; non-formal educators
<i>Science and Civics</i>	High School teachers
<i>Advanced WILD Workshops</i>	K-12 teachers; non-formal educators
<i>PA Songbirds</i>	K-12 teachers; non-formal educators; pre-service teachers
<i>Growing UP WILD</i>	Prek-2 nd grade teachers; Pre-service Teachers
PA Biodiversity	Middle- High School Teachers; nonformal educators
<i>Flying WILD</i>	K-12 teachers; pre-service and non-formal educators
<i>Conservation Education Workshops for Teachers</i>	K-12 teachers; non-formal educators

Expanded programs, services and resources to new and current resources that address standards for AFWA and the Department of Education

Conservation Education expanded programs, services and resources:

- Offered new workshops, namely WILD About Turkey and eBird,
- Offered additional opportunities for training in Growing UP WILD
- partnered with additional organizations (see below)
- help to develop conservation webinars as a member of the K-12 committee of AFWA
- participated in conferences
- updated Growing Up WILD, Songbird and Project WILD facilitator training materials
- Developed conservation education binder materials for Cadets in current training school class.
- Participated in development of pre-k- 2nd grade Environment and Ecology Standards
- Participated in the development of exhibits for the Elk County Visitors' Center

Continued partnerships with state parks, museums, nature centers and environmental education centers and other organizations in offering programs and exhibits

Number of partnerships established in developing and delivering programs: new partners are indicated with a *
Conducted workshops in partnership with the following organizations/agencies
Bradford County Conservation District
ZooAmerica
DEP
Messiah College
Bloomsburg College
Dept. of Education office of Environment and Ecology
Wildwood Lake Sanctuary, Dauphin Co. Parks and Recreation
DCNR, Bureau of State Parks
York College
Slippery Rock University
Philadelphia Zoo
John Heinz Wildlife Refuge- US Fish and Wildlife Service
Lock Haven University
Penn State University
PPL
Whittaker Center
Audubon PA Harrisburg
National Bird Aviary in Pittsburgh
Shavers Creek Nature Center
Audubon of Western Pennsylvania
East Stroudsburg University
PA Fish and Boat Commission
Cabrini College
Monroe County EE Center

Carbon County EE Center
*Please touch Museum in Lancaster
*PA Quality Assurance Program for Department of Education Early Childhood
*Winnie Palmer Nature Reserve at St. Vincent's College
*Black Rock Retreat in Lancaster County
*Capital Area Association for the Early Learner
*Headstart Capital Area
*Keystone Elk Country Alliance
*Erie Zoo

Participants in standards based programs and services and resources for K12

Commission programs	Personnel	100,000 participants
County Envirothon		15,000 participants
State Envirothon		300
Seedlings for Schools		100,000+
<i>Total student participants</i>		<i>215, 0300</i>

Over 2,200 educators participated in 1 or 2-day workshops sponsored by the Commission. Ninety-one workshops were offered throughout the state and included Project WILD, Advanced WILD, PA Songbird, PA Biodiversity, Wildlife Forensics and Flying WILD workshops. During this fiscal year, we continued the waterfowl workshop first introduced last year and added a new workshop entitled "WILD about Turkeys". This training was a joint workshop of Pennsylvania and New Jersey's Project WILD programs. During the workshop teachers explored the national history of turkeys, conducted a turkey forensics activity and searched for turkey signs in the field. One of the highlights of the workshop was a demonstration of methods used to capture turkeys for research and trap and transfer programs, including the rocket net. Other advanced workshops offered this year included workshops on elk, owls, endangered species, peregrine falcons, biodiversity, and reading. The following is a table workshops and participant numbers for the 2011-2012 fiscal year.

Additionally two facilitator trainings were offered this past fiscal year, one for Growing UP WILD, the other for Songbirds. The Commission also presented at several conferences, including the PA Science Teachers Association Annual Conference, PA Association of Environmental Education Conference, the Early Childhood Summit and the CAAEYC Early Childhood Conference. An additional 200 educators were reached through these conferences.

Numbers of Programs:			
Workshops			
Program	Participants	Number of workshops	Number Participants
Project WILD	K-12 Teachers; pre-service teachers, non-formal educators	33	888
Advanced WILD and Specialized WILD Workshops (<i>Reading, elk, owl, waterfowl, endangered species, turkey, peregrine falcon, WILD PA</i>)	K-12, non-formal educators	11	236
Growing UP WILD	Pre-K- 2 nd grade teachers and pre-service teachers	40	947
PA Biodiversity	K-12 educators, non-formal educators	3	62
PA Songbirds (that report to PGC)Workshops*	K-12 educators, non-formal educators	2	52
Wildlife Conservation Education workshops: <i>Wildlife Forensics and Use and preparing of study skins</i>	K-12 educators and non-formal educators	2	41
	<i>Total workshops and participants</i>	91	2226
* <i>Teacher workshops typically 6+ hours each; elk is 2-day</i>			
Facilitator Trainings	Environmental Education professionals and early childhood trainers	2	39
	Total workshops for educators and to train facilitators	93	2265

Conservation Education employed a variety of methods to provide services, programs and resources to constituents as follows:

- Basic Workshops- Project WILD, PA Songbirds, Growing up WILD, Biodiversity, Flying WILD
- Advanced Workshops- Elk, Endangered Species, Peregrine falcons, Waterfowl
- Special topic Workshops- Reading, Forensics
- Facilitator Trainings- Songbirds, Growing Up WILD
- Conferences
 - PA Science Teachers Association

- PA Association for Environmental Educators
- Capitol Area Association for Early Learners
- Early Childhood Summit
- Webinars- Conservation Education webinars and materials development with AFWA as part of the K-12 education committee
- Web pages- provided Seedlings for School materials and workshop announcements
- Printed Educational Materials- Updated a variety of materials including
 - Seedlings for Schools
 - Growing UP WILD Fac. Training Materials
 - Project WILD Fac. Training Materials
- Student Programs
- Adult programs
- Email workshop announcements- maintain an email list to announce upcoming workshops
- On-line magazine section: work with Game News on Nature Savvy on-line segment
- Seedlings for School program
- Grants through the WILD Action grant program
- Songbirds posters (two new for use in workshops with teachers)

Strategic Objective 2.5 Promote the “Connect with Wildlife” program.

The PGC offered instructional courses relating to different aspects of wildlife and the outdoors through the Wildlife Conservationist Certificate Program. Other outreach programs include, billboard advertising throughout Pennsylvania, Connect with Wildlife magnets, posters, bumper stickers, orange hats with embroidered PGC logo and wildlife supporter, orange draw string bags, Bald Eagle Restoration 200 Nest Milestone patch, Working Together for Wildlife patches, Field Note patches, Elk Hunt patches, Mentored Youth patch with safe-t plug, Time Collectible Wild Turkey Heritage and Upland Game Bird Series, *PA Big Game Record Book*, Waterfowl Management stamp and print, Wildlife and Habitat buttons, PGC Multi Pocket badge holder, youth field days and the various special youth hunting season opportunities. We implemented I-phone applications that will further educate and inform the public of PGC sites and available activities. The PGC established social media links on the website, which includes Facebook, Twitter, and YouTube. Met with Penn Dot officials and came to an understanding that PGC could request Tourist Oriented Directional signs (TODS), within state highway right of way, to guide travelers to our facilities.

The PGC has developed a partnership with the Pittsburgh Pirates baseball team and the Harrisburg Stampede indoor football team, in providing discount game nights to hunters with a current 2011/2012 hunting license. The PGC staffed informational booths that provided PGC materials/brochures and answered questions relating to wildlife conservation at the Pittsburgh Pirates games. The PGC provided items that promoted the PGC and will be used in the Mark Damon movie, *Promised Land* to be released in 2013.

A Hunt with a Veteran program was established and coordinated with the VFW and American Legion to help veterans discover or rediscover the joys of hunting in PA. Hunters will have a chance to take a veteran hunting and personally give their time to the veteran.

The PGC offered a Wildlife Conservationist Certificate Program at the PGC headquarters. The program presented the following courses: Wildlife Conservation, Management & History, Bird Watching & Identification, Mammal Identification, Wildlife Habitat/Plant Identification, Wildlife/Outdoor Photography, Introduction to Basic Target Archery, Hunter-Trapper Education, Hiking/Orienteering (Maps & Compass), Backyard Habitat Management, Field Trip-Middle Creek, and Wildlife Damage Management. The certificate program was ideal for individuals interested in learning about the many aspects of wildlife conservation. There were fifty-five students enrolled in the program and thirty-eight completed the course requirements and received a graduation certificate at a Commission Meeting. We are planning on continuing the program and are looking to offer an advanced level of courses in the next program. The PGC has received positive feedback on this endeavor.

Staff incorporated the “Connect with Wildlife” message into several outreach products: bookmarks, bumper stickers, posters, billboards and magnets.

The Wildlife Conservationist Certificate Program enriched individuals knowledge in the areas of wildlife, habitat, waterfowl, wildlife damage management, plant identification, target archery, photography, conservation management/history, mammal identification, and hiking/orienteering

The agency uses many sources of informational materials to promote the “Connect with Wildlife” message. The following items are distributed to the general public: bookmarks, bumper stickers, posters, magnets, wildlife/habitat buttons, promotional merchandise, prints, and educational courses.

Strategic Objective 2.6 Increase the public’s understanding of wildlife and their habitat needs.

Outreach to build support for habitat improvements to benefit early-successional species such as ruffed grouse and American woodcock is an important part of implementing management plans for those species. Game Bird Section staff provided presentations with this focus to PSU’s Women and Their Woods retreat (21 attendees), part of a new multi-state outreach curriculum developed specifically for female forest landowners to increase their working knowledge of forest management issues; the Dauphin County Woodland Owners Association (40 attendees); a “Managing Early Successional Forests” workshop for private landowners hosted by the Southwest Region (25 attendees); and an informational meeting (25 attendees) and “Woodcock Watch” walking tour (14 attendees) for the Muddy Creek Watershed Early Successional Habitat project involving

multiple cooperating private landowners in Centre County. We also responded to several requests for information and field consultations on management techniques in habitats being managed for grouse and woodcock.

In association with PSU's Wildlife Extension program, we presented a webinar to 273 forest landowners across the U.S. and Canada regarding wild turkey life history, habitat needs, and habitat management. We also provided information on wild turkey habitat needs and the hen study to two private landowners who permitted us to trap turkeys on their properties.

WPRA staff informed landowners of the VPA-HIP and PGC/USDA Deferred Use of Grasslands programs as opportunities occurred (approximately 30 landowners contacted), and responded to requests for information on CREP re-enrollment by providing information and referring landowners to local USDA offices.

The relationship between habitat quantity/quantity and population trends of game bird species was emphasized at various outreach events provided to students at the college, high school, and middle school levels.

Wildlife Diversity – Division biologists provided presentations on bats and WNS for 75 students at PSU's University Park campus and 45 students at Juniata College; regional diversity biologists provided a seminar on the Barn Owl Conservation Initiative for 35 college students, administered a wildlife test to 100 students during a county Envirothon, and served as moderator for an Ethics in the Profession program for 12 high school juniors, posing a series of ethical dilemmas found in wildlife management; Wildlife Certification program classes on bird identification was given to 20 students.

Improvements were made to the Commission, the interactive demonstration area now includes a public walking trail with 16 stations including descriptive signage and corresponding related informational hand-outs featuring key principle of cover, food, and water by way of tree & shrub plantings and wetland creation.

Last year there were over 10,000 signs distributed throughout the Commonwealth to be placed on state game lands systems which highlighted varied wildlife habitat techniques recently implemented on local State Game Lands. These signs were placed at key locations on State Game Lands easily accessible to the general public and display valuable information and identification of the State Game Lands food plots, prescribed fire treatments, deer fence enclosures, forest management areas, and the creation of wildlife opening areas.

Demonstration areas were previously identified and established on State Game Lands for the Appalachian Mountains Woodcock Initiative. Habitat work continues on these areas, providing on the ground examples of best management practices for American woodcock, a species of greatest conservation need in our Wildlife Action Plan.

Each year, BWHM participates in workshops for various landowner and conservation groups, and school students. This year, over 200 participants were informed on wildlife habitat management practices and agency habitat programs.

GOAL 3: Promote and perpetuate our hunting and trapping heritage.

Strategic Objective 3.1 Increase hunter and trapper recruitment.

The Hunter-Trapper Education Division was responsible for producing and distributing the following printed training guides and materials that promote hunting and trapping:

Today's Hunter and Trapper in Pennsylvania student guide – 43,330 copies

IHEA Hunter's Handbook – 41,600 copies

IHEA Hunter and Shooting Sports Education Journal – 7,800 copies

Today's Bowhunter student guide - 500

Today's Crossbow student guide - 25

NBEF's 3-in-1 *Responsible Hunting Guide* – 500

Successful Furtaking student guide – 100

Cable Restraint student manuals - 550

These materials are distributed as part of the various hunter education programs and instructor training workshops with numbers paralleling trends in class enrollments.

Sufficient opportunities were provided at convenient times and locations to meet the needs of those wishing to complete Hunter-Trapper Education *courses*.

A total of 964 basic Hunter-Trapper Education course were conducted statewide during this reporting period. The total is comprised of 812 traditional multi-day courses, and 152 two-hour independent study classes. This compares to the total of 908 statewide courses during FY2010-2011; 759 traditional and 149 independent study classes and marks a 6.2% increase in the number of courses.

HE program policy requires all proposed HTE classes for the calendar year be scheduled by April 1st. An internal review is then conducted and recommendations are made to improve course scheduling with particular emphasis on the months of September through November. The policy also requires that all classes are posted on the Internet and include online registration capabilities.

To gain a better measure of public demand for training, the agency continues to use web analytics to measure and track the public's use of the Internet in searching for hunter education classes. By measuring the number of users, the course types in demand, the users' ISP-generated hometowns, time of the year and more; we are able to quantify demand by time and locale. In response, we can schedule classes in those areas and at those times of the year matching the demand suggested by the analytics. By using these tools coupled with strategic scheduling, we are beginning to see increased enrollments in HTE classes.

Through a partnership with the National Shooting Sports Foundation and the North American Game Bird Breeding Association, the Pennsylvania Game Commission promoted 12 different hunts at private game farms for a reduce cost to recent Hunter Trapper-Education graduates with 45 hunters participating in this event.

The topic of hunter recruitment and retention is one that the Pennsylvania Game Commission is well aware. In the early 2000's, the National Shooting Sports Foundation established a book defining some Best Management Practices for Hunter and Trapper Recruitment and Retention. With this information as a guide, our agency one has invested many resources into understanding the dynamics that affect recruitment and retention with the ultimate goal of recruiting new hunters, retaining current hunters and reactivating hunters that have lapsed.

The first part in this process is establishing the known variables at work in our state. We have actively begun working with lapsed hunters by conducting surveys to identify barriers or reasons why they stopped hunting and also why they have not returned to the sport. In the new fiscal year, we are working to identify solutions to these reasons and hope to move progressively forward in putting some of these solutions into place in the upcoming years. Ideally, the solutions identified will also prevent current hunters from lapsing and therefore increase our hunter retention rate.

We have also been working to evaluate the current programs that are in place in our state that offer any sort of introduction to hunting, shooting and trapping. By understanding what programs the agency is currently offering, we can then begin to evaluate and see if with some alterations, we could improve recruitment rates. For this portion of program evaluations, we implemented the Event Manager Registration system and continue to update and improve the system. In the upcoming 2012-2013 fiscal year, we hope to establish some benchmarks for each program that will enable us to understand current recruitment rates. Most of the best practices pertain to improving programs to increase recruitment and retention rates. As we better understand our own programs, we can then work to incorporate these best practices as we modify our programs.

Recruitment and retention BMPs which have been adopted in our current outreach programming are as follows:

Program Planning

- Programs are relevant to the mission of the sponsoring agency or organization
- Plan for program evaluation in the initial stages of planning

Professional Development

- Train instructors in education theory and models of good instructional practices
- Recruit instructors with experience and knowledge in appropriate subject areas

Program Evaluation

- Helps identify program outputs, such as number of participants and participant feedback
- Allows program staff to take advantage of professional development opportunities relating to evaluation

Expanding reach with diverse audiences

- Lessen or remove barriers that constrain access
- Ensure the materials are instructionally sound

Expanding reach with persons with disabilities

- Include persons with disabilities and individuals who work with them in the design and implementation of the program
- Provide appropriate ration of instructors to students

Research

- Allow staff to recognize and explore the value of and need for research that is relevant to their program
- Provide opportunities for staff to become aware of and familiar with collections, reviews and summaries of research relevant to their programs
- Encourage staff to incorporate research findings into the design, development, implementation and evaluation of their programs
- Allow staff to take advantage of professional development opportunities that enhance their research skills and strengthen their capacity to become meaningfully involved in the research process

Integrate Organization-wide programs

- Communicate that hunting and shooting R&R is a serious issue that needs to be addressed
- Develop a comprehensive, integrated plan that identifies specific goals, objectives, strategies and resources needed to be successful

Marketing and Promotion

- Establish liaisons with state and local conservation organizations
- Identify specific target audiences

Maximize opportunities

- Track new participants over time to assess participation
- Allocate opportunities to new hunters

Shooting Sports in Schools

- Consider implementing programs with an established track record

A Strategic Plan for the Recruitment, Retention and Reactivation of Hunters and Trappers in Pennsylvania for 2012-2017 was developed, reviewed and is available upon request. Moving forward, it will be used as a guiding document. It is dynamic in nature

and as more research and evaluation is completed pertaining to hunters and trappers in Pennsylvania, the plan will be modified accordingly.

Women in the Outdoors

The Game Commission completed a third year of a Cooperative Agreement with the National Wild Turkey Federation to promote and provide Women in the Outdoor (WITO) events. The agreement required NWTF to hire a new WITO event coordinator for the state in December 2011 and, partially using agency PR funds, fund this position for the remaining part of the fiscal year. The partnership required a minimum of 25 events to be conducted from July 1, 2011 to June 30, 2012 with a minimum of 1,000 participants. In addition to the PR funds, the agency required events to be registered through the Event Manager system and in turn the agency extended use of marketing tools such as publicity *Game News*, press releases and social media. Upon completion of the fiscal year, both parties agreed to discontinue the Cooperative Agreement for the 2012-2013 fiscal year because of differences in ideas concerning the instruction and purpose of the program.

Women in the Outdoors Event Summary

Fiscal Year	Number of Events	Number of Participants
2010-11	9	219
2011-12	17	480

*As recorded in the Event Manager system.

Women on Target

The National Rifle Association hosts Women on Target clinics throughout the state to introduce women to different shooting sports. Conservation officers and other agency representatives often attend and assist at the event. This year, at least three events were conducted with an average of 25 women participants.

National Archery in the Schools Program

The Game Commission continued coordination of the National Archery in the Schools Program (NASP). In the 2011-2012 fiscal year, the program surmounted enrollment of 100 schools and was identified by the national NASP organization for the greatest percent increase in school numbers of all participating states (48). Approximately 15,000 students were reported by schools to have participated in the program in the 2011-2012 school year. The agency once again coordinated a state wide tournament in March at the Penn State Multi Sports Facility and welcomed 500 archers whom represented 23 different schools to compete. Seventy of those students traveled to Louisville, Kentucky in May to attend the National NASP tournament. PGC continues to offer \$1500 to offset the cost of an equipment kit for each school to enroll in the NASP program and secured over \$20,000 in additional grant funding to help the schools further defray the cost. The agency hosted 16 Basic Archery Instructor trainings and certified 116 Basic Archery Instructors. The agency renewed contracts with four different Basic Archery Instructor Trainers for the new fiscal and will continue to facilitate trainings for the program.

Youth Field Days

Sportsmen's clubs and other conservation organizations host youth field days each year. Wildlife Conservation Officers and other representatives of the agency often attend these events and assist as needed. The following data was recorded for the 2011-2012 fiscal year:

2011-12 Youth Field Day Summary

Region	Number of Programs	Number of Participants
Northwest	10	9,851
North Central	6	1,100
Northeast	7	1,250
Southwest	39	4,229
South Central	Not reported	Not reported
Southeast	11	1,510
Total for State	73	9,851

Youth Hunter Education Challenge

The Hunter Education and Outreach Division coordinated the hunter responsibility and wildlife identification portion of the Youth Hunter Education Challenge event held on June 16, 2012 at Scotia Range in State College, Pa. Approximately 205 competitors participated in the event this year.

Other Outputs

The gender/age breakdown of resident hunting license buyers during the 2011-12 license year appears below. This information was obtained from the agency's point-of-sale licensing system.

Gender/Age Breakdown of 2011-12 Resident Hunters

	Resident Base Licenses Sold-2010	% of Total	Resident Base Licenses Sold-2011	% of Total	% Change
Gender (all ages)					
Male	783,457	92.7%	782,094	92.3%	-0.4%
Female	61,696	7.3%	65,246	7.7%	+0.4%
Total	845,153		847,340		
Under 16					
Male	69,793	83.6%	69,104	82.6%	-1.0%
Female	13,691	16.4%	14,558	17.4%	+1.0%
Total	83,484		83,662		
MYHP permits					
Male	25,186	81.8%	27,179	81.1%	-0.7%
Female	5,604	18.2%	6,335	18.9%	+0.7%
Total	30,790		33,514		

*Gender information does not appear for all license buyers. As a result, gender percentages were calculated based on recorded data as a percentage of the whole.

**New names in the PALS license database are currently the only way of determining new hunters. There is a chance that the new names include people who may have not purchased a license since the new PALS system was implemented, but there is no finite way to determine this at the present time.

Other demographic information about hunting license buyers is not available at the present time in Pennsylvania. As an alternative, demographic information which identifies minorities is collected by the Hunter-Trapper Education Division for all hunter education students Racial/ethnicity information for the basic Hunter-Trapper Education course is summarized as follows:

Racial Summary of PA Hunter-Trapper Education Students

FY2010-11		FY2011-12		CHANGE
RACE	PERCENT	RACE	PERCENT	% of Total
White	96.6%	White	96.62%	0
Black	0.8%	Black	0.78%	0
Asian	0.4%	Asian	0.46%	0
Hispanic	0.9%	Hispanic	0.92%	0
Native American	0.2%	Native American	0.18%	0
Other	1.0%	Other	1.04%	0

The measure of new hunters and trappers remains a challenge at the present time. New names appear in the PALS database each year. Some are indeed brand new to hunting and trapping. Others are returning from a lapse in participation. With each successive year of sales in this system, we should near the actual number of new hunters and trappers. Below is a summary of new names appearing in the PALS database for license year 2011-12. These names have not appeared at anytime in the past.

Number New Hunters & Trappers FY2011-12

RESIDENT License Buyers	Number
Hunting	58,996
Furtaking	775
Mentored Youth Hunting Permit	14,399
NON-RESIDENT License Buyers	
Hunting	12,485
Furtaking	96
Mentored Youth Hunting Permit	433

During the reporting year, the following Hunter-Trapper Education classes were conducted either during the school day or after school on nights or weekends within school facilities:

HTE in Schools Summary FY2011-12

REGION	IN-SCHOOL	AFTER SCHOOL	TOTAL
NW	15	3	18
SW	4	3	7
NC	-	4	4
SC	1	1	2
NE	2	6	8
SE	-	2	2
TOTALS	22	19	41

Strategic Objective 3.2 – Promote the safe, responsible and ethical behavior of hunters and trappers

During the reporting year of July 1, 2010 to June 30, 2012, a total of 35 hunting-related shooting incidents occurred at a rate of 3.57 incidents/100,000 license buyers. This included one fatality. The same total number of incidents was recorded the previous reporting year. The total number recorded during FY2011-12 remains below the current 10-year average of 51.1 incidents per year with a rate of 5.15 incidents/100,000 license buyers.

Below is a summary of hunter education student training efforts for this reporting period with a comparison to the previous year:

FY2010-11				FY2011-12				
Curriculum	# Classes	# Students Enrolled	# Students Certified	Curriculum	# Classes	# Students Enrolled	# Students Certified	Percent Change
HTE	759	32,683	31,554	HTE	812	36,810	32,935	+7/+13/+4
HTE IS	149	2,329	1,838	HTE IS	152	2,169	1,692	+2/-7/-8
HTE TOTAL	908	35,012	33,392		964	38,979	34,627	+6/+11/+4
Bow Ed	22	301	277	Bow Ed	21	369	331	- 5/+23/+19
Cable	21	579	558	Cable	21	530	488	0/-8/-13
Furtaker	9	211	206	Furtaker	5	92	82	-44/-56/- 60
Remedial	5	53	53	Remedial	4	76	76	-25/-43/- 43
Turkey	-	-	-	Turkey	7	160	146	N/A

During the reporting period, the following improvements were made to the agency's hunter education programs:

- Ongoing refinements to the online class registration and reporting system, named the Event Manager. The system is now formatted to be accessible by mobile devices such as smartphones.
- Reformatted the basic Hunter-Trapper Education curriculum into a six-hour classroom timeframe. This reduction from ten hours will make the training more user friendly for the public in that it can be completed during one day on the weekend or two weeknights. This change was enabled by identifying those parts of the curriculum which do not focus on safe and responsible behavior, such as wildlife management, to distance learn those subjects in advance of the class via the Internet. Pilot classes are scheduled for late 2012 with statewide implementation beginning in January 2013.
- Continued use and refinement of web analytics to quantify demand for hunter education training by geographic locale which is used as a guide in creating schedules for basic Hunter-Trapper Education classes.
- Extended use of Zoomerang online surveys to gather feedback from customers about student satisfaction with their training experience and the public's preferences about when and where classes are scheduled.
- Ongoing replacement of broken and obsolete A/V equipment with new, modern digital projectors, players and computers.
- Acquisition of new, contemporary training videos to be used in Hunter-Trapper Education classes.
- Ongoing transition of basic Hunter-Trapper Education instructor teams using skill-based learning stations.
- Development and implementation of two new, online Hunter-Trapper Education courses - one for the current HTE Independent Study format and a second one for the new, reformatted six-hour HTE class.
- Design, printing and distribution of two new, full-color course promotion brochures – one titled, *Hunter-Trapper Education* and another titled, *Advanced Hunter Education*.
- Design, printing and distribution of a new, full-color class announcement poster to advertise HTE classes at various public venues.

Expand hunter education programs to include species-specific courses on turkey, waterfowl and big game hunting; and discipline-specific courses on archery, muzzleloading and furtaking.

- During the reporting year the first *Successful Turkey Hunting* classes were conducted. The curriculum is designed to provide the knowledge, skills and ability for students to be successful early in their turkey hunting careers. More classes are being scheduled for later in 2012. Current advanced training courses now include *Successful Bowhunting*, *Successful Furtaking*, *Successful Turkey Hunting* and Cable Restraint Certification. Curriculum development has begun for a new *Successful Muzzleloading* training program to be launched in 2013.
- A formal peer review of the agency's hunter education programs was conducted by the International Hunter Education Association in March 2008. This process examines all aspects of state hunter education programs and provides a comprehensive list of recommendations for improvement. The agency requests the review in advance of each 5-year planning cycle for Federal Assistance Program grants and the agency's hunter education plan. The next scheduled peer review should occur in early 2013.
- In October 2009 a Jurisdictional Minimum Hunter Education Standards Evaluation Report was completed by the Hunter-Trapper Education Division and submitted to the IHEA to measure the compliance of the agency's Hunter-Trapper Education program with national standards for basic hunter training.

Strategic Objective 3.3 Increase the retention rate of hunters and trappers.

The Pennsylvania Automated Licensing System is now in effect for three years. The agency is beginning to analyze data for trends related to hunter recruitment, retention and reactivation together with license-buying habits.

No new outreach programs have been developed for this fiscal year. However, all current outreach programs are under review and continue to be improved.

Strategic Objective 3.4 Provide sustained opportunities for hunters and trappers to take wildlife.

Season and bag limits were established to insure the long term benefit of the wildlife species and in return insures hunting opportunity in the future. The habitat section also provides information on habitat issues that assist in insuring game populations for the future.

Seasons were expanded in are for both bobcats and fishers. A separate bobcat season was established for hunters with dogs.

This year adult mentor hunters had to opportunity to transfer an antlerless deer tag to a mentored youth. The result was expanding young hunter's opportunity for a deer.

The number of elk tags increased this year to provide greater chance at an elk tag and manage the population.

The Junior Pheasant Hunt program was coordinated by the Bureau of Wildlife Management. On October 8, 2011, 25 events were held with 790 hunters registered.

The Mentored Youth Hunting Program Permit continued for the 2011-2012 hunting season. 33,514 permits were sold, an increase of 8.13% over the previous 30,790 sold in 2010-2011.

Strategic Objective 3.5 Promote and expand hunting and trapping access on public and private lands.

The agency's Public Access programs continue to provide hunting opportunity on private lands. This year, 15,399 Public Access cooperators allowed hunting access to 2,666,007 acres of private land, making it the largest program of its kind in the country. Through a Voluntary Hunter Access and Habitat Improvement Program (VPA-HIP) grant from the USDA, 121 new habitat projects were planned and implementation has begun on 6,445 acres on private lands, and 17,511 new acres were enrolled into the Hunter Access program as a result of this grant. In addition, the grant paid for PA Game News subscriptions to all Hunter Access Cooperators. Specific articles benefiting those cooperators were included in 6 of 12 monthly issues this year. A Deferred Grassland Use program was implemented with grant funds in 3 WPRA's used as an incentive to re-enroll in CREP and also to defer mowing grasslands until after the nesting season for ground nesting birds. Two thousand eight hundred fifty-eight acres of private lands were enrolled through this program to protect wildlife nesting habitat.

Hunting access was also provided on our 1.4 million acre State Game Lands System via 4,200 miles of roads open for hunter access. These access corridors also facilitate habitat management that improves hunting opportunity. In addition to providing access to existing game lands, the Commission remains diligent in its land acquisition goals in an effort to expand upon hunting and trapping opportunities. During this year the Agency acquired 11,332 acres to add to those acres already part of the State Game Lands System. The bulk of these acquisitions occurred through third party escrow funding commitments for replacement of temporary losses to wildlife habitat and recreational values impacted by oil/gas and mineral leasing projects approved by the Commission.

Strategic Objective 3.6 Improve hunter and trapper understanding of their role in wildlife management.

All of the agency's formal hunter and trapper training programs contain content addressing the role of hunting and trapping in wildlife management. This includes both basic and advance curriculums. During this reporting year, lessons containing this information were taught to 34,627 basic Hunter-Trapper Education students and 1,123 advanced hunter education program students.

In addition to hunter education, the agency produced and distributed the following articles as part of the monthly *Game News* magazine:

- *Myth's & Legends of the Whitetail* (selected monthly columns)
- *History of the Whitetail*(select monthly columns)
- *PA Hunter Access Program*
- *Public Input & Deer Management*
- *Hunter Access Liability Protection*
- *Habitat for Hunter Access Cooperators*
- *Wildlife Leadership Academy*
- *How Young is that Forest?*
- *First VPA-HIP Habitat Project Nears Completion*

This publication has a monthly paid circulation of approximately 43,300 copies. Including complimentary copies, total circulation is 77,000 per month. This includes copies to schools, libraries, land owners enrolled in the agency's public access program, etc.

In addition to these sources, the agency's website contains the following information, which addresses this operational objective:

- Management plans for various game species
- Wildlife Conservation History
- About Pennsylvania Deer Management Brochure Series
- An entire deer management section which includes, but is not limited to the following:
 1. 2009-18 White-Tailed Deer Management Plan
 2. 2011-12 Annual Deer Population Assessments and Allocations
 3. An Evaluation of Deer Management Options
 4. Forest Habitats and Deer Deterrent Fencing
 5. A Place to Call Home - Deer Habitat Relationships
 6. Common Resource of the Commonwealth - Managing Deer for Everyone
 7. Seeing the Whole Picture - Estimating Deer Harvests
 8. Why Bigger is Better - Wildlife Management Units

The agency's website logged 2,167,997 "unique visitors" for the reporting year. This is the web analytic measure of the number of people who visit the site.

Strategic Objective 3.7 Provide enhanced pheasant hunting opportunity through a put-and-take operation and a reintroduction program.

The PGC's four Game Farms (GFs) continued to operate with a reduced production quota of 100,000 due to fiscal cutbacks since 2005. Propagated birds remain popular with sportsmen and provide many hours of hunting recreation as well as a junior hunting opportunity. Due to recent revenue increases from Marcellus Shale leases on SGLs, we'll be doubling production in autumn 2012.

Major flooding on September 8, 2011 at the Loyalsock and Northcentral GFs caused severe damage to pens, structures, and road ways. The Loyalsock GF received damage in varying degrees to 50% of their holding pens, along with feeders, waterers and pheasants. The Northcentral GF received damage in varying degrees to 90% of their holding fields, along with feeders, waterers, and pheasants. A PGC-owned residence and garage were destroyed. Forty thousand pheasants escaped or died, although 10,000 were recaptured. Access roads to both farms were destroyed.

Core infrastructure at both farms was undamaged or minimally damaged. Restoration of both farms was largely accomplished by the end of the FY, due to favorable weather during winter and spring, and extra manpower, although some work remains. Many new holding fields have been relocated to higher ground, to minimize damage from flooding in the future. Both farms are planned to be at full production by autumn 2012.

PGC staff released 79,961 birds (26,198 hens and 53,763 cocks) for hunting in FY 2011-2012. Shipments for the junior pheasant hunt consisted of 15,730 birds, which were released at designated advertised sites throughout the Commonwealth in early October. Also 25 clubs received 1,708 birds to hold mentored junior hunts for 791 registered participants. For the regular fall season 62,525 birds were stocked in October and November during a preseason and two in-season releases. The winter release was cancelled due to birds lost to flooding in September.

Also 19,702 pheasants (18,262 hens and 1,440 cocks) were placed in winter holding pens as breeders to meet our goal of 200,000 birds for 2012. Egg collection for the spring of 2012 for all farms totaled 712,647 eggs, with 326,454 eggs set and 260,655 chicks sent to brooder fields. Six hundred eggs and 5,000 surplus hen chicks were sold. We donated 4,680 day old pheasant chicks to sportsmen's organizations to raise and release on lands open to public hunting. Also 16,182 hens and 1,371 males were released in May after egg collection was completed.

The Game Take survey indicated that 4,778 resident junior hunters harvested 3,201 pheasants during the 2011 youth hunt. During all pheasant seasons, 88,307 hunters harvested 116,828 pheasants.

All GFs continued to service birds in brooding, holding pens, winter holding and breeder fields. For these operations, pens are prepared for birds by placing feeders, waterers and nest boxes, planting corn and sorghum and making necessary repairs to fences, netting

and gates. Brooder houses are cleaned, checked and prepared for the arrival of day-old pheasant chicks. At the end of each season, brooder houses and brooding equipment are cleaned and necessary maintenance done. All fields are cleaned up, crop areas plowed and pen netting dropped for the winter.

During the winter months maintenance is conducted on vehicles, tractors, farm machinery, feeders and fountains, and work is completed to repair and construct nest boxes, shipping crates, gates and brooding equipment.

The Southwest GF installed exhaust fans in all brooder houses, assisted the Northcentral farm with rebuilding fields, and participated in the Dove Banding Program by trapping and banding 75 doves. The Northcentral GF focused primarily on flood recovery, but also added a new lunchroom, rebuilt the catch pen runway, and replaced 1,500 ft of waterline. The Loyalsock GF also was primarily involved with flood recovery activities, but also installed a 13-ton feed tank, replaced 1,350 ft of underground waterline, and built catch pen panels. The Western Game finally was able to use new brooder houses, paneled walls in SB-735 and installed 600 ft of underground waterline.

As noted in the Goal 1 section of this report, the Ring-necked Pheasant Management Plan is being used to guide pheasant recovery efforts. WPRAs have been designated in areas of suitable habitat within the Commonwealth, with the goal of establishing populations of at least 10 hens/mi² in the spring through habitat improvement and the release and temporary protection of wild trapped and transferred ring-necked pheasants. A total of five WPRAs have been established to date: Pike Run (Washington County), Central Susquehanna (Montour, Northumberland, and Columbia counties), Somerset (Somerset County), Hegins-Gratz (Schuylkill and Dauphin counties), and Franklin (Franklin County). All WPRAs have regulations in place prohibiting the release of pen-raised pheasants, dog training and most small game hunting from early February through July 31, and the hunting and harvesting of pheasants at any time.

Hen population densities on each area are determined through a combination of crowing male surveys conducted in spring, and winter flushing surveys to obtain sex ratios prior to the nesting season. To help ensure the accuracy of these techniques, we are also conducting two studies to evaluate crowing count accuracy (a detectability study measuring the frequency with which roosters crow and the distance crowing can be heard, and a crowing reliability study evaluating the representativeness of roadside points) and experimental trail camera surveys at bait sites to obtain sex ratios for comparison to flushing count results. Radiotelemetry is used to track survival of translocated and (in some cases) resident hens.

Collection of detailed habitat patch analysis (HPA) data, using digital aerial imagery and field surveys of some 3,500 randomly selected points to determine types and quality of available habitat began in each WPRAs in 2011. The pheasant habitat model provides targets for 5 parameters: nesting cover ($\geq 5\%$ of a study area), winter cover ($\geq 5\%$), brood cover ($\geq 20\%$), developed land ($\leq 10\%$), and mature forest cover ($\leq 20\%$). HPA results allow us to determine how well each WPRAs meets these targets and thus understand

population responses in individual WPRAs, and can also be used to improve future predictions of potential pheasant densities across the state.

The six year evaluation period for the Pike Run WPRAs concluded in spring 2011. The estimated hen density in 2011 was only 1 hen/mi². Habitat analysis showed that although the WPRAs contained adequate nesting cover, it did not meet the other four targets in the habitat model. Because Pike Run did not meet the criteria to be considered successful, the Board of Commissioners eliminated it from the list of WPRAs and re-opened the area to cocks-only pheasant hunting and the stocking of GF birds for the 2012-13 hunting season.

The Central Susquehanna WPRAs contains two Study Areas: Turbotville-PPL and Greenwood Valley. Spring 2011 hen densities were 8 hens/mi² in Turbotville-PPL (meets all five of the habitat targets) and 4 hens/mi² in Greenwood Valley (meets four of the five habitat targets). To monitor survival of resident pheasants, we trapped and radio-collared 11 hens and 9 roosters in the Central Susquehanna WPRAs in winter 2012. By the end of the fiscal year three hens and three roosters had died and we were tracking eight hens and six roosters. Sample sizes are not yet adequate to provide precise estimates of survival. To monitor possible range expansion of birds from Central Susquehanna, we added 2 crowing count routes in Union County (outside the WPRAs boundary) this year. This WPRAs will reach the conclusion of the 6-year evaluation period in 2012.

In the Somerset WPRAs, wild pheasants were released 2009-11. Spring 2011 hen densities in the Somerset WPRAs were 1 hen/mi². This area meets 3 of the 5 habitat targets. Pheasants and habitat will be monitored for an additional two years and a final evaluation of success or failure will occur in 2014.

The Hegins-Gratz Valley WPRAs contains 2 Study Areas: Hegins Valley and Gratz Valley. Initial wild pheasant releases in this WPRAs occurred in winter 2011 with 298 birds (274 females and 24 males) transferred from South Dakota. Spring 2012 was the first year for hen density calculations; results were not available at the time of preparation of this report. Each study area met three of the five habitat targets during the 2011 growing season. This WPRAs was due for two additional years of releases (300 birds/year), but we suffered a setback when the South Dakota Department of Game, Fish, and Parks informed us that due to declining pheasant populations in their state, they would not be providing us with wild pheasants for transfer to Pennsylvania WPRAs in 2012, and we were unable to locate a suitable backup source. We are working with South Dakota and other potential partners in an effort to resume trap and transfer efforts in 2013. We intend to complete either two or three additional years of releases in Hegins-Gratz Valley and monitoring populations and habitat during the remainder of the transfer/release period and for an additional three years after trap and transfer is completed.

The Franklin County WPRAs was scheduled for its first wild pheasant releases in winter 2012, but these efforts were delayed by our inability to acquire pheasants this year. We will release 300 birds each year for three years once a source of wild birds is again

available, and monitor populations during the transfer/release period, and for an additional three years after trap and transfer is completed. Meanwhile, we will continue to monitor habitat in this WPRA, which in 2011 met four of the five habitat targets.

Pheasants Forever chapters have expressed interest in establishing additional WRAs elsewhere in the state, but current projects strain our capacity to obtain and monitor pheasants, and analyses of existing WRAs should be completed to evaluate the possibilities of success and guide future management. Therefore, we informed these partners that no additional WRAs can be approved until we complete analysis of existing WRAs.

Pheasant Propagation - All GFs are continuing to gear up toward doubling production in 2012. Aging holding pens are being replaced and new winter holding pens have been constructed to reduce avian predation. Four new brooder houses have been constructed at the WGF and upgrading of existing brooder houses continues at the Southwest and Loyalsock GFs.

Game Birds – Populations have been established on four WRAs through wild pheasant releases and a fifth WRA has been delineated. One of the existing WRAs and the newly established WRA were scheduled to begin receiving wild pheasants in 2012, but this did not occur because a Midwestern source could not be found. Monitoring of these areas will continue and releases will resume when a source of wild birds is found. Two WRAs have completed the trap and transfer phase and are still being evaluated for success. However, the Pike Run WRA reached the end of the six year evaluation period without meeting population or habitat thresholds for success, and has been discontinued.

GOAL 4: Manage and protect a network of public and private lands and waters to provide habitat for wildlife.

Strategic Objective 4.1 Provide planning and technical habitat management guidance to landowners.

Regional wildlife diversity biologists completed 127 new PLAP plans encompassing 17,890 acres statewide. Several previously enrolled and potential PLAP properties in the golden-winged warbler focal area were evaluated for management potential for that species. The biologists visited PLAP properties to view implementation funded by landowners and supported by Farm Bill programs. They regularly work with PLAP participants and USDA Natural Resources Conservation Service (NRCS) staff to facilitate the funding process for implementation of PLAP plans. Regional diversity biologists also work with the agency's VPA-HIP to incorporate planning for species of greatest conservation need like the golden-winged warbler.

Strategic Objective 4.2 Increase State Game Lands acreage with an emphasis on access, indentures, in-holdings and critical or unique habitats.

In fiscal year 2011, the Game Commission acquired 11,332 acres, bringing the agency's total State Game Land acreage to 1,462,086. The State Game Land System includes 305 separate State Game Lands in 65 of Pennsylvania's 67 counties. The 11,332 acres were acquired through a variety of means including land exchanges, timber/land exchanges, lease/land exchanges and partnerships with conservation partners.

The single largest acquisition was 9,197 acres in Bell and Greenwood Townships, Clearfield County which was added to State Game Land Number 87 and increased the previous 1,224-acre Game Land substantially. Funding for this large tract was made possible by third party commitments for compensation of habitat and recreational losses from previously approved Commission actions on oil/gas and mineral recovery leases.

The Game Commission acquired 452 acres in Erie and Warren counties on multiple SGLs as a result of a timber/land exchange. Clear Lake Timber, Inc. was the successful high bidder on a large timber contract with the PGC and requested to provide land rather than pay for some of the timber to be removed from State Game Lands (SGL). The Commission worked closely with the company to determine land values based on independent appraisals and credited Clear Lake Timber, Inc. for the value of the lands received.

As part of a previously approved land exchange with Penn State University on SGL 176 at Toftrees, Centre County the Commission acquired three new tracts of land. The first was a 133-acre indenture into SGL 323, Centre County. The second was 65 acres providing much needed access into SGL 88, Juniata County and the third, a 413-acre indenture into SGL 81, Huntingdon County which provides new access into a portion of SGL 81 previously inaccessible due to physical constraints.

Through a continued partnership with The Conservation Fund the Game Commission was able to increase the size of SGL 93 by 56 acres. In fiscal year 2006 the Game Commission acquired our first tract of land in Somerset County north of the then proposed site of the Flight 93 National Memorial creating SGL 93 named in honor of Flight 93's crew and passengers who heroically sacrificed their lives on September 11, 2001. (SGL 93 originally located in Clearfield County was renumbered SGL 331.) The 56 acres was acquired with funding from The Conservation Fund and third party commitments for compensation of habitat and recreational losses from previously approved Commission actions on mineral recovery leases. With this acquisition, SGL 93 has increased in size to 638 acres.

Through generous monetary donations from the National Wild Turkey Federation and numerous individual sportsmen's clubs affiliated with the Sportsmen's Clubs of Berks County and the Schuylkill County Sportsman Association the Game Commission was able to acquire 27 acres adjoining SGL 106 in Berks County. Local grass roots efforts raised the funds necessary to help make this acquisition possible.

One of the smaller acquisitions was a 0.3-acre donation from Leroy and Lola Spangler adjoining SGL 217 in Lehigh County. Although small in size if the tract would had been

sold and developed with a cabin or residence the surrounding SGL could have been affected by the safety zone created from a new dwelling and reduced the huntable acreage of SGL 217 by approximately 14 acres.

Acquiring interiors, indentures and access into existing State Game Lands is always a high priority for the Game Commission. During FY11 the Commission acquired one interior, seven indentures and eleven new access routes into existing SGL opening hundreds of acres to public hunting and trapping opportunities. The Commission also approved the acquisition of mineral rights or fractional interests thereof of thousands of subsurface rights located under existing SGL. Acquiring these rights, while not adding to the total number of surface acres does provide increased protection of the surface from future mineral extraction.

The Survey Section continues to address the large backlog of survey related work. Our goal is to have one 2-person survey crew geographically located in each of the six PGC Regions; however, due to a hiring constraints we have not been able to reach that goal. As a contingency plan to meet the ever increasing workload and protect existing State Game Lands from lost boundary and deeded acreage disputes, the Commission instituted a program of third party sub-contracts to address immediate localized survey needs in FY10. In FY11 the Survey Section continued this practice and oversaw 29 separate survey contracts completing 110,000 lineal feet of boundaries marked and 234 acres surveyed with a total cost of \$116,490. These contracts included 80,820 lineal feet of lost lines resurveyed and remarked costing \$90,110; four entire parcel boundary surveys totaling 26,750 lineal feet (234 acres) costing \$16,380 and the resolution of an old boundary line dispute requiring 1,912 lineal feet of survey work and accompanying research with a net loss of 5.52 acres costing \$10,000.

The State Game Lands Banking Agreement, adopted as a partnership with PennDOT and the Federal Highway Administration, provides advance mitigation (lands) to offset permanent acreage losses to State Game Lands resulting from bridge replacement or minor road improvement projects. State Game Land Banks totaling 63 acres available for mitigation were previously established in Tioga and Northumberland Counties within PennDot District 3-0. These agreements expedite the mitigation process to find replacement lands when small acreage impacts to State Game Lands occur as a result of highway construction projects. These small acreage impacts are offset through a debit from existing state game land banks instead of being addressed on a case-by-case basis. A total of 6 projects totaling 0.709 acres were debited from these land banks during FY11. The Commission and PennDot are working toward establishing State Game Land Banks in other PennDOT Districts.

Maintaining identifiable boundary line is among priority tasks for State Game Land's Food & Cover crews. This year, 1,955 miles of boundary line were cleared, inspected, and marked.

Strategic Objective 4.3 Complete all comprehensive State Game Lands plans.

Comprehensive State Game Land planning is necessary to ensure sound, sustainable, and efficient habitat management. This includes updating infrastructure records, habitat cover, forest types, access roads, parking lots and all aspects of Game Lands Management. Plans were completed for 220,380 SGL acres in 26 separate plans. To date, 128 comprehensive management plans covering 418,020 acres have been completed.

The Forest Inventory and Analysis Program has continued with the first cycle of re-measuring the 875 permanent plots on State Game Lands. This program is critical for accurate assessment of the forested areas of the State Game Lands. These plots are being re-assessed on a 5-year cycle to determine changes in growth, health, and species composition of State Game Land's forest habitats and will provide valuable habitat planning information. The FIA Section has also developed a sampling system for monitoring habitat conditions before and after the use of prescribed fire and has provided critical input and analysis of the forest habitat health measures as they relate to the whitetailed deer management program. Initial data gathering and analysis has been done on State Game Lands 176 in Centre County, the Scotia Barrens, as part of the previous 2010 prescribed fire season and pre-burn and post-burn data is now being gathered for the 2012 prescribed fire season.

The PGC's Oil/Gas and Mineral Section routinely provided oil, gas, and mineral information or historical resource recovery information to regional staff for Comprehensive Game Lands planning. However, the biggest increase in workload continues to be with respect to the Agency's Real Estate Division discerning and documenting the Commission's oil/gas and mineral ownership on various tracts throughout the Commonwealth. The bulk of this increase was directly associated with the Marcellus & Utica Shales gas plays and resulted in 52 legal reviews and 34 oil/gas & mineral record updates, over 780 work hours involving title abstract and deed research, legal interpretation, ownership litigation and dispute resolutions, mapping of ownership, and answering the ongoing barrage of public inquiries regarding third-party private rights of oil/gas development which is already occurring on state gamelands.

Strategic Objective 4.4 Promote wildlife habitat planning and management on non-Game Commission public lands.

An instructional meeting on habitat management for the Allegheny woodrat held for Tuscarora SF managers and data from existing sites evaluated using amount of sign, degree of fragmentation and rock characteristics to prioritize sites for management. Information on forest raptors provided to DCNR Bureau of Forestry biologist. Provided the 52 Elemental Occurrence reports to Pennsylvania Natural Diversity Inventory for species of greatest conservation need (SGCN): 12 for bald eagle, 1 for upland sandpiper, 1 for yellow-bellied flycatcher; 3 for Indiana bat, 11 for eastern small-footed bat, and 24 for silver-haired bat. Diversity staff worked with Bureau of Wildlife Habitat Management (BWHM) Environmental Review to minimize adverse impacts on SGCN.

Last fiscal year, there were 35 real estate land exams completed identifying core and connecting wildlife habitats which had high enough values to be deemed worthy of the Commission recommending their acquisition. Coordination on non-PGC public lands provides additional hunting and habitat management opportunity. There are 78,523 acres of Army Corps of Engineers land managed by PGC through cooperative agreements, which is unchanged from 2010/11.

An additional 37,000 acres of State Forest and State Park habitats are cooperatively managed by Game Commission crews across the state.

The Game Commission provided technical assistance and habitat management expertise to DCNR for implementation of American woodcock habitat improvements on 700 acres in Susquehannock, Lackawanna, Cornplanter, Gallitzin, Michaux, Buchanan, Forbes Tuscarora and Tioga State Forests.

One of the most significant habitat developments of the past several years was passage of the Prescribed Burning Practices Act. The Game Commission is working closely with the Bureau of Forestry, Bureau of State Parks, DMVA, The Nature Conservancy, and the U.S. Forest Service to train personnel and develop landscape scale prescribed fire plans. To date, major strides have been taken to utilize prescribed fire as an important habitat management tool.

Strategic Objective 4.5 Avoid, minimize and mitigate adverse impacts on wildlife habitats.

During FY11 in addition to one permanent easement for a pipeline the Game Commission issued 42 new ROW licenses (14 pipeline, 3 electric line, 14 fiber optic, 2 telephone, 1 communication tower site, and 9 road-use ROW's) and 10 Special Use Permits (1 pipeline, 2 electric line, 6 seismic-survey and 1 road-use right-of-way) with provisions protecting Commission interests. A total of 142.64 acres (100.36 acres being temporary) of ROW impact were mitigated through comprehensive re-vegetation plans and payment of \$1,035,552.56 for habitat damages in addition to monies received for damage to marketable timber. In addition to the new ROW licenses and Special Use Permits issued this fiscal year, 12 ROW amendments and/or assignments of licenses were executed by the Commission.

The regional breakdown of new ROWs and SUPs for the year was 15-Northwest; 12-Southwest; 9-Northcentral; 5-Southcentral; 9-Northeast and 3-Southeast. There were 17.1 miles of new pipeline ROW, 3.8 miles electric transmission lines, 16.2 miles fiber optic line and 349.1 miles of seismic survey lines.

Revenue and damage payments accruing from the new ROWs and paid into the Game Fund was \$1,179,245.05 with expected future additional annual revenue for these being \$175,430.47 per year so long as the licenses remain active.

Six ROW requests were denied due to either unacceptable potential adverse impacts to the wildlife resources, the SGL or as a result of viable alternatives being available to the applicant.

On existing electric utility ROWs, 52 Applications to Chemically Treat were reviewed and coordinated with utility companies.

Through participation in the Environmental Review Committee (ERC), staff reviewed and commented on potential wildlife habitat impacts associated with 13 projects proposed by the U.S. Fish & Wildlife Service's Partners for Fish & Wildlife Program. The Partners for Fish & Wildlife projects that were reviewed and recommended for approval by the PGC will result in the net creation, restoration and/or enhancement of over 52 acres of wetlands.

Through participation in the Interagency Review Team (IRT), staff reviewed and commented on three draft umbrella mitigation banking instruments and 17 wetland and/or stream mitigation site proposals. These mitigation banks and instruments are being established to comply with the ACOE's compensatory mitigation rule. Staff attended seven IRT meetings at which the various mitigation banks and instruments were presented and comments on each discussed.

Staff reviewed and commented on 220 transportation projects (PennDOT, Turnpike, airports, rail) concerning species of special concern with 49 potential impacts. Average review time was 5 days. Habitat or presence/absence surveys were conducted for four projects (three woodrat habitat assessments and one bat emergence count). Avoidance measures were required or recommended on 30 projects to avoid adverse impacts to species of special concern and their habitat. The survey results were used to avoid, minimize, or mitigate for unavoidable impacts to threatened or endangered species. Four NEPA documents for transportation projects were also reviewed. Five field views and 17 meetings were attended related to transportation projects. PGC staff reviewed and approved two Section 4(f) checklists related transportation projects with potential impacts to State Game Lands as well as reviewed and provided comments on PennDOT's draft wetland mitigation instrument.

A total of 355 Pennsylvania Natural Diversity Inventory (PNDI) reviews were completed for oil and gas projects throughout the state, 250 (70%) of which were related to shale development. The reviews involved over 1,007 oil/gas wells (733 shale wells, 73%), over 2,785 miles of oil/gas pipeline (1,420 for shale, 51%), and 13 seismic surveys totaling over 1,726 square miles of survey area. Completed reviews resulted in 165 avoidance or conservation measures being recommended or required for 129 reviews (36%) to avoid or minimize adverse impacts to area-sensitive forest bird species, bald eagles, various bat species and hibernacula, various grassland nesting birds, great blue herons, northern flying squirrels, northern goshawks, northern water shrews, osprey, Swainson's thrushes and wetlands. Over 65 square miles of avoidance or restricted areas were recommended for the seismic project reviewed in order to avoid or minimize

adverse impacts to Allegheny woodrats, American bitterns, area-sensitive forest bird species, bald eagles, various bat species and hibernacula, great blue herons, marsh wrens, northern goshawks, northern water shrews, osprey, short-eared owls and wetlands. There were a total of 24 habitat surveys requested to assess the potential for adverse impacts to bat hibernacula, Allegheny woodrats or eastern small-footed myotis; 14 species surveys were reviewed to assess the potential for adverse impacts to Allegheny woodrats, bald eagles, bats, great blue herons and northern goshawks. Nine additional species and/or habitat surveys were completed by the PGC to assess potential habitat or the presence of Allegheny woodrats, bald eagles, eastern small-footed myotis or great blue herons and 3 reviews required habitat replacement and/or habitat enhancements to compensate for direct and/or secondary impacts to Allegheny woodrats or eastern small-footed myotis.

As a result of the PNDI coordination, over 2,823 miles of potential O/G pipelines and 2,150 square miles of potential seismic surveys were digitized and added to our GIS database for consideration of cumulative impacts during future PNDI reviews and to monitor oil and gas development in the Commonwealth.

Staff developed a desk manual, filing and tracking system, provided training to the Regional Wildlife Diversity Biologists (RWDB) and their supervisors, and began the implementation of RWDB PNDI reviews of certain categories of oil and gas projects.

A total of 680 Pennsylvania Natural Diversity Inventory reviews were completed for construction and development projects throughout the state. Average review time was 28 work days. These reviews identified a total of 189 potential impacts to species of special concern. The 678 reviews included 28 PGC projects, 50 DCNR projects, 40 USDA/NRCS projects, 18 military projects, 1 DEP project, 4 PFBC projects, and 8 USACOE projects. Surveys were requested for 14 projects to assess how to best avoid adverse impacts to American and least bitterns, Allegheny woodrat, eastern small-footed bats, osprey, great blue heron, northern flying squirrels and/or their habitats. Avoidance measures were required or recommended on 189 projects. Three field surveys were completed by Environmental Review staff: one for black-crowned night-herons to determine if a rookery was located on the property, one for osprey to determine if nests existed within the a proposed project area, and one to determine presence of great blue heron rookery near a proposed project.

Staff also reviewed and commented on a total of 8 National Environmental Policy Act project proposals, attended seven field views, and attended eight meetings involving construction and development projects.

One project construction and development project resulted in impacts that could not be avoided or minimized, therefore resulting in the need for the issuance of a USFWS Bald Eagle Permit authorizing the disturbance of two active bald eagle nests. As mitigation for these activities, a bald eagle telemetry project was requested.

A total of 49 PNDI environmental reviews and 40 mining permit application reviews were completed for various proposed mining or abandoned mine reclamation projects

with a total acreage reviewed of over 40,913 acres. The purpose of these reviews was to provide preliminary comments to mine operators and DEP to avoid and minimize impacts to wildlife and wildlife habitat associated with potential future mining operations. Avoidance measures were recommended or required for 18 project reviews to avoid or minimize adverse impacts to various bat species, and Allegheny Woodrat. Seven habitat surveys were required to assess the potential for adverse impacts to bats, Allegheny woodrats, or eastern small-footed myotis. The reviews also resulted in the requirement for one site to be trapped for Allegheny woodrats, four sites to be mist netted for bats, and numerous confirmed caves to be trapped for bats at three sites. Staff attended 14 field meetings to assess any potential adverse impacts to species of special concern, and offer comments to the operators and/or DEP to avoid and minimize adverse impacts to wildlife and wildlife habitat including wetlands. During these field meetings, the PGC completed species surveys and habitat surveys for Allegheny woodrats and/or eastern small-footed myotis at two sites, and surveyed for potential bat hibernacula at two sites. Staff was involved in one legal deposition regarding potential impacts of a large non-coal mining project to bat hibernacula.

A total of sixteen State Game Lands were evaluated for potential leasing opportunities to generate revenue to the Commission and improve wildlife habitat. Leasing opportunities included oil, gas, or mineral recovery operations involving surface disturbance impacts. The evaluations including potential reclamation of abandoned mine features such as high walls and mine spoils, additional lands, and potential revenues that could potentially benefit wildlife and improve wildlife habitat.

Staff prepared and updated one guidance document and best management practices to further protect and minimize wildlife impacts resulting from associated oil & gas activity relating to water impoundments, pipelines, invasive species, compressor stations, drill cuttings, production fluid containment, and geophysical/seismic operations and seeding mixes beneficial for wildlife during site reclamation. Additionally, over 17 meetings were conducted throughout the year with regional Game Commission staff and operators to minimize surface impacts and improve wildlife habitat from resource recovery operations.

Staff revised one public guidance document to require that a Special Use Permit be obtained prior to removing osprey nests from artificially created structures. Staff also created three internal environmental review documents in collaboration with WM staff, two on peregrine falcons (one for bridge nest and a second for building nests) and one on small-footed bats. Finally, an environmental review bat telemetry protocol was created and incorporated into the 2012 bat packet that is provided to all persons who are issued permits for bat work. The ER telemetry protocol was incorporated into the bat packet to help eliminate confusion between telemetry survey requirements for environmental review projects and those required for bat research since both use the same PGC permit.

A total of 15 PNDI reviews for wind energy projects located on private lands were completed for wildlife/habitat impacts. Average review time was 28 days. All projects had potential impacts to one or more of the following species northern flying squirrel,

Allegheny woodrat, Indiana bats, eastern small-footed bats, northern long-eared bats, upland sandpipers, black-crowned night-heron, and bald eagles. Avoidance measures were requested on 14 projects and 5 projects had potential impacts to State Game Lands.

Staff attended 27 field views and 70 meetings involving wind energy development on private lands in regards to potential and actual impacts to wildlife resources. Recommendations were provided to help avoid and minimize impacts to wildlife resources and unique wildlife habitat.

Staff reviewed and commented on one wind energy Avian and Bat Protection Plan written to minimize and avoid impacts to bats from turbine operation. Staff provided data and technical assistance for a Habitat Conservation Plan to support the pursuit of an Incidental Take Permit for one wind facility.

Staff continued to work with wind companies to mitigate endangered bird and bat species mortality that has been documented at operational wind facilities.

Strategic Objective 4.6 Provide and maintain adequate infrastructure to support wildlife habitat management and hunting.

During the past fiscal year, the Oil/Gas and Mineral Development Section reviewed and coordinated with Regional field personnel and industry a total of 96 oil or gas well locations and their affiliated access ways on State Game Lands. Of these 70 were Marcellus Shale oil and gas well locations and three of these locations were under PGC oil/gas development leases and 67 locations are on State Game Land surface where the PGC does not own the subsurface gas rights. These reviews and coordination resulted in improvements to parking lots and roads as well as maintenance on related gamelands infrastructure such as culverts, bridges, gates, and enhanced erosion and sedimentation control structures at the expense of the Developer. Additionally the Oil/Gas and Mineral Development Section reviewed and coordinated with Regional field personnel and industry on a total of five well plugging notices of conventional oil and gas wells on two State Game Lands and twelve pre-drilling water survey requests on seven State Game Lands.

Commercial and Non-Commercial forestry treatments provided a road network sufficient to carry heavy equipment and comply with the Clean Streams Act and other environmental protection regulations was designed and supervised by our regional forestry staff. Logging contractors completed 57 contracts during the year, improved 67.4 miles of haul roads, constructed 40.2 miles of new roads (which became wildlife food strips after seeding), and placed 262 culverts. The value of these on-site infrastructure improvements exceeded \$1,427,000 and was cost borne by the timber operator and thus deducted from the totals of the timber bids. Additionally there were \$549,544 worth of improvements completed through timber sale contracts, including landing and skid road seeding with wildlife mixes, parking lot construction, gate installation, bridge installation, and deer exclosure fencing.

Providing hunting and furtraking opportunity are among State Game Lands mandates. During last year's hunting seasons, 4,000 miles of roads were maintained for hunter and habitat management access. In addition, 10,000 parking lots were maintained, 109 bridges were repaired, and 6,461 culverts replaced. Trails are also important for hunter access to State Game Lands and 288 miles of trails were maintained by FCC crews.

Shooting ranges are provided on State Game Lands for hunters to gain proficiency in their hunting arms. Food and Cover Corps staff, also conduct habitat management projects, conducted 1,266 range visits with major safety upgrade projects completed on one range.

The Engineering Division has been focused on helping the Game Commission recover from the devastating flooding as a result of Tropical Storm Lee in September 2011. The flooding caused \$5,104,712.06 in damage to PGC facilities. The Loyalsock and North Central Game Farms in Lycoming County were particularly hard hit by the flooding. Repairs to buildings and holding fields were completed in time to have both game farms achieve full production levels for the Spring 2012 brooding season. The flood damages were concentrated in the North Central and Northeast regions. The road and bridge systems on SGL #12 (Bradford County), SGL #13 (Sullivan County), SGL #57 (Luzerne & Wyoming Counties) and SGL #134 (Lycoming County) were particularly hard hit. A total of 73 project worksheets were generated by FEMA to document the damage to PGC facilities caused by Tropical Storm Lee. Flood damage repair projects are scheduled to be completed before the end of March 2013.

A total of seven structures were demolished and removed from State Game Lands. These structures were mostly abandoned cottages and agricultural buildings which were a public safety hazard. Removal of these structures was accomplished by outside contractors at a total cost of \$42,720.00.

Three new buildings were completed during FY11-12. These include new storage buildings on SGL #33 (Centre County) and SGL #258 (Perry County). Both new storage buildings were constructed using Pittman Robertson funds for storage of new habitat improvement equipment and machinery. Construction of the new Northwest Regional Office in Franklin was completed in March 2012. The Northwest regional staff moved in to the new building in early April 2012. Installation of a new roof on the Southwest Regional Office in Ligonier was also completed in May 2011.

Six building renovation projects were completed in FY11-12. The roof and exterior siding were replaced at the Middle Creek Visitor Center (SGL #46-Lancaster County) at a cost of \$102,124.87. The interior ceiling at this building was also renovated and insulated and new energy efficient LED display lighting system was installed at a cost of \$141,905.18. The HVAC systems at four maintenance buildings were also replaced. These building were located at the following locations; SGL #205 (Lehigh County), SGL #223 (Greene County), SGL #232 (Washington County) and SGL #242 (York County). The costs for the new HVAC systems ranged from \$11,857.50 to \$17,980.00. All of these projects were completed using Pittman-Robertson funds. The total cost of these

projects was \$306,298.77. The doors and windows at the North Central regional Office were also replaced at a cost of \$46,000.00 using regular PGC maintenance funds. The new windows and doors replaced worn out single pane windows.

Nine new bridges were also constructed on game lands in FY11-12. These bridges replaced existing deteriorated bridges, culverts or fords using Pittman-Robertson funds. Costs were reduced by buying materials in bulk and using PGC labor and rented equipment. The total cost of these nine bridges is \$186,020.42; this works out to a cost of approximately \$531 per linear foot. The new bridges opened or maintained access for the public and habitat management activities in five different regions.

Only one dam renovation was completed in FY11-12. This dam renovation project was on State Game Lands #282 in Warren County and involved installation of a new outlet structure. The project was completed using PGC labor and rented equipment at a cost of \$7,805.76. The PGC engineering staff also conducted the required safety inspections on the seven high hazard dams owned by the agency. All seven dams were found to be in excellent condition. It should also be noted that the Emergency Action Plans (EAP) for all seven PGC-owned high hazard dams are complete.

Two road projects were completed during FY11-12. A new road and parking lot system was completed on SGL #333 (Centre County) by PGC labor and equipment. This new road system included the extension of Shiloh Road and new parking lots along the Spring Creek corridor formerly owned and managed by the Rockview State Prison. The access road on SGL #176 (Centre County) to the Scotia Shooting Range was also renovated. The new road surface was upgraded to Driving Surface Aggregate (DSA) because of the high volume of traffic going to and from the shooting range complex. This provides a smooth road surface for passenger vehicles. The total cost of the improvements was \$307,898.03 using Pittman-Robertson funds for the 2.9 mile long roadway.

A new pistol shooting range was constructed at SGL #203 (Allegheny County). The new pistol range has eight shooting stations each at the 10-yard and 25-yard distances including one station at each distance for handicapped shooters. The new pistol range reduces crowding problems at the shooting range complex. The range at SGL #203 is the most heavily used PGC range. The total cost of this project was \$122,402.00

Three pavement maintenance projects were also completed in FY 11-12. The parking lots at the PGC headquarters building were resurfaced at a total cost of \$233,020.00. This is the first maintenance project performed on the headquarters building parking lots since the building was constructed in 1987. The walking trail behind the PGC headquarters building was also paved in order to provide improved access to the Agency's Habitat Demonstration & Education areas. The parking lot which serves the maintenance buildings at the Northwest Regional Office was also resurfaced. This completed the entire NW Regional Office complex renovation.

The Engineering Division has a large backlog of projects to complete in the next decade to keep the infrastructure of the agency intact. Infrastructure failures can have negative

affects on all other agency programs and construction and repair projects funding must continue so that vital services and programs are not jeopardized.

The Environmental Planning Division staff completed wetland delineations at two proposed bridge locations on SGLs 174 and 305, and completed wetland delineation reports and environmental assessments for six proposed bridge locations on SGLs 14 and 174. These activities were completed to assist the Engineering Division with their Water Obstruction and Encroachment Permit applications to the Department of Environmental Protection.

Strategic Objective 4.7 Enhance wildlife habitat on State Game Lands through the recovery of natural resources.

Early successional habitats are in decline across the state, causing them to be listed as key habitats in the Wildlife Action Plan. In addition to habitat improvements via the forestry program, 3,922 acres of forest and shrub land were treated by Game Commission Food & Cover crews. An additional 2,199 acres was treated through third party contracts. Many of these acres will be maintained through the agency's prescribed fire program.

Grasslands are another key habitat, and many of the state's largest grasslands occur on strip mined sites. The Game Commission embarked on a grassland conservation initiative late in the year. Thus far, 1,523 acres of strip mines were reclaimed to native herbaceous habitat. In addition to strip mines, 327 acres of native grasses were established on Game Lands.

Invasive plants present an ongoing problem on State Game Lands. Invasive species that negatively impact wildlife habitat were detected and addressed on 2,402 acres of State Game Lands.

Tree and shrub seedlings totaling 305,991 were planted to improve habitat diversity on State Game Lands.

The Board of Commissioners approved a total of five oil/gas and mineral recovery lease actions during 2011-2012, which includes the following:

- One gob gas/coal bed methane (SGL 223)-Limited to the one existing gob gas well which was installed in previous years to vent underground coal mining operations.
- Three Marcellus-related Oil & Gas Agreements (SGL 268 Amendment [413.3 acres], SGL 36 [3,710.33 acres], SGL 36 [3,177.7 acres]-Two of these oil and gas agreements/amendments are non-surface which protects 4,123.63 acres from surface disturbance activities relating to oil and gas development; The third agreement limits well pads to a 200 acres area and only allows for two well pads.
- One coal refuse pile reclamation project on SGL 100.

The approved bonus cash value to the Commission for these actions is \$15,171,610 and will be received in fiscal year 2012-2013. In 2011-2012, these approvals allotted for \$6,304,440 of the bonus value to be placed in an interest bearing escrow account to facilitate third party commitments for lost wildlife habitat & recreational values on game lands due to the lease actions.

The Oil/Gas and Mineral Development Section reviewed and coordinated with Regional staff and industry on a total of 96 permitted oil/gas well locations on state game lands during 2011-2012. Total revenues received from oil/gas and mineral recovery operations in 2011-2012 were \$21,334,570 which includes oil/gas royalties (\$3,872,593) coal royalties (\$1,254,670), rental and lease bonus payments (\$15,726,067), sand gravel and stone operations (\$113,943) and surface damages (\$367,295). All these noted revenues were deposited into the Game Fund keeping our Agency well within allowable budget expenditures. Yet despite the increased revenue stream the Commission continues to be subjected to budgetary spending constraints regardless of the habitat & wildlife programs adversely affected. This inability for the Commission to directly manage its own revenue streams for the good of all wildlife and sportsman has resulted in lost habitat enhancements work, inferior vehicles, shortages in personnel and substantial workload backlogs.

The Oil/Gas and Mineral Recovery Section currently manages 59 different companies operating a total of 114 executed lease agreements on 67 State Game Lands. Approximately 88,000 acres are currently under PGC approved oil and gas and mineral recovery leases.

Oil/gas and mineral ownership continues to be researched and updated in response to Marcellus shale drilling activity during fiscal year 2011-12. OGM ownership research was conducted on a total of 394 parcels (over 167,788 acres), distributed among 49 different game lands complexes and results were input into the Commission's GIS database. A total of five oil/gas and mineral lease boundaries and two cooperative surface use agreement boundaries were added GIS database. All new oil/gas permit and drilling information on Game Lands and throughout Pennsylvania from DEP data, including the associated well attribute data, were also added to or updated in the GIS database.

The OGM Section continues to research adverse claims in conjunction with legal staff of oil/gas/mineral rights which have potential to impact state game lands surface acreage. Defending against these claims has caused an increased burden in staff time and resources in order to adequately protect the inherent game lands recreational values and future surface uses.

Staff completed 22 field reviews of 13 existing oil, gas or mineral development leases on game lands to ensure compliance with the lease conditions, and 23 additional field reviews were conducted to review potential future OGM recovery activity. Fifteen inspections were also conducted at 12 separate oil/gas operations on game lands where the mineral rights are not under Commission ownership. The Section completed 13

seismic reviews in conjunction with the ROW Section to evaluate the Commission's oil and gas ownership rights and oil and gas leasing of SGLs proposed to be impacted.

Maintaining optimum habitat diversity on State Game Lands is an important goal of our Forest Habitat Management Program. Forty-seven (47) forest habitat management projects containing 5,572 acres were offered for bid to commercial timber harvest operators during the past fiscal year. These projects contained approximately 12.4 million board feet for which bidders offered \$4,543,763. These values represent timber prices similar to those last seen in 1993, which shows the continuation of depressed timber markets in the economy.

There were 2,523 acres treated with selective herbicides to remove ferns, striped maple, spicebush, low quality beech brush, and other non-native and invasive plant species that impede establishment of more beneficial tree species.

Timber contractors harvested 6,327 acres that yielded more than 18.4 million board feet of logs and 152,733 tons of pulpwood. These operations generated \$6,597,810. The increase in harvesting activity seems to indicate a stability returning to the timber markets, but the dollar values attached to the timber will likely not increase much over the next few years as the industry recovers from the economic slump.

Additional forest non-commercial habitat improvement projects including regeneration treatments, crop tree releases, and pre-commercial thinnings resulted in 2,310 additional acres of improved habitat. Also, the forestry staff provided support to the ever-growing mineral recovery and right-of-way operations on 587 acres of State Game Lands, which demonstrates a continued increase in OGM and ROW operations.

With the stabilization of more balanced deer populations, positive impacts are being noted in forest habitats. The PGC is actively removing deer exclosure fencing in areas where habitats have successfully regenerated. In the 2011 Fiscal Year 396 acres of fencing were removed. Only 556 acres of fence were constructed, representing a continued decline in acres needing to be fenced.

Staff reviewed and authorized the Department of Environmental Protection's Bureau of Abandoned Mine Reclamation plan to complete the backfilling of an abandoned mine subsidence cropfall project on a portion of State Game Land No. 211. The funnel shaped void measured 25 ft. in diameter at the surface and extended to a depth of approximately 100 feet.

The Commission is implementing surface and ground water quality monitoring through various governmental agencies including the Fish and Boat Commission, Susquehanna River Basin Commission, and Department of Environmental Protection. The Game Commission staff strives to monitor surface water quality on State Game Lands in areas where resource recovery operations are occurring or planned to occur. These partnership efforts have resulted in baseline stream sampling & implementation of water quality monitoring in areas of Marcellus Shale oil and gas development on SGL's. During Fiscal

Year 2011, WHM staff developed, or coordinated with oil and gas companies on four surface water monitoring plans which cover six proposed well sites located on or adjacent to State Game Lands.

Strategic Objective 4.8 Identify and manage critical habitats identified in the Wildlife Action Plan.

All comprehensive management plans submitted this year (220,380 SGL acres in 26 separate plans) listed key habitats per the Wildlife Action Plan and developed implementation strategies for management. Specific habitat types that were targeted included native grasslands, barrens, wetlands, oak forests, riparian areas, and shrublands. Improving these habitats will benefit species of greatest conservation need as well as game animals. Activities completed through our food and cover crews included 210 acres of native grass established, 446 acres of herbaceous habitat improvements, 221 acres burned via prescribed fire, 3,978 acres planted in grains and legumes, 305,991 tree and shrub seedlings planted, 12,268 acres mowed, 2,142 acres of forest habitat improvements by FCC crews.

In addition, 2,199 acres of early successional habitat were restored on State Game Lands via contracted work. This included aspen cutting, shrubland regeneration, grassland restoration, forest improvements in habitats degraded by gypsy moth, and scrub oak barrens restoration.

One of the strategies utilized in managing key habitats is prescribed fire. The PGC has been ramping up prescribed fire capacity since passage of the Prescribed burning Practices Act in July 2009. This year, the Game Commission has taken the following steps to facilitate use of prescribed fire in habitat management: active voting membership maintained on the Prescribed Fire Council, cooperative agreements maintained with The Nature Conservancy and Department of Military and Veterans Affairs, facilitating a new agreement drafted with DCNR and 61 burn plans submitted and reviewed resulting in 1,222 acre of prescribed fire treatment acres on game lands.

GOAL 5: Enhance the public's understanding of the Pennsylvania Game Commission's mission and its responsibilities.

Strategic Objective 5.1 Determine the public's knowledge and understanding of the Pennsylvania Game Commission, its legal mandates, responsibilities and funding.

Two wind energy presentations reached over 100 members of the general public, academia, or non-profit organizations. This presentation related the agency mission and responsibilities conducted through the PGC Wind Energy Voluntary Cooperative Agreement. One newspaper interview was conducted regarding the second summary report.

Staff prepared and presented nine oil, gas and mineral recovery presentations to regional staff and one to the Board of Commissioners with emphasis on the unconventional shale

development on game lands. Twenty-three phone, letter, and e-mail inquiries on resources recovery operations on Game Lands were submitted by the public or news media and/ or through right to know requests were addressed by the Environmental Planning and Habitat Protection Division.

Strategic Objective 5.2 Use a stakeholder process to gather public input in developing programs and plans.

Deer and elk section personnel completed a deer management update meeting for stakeholder groups. We invited more than 30 stakeholder groups and representatives from 14 groups attended. Presentations covered the historical context of deer management, current goals and objectives, current status of deer and deer hunting, and a web page demonstration. The meeting ended with an extended questions and answer period.

Public comment periods were offered for the preliminary ruffed grouse and northern bobwhite quail management plans. We received 90 correspondences offering comment on the grouse plan, and 54 on the quail plan. Some revisions were incorporated into the final plans based on this public input.

A survey of 5,000 migratory game bird license buyers who indicated on the HIP questionnaire that they previously hunted waterfowl was conducted in late summer 2011. Data obtained will increase our understanding of factors affecting participation and satisfaction with waterfowl hunting, and preferences for season timing within allowable federal frameworks. The survey produced an excellent 72% response rate and a report summarizing the results is in preparation. One encouraging finding from the overall responses is that 65% of duck hunters and 77% of goose hunters reported being “satisfied” or “very satisfied” with their recent hunting experiences.

The annual waterfowl symposium was held in August at Presque Isle State Park to obtain input from the public and hunting organizations on waterfowl and migratory game bird season proposals for 2011-12. Based on this input, waterfowl season selections were developed, submitted to the USFWS, and announced to the public via a news release and waterfowl regulations brochure. In our season selections, we incorporated constituent requests for a non-split duck season in the Northwest Zone, and for various changes to snow goose seasons to increase harvest opportunity.

Along with personnel from the Executive Office and BWHM, we prepared for and held our annual meeting with Woodcock Limited of Pennsylvania. This annual meeting provides an opportunity to review progress on implementation of Pennsylvania’s woodcock management plan and discuss opportunities for collaboration to benefit woodcock.

In cooperation with other bureaus and the Executive Office, we updated progress to date on the 47 strategies in the turkey management plan, and held the annual management plan review meeting with the PANWTF.

A fall turkey hunter attitudes survey is being conducted each year during the course of the hen turkey harvest and survival rate study to determine hunter attitudes, satisfaction and daily participation under different season structures. The 2011 survey was mailed to 10,000 randomly selected license holders. Results indicated that a significantly higher proportion of respondents hunted the 2011 fall turkey season (37%) than the 2010 or 2009 seasons (32% and 30%, respectively). Satisfaction with and participation in the new season segment during the Thanksgiving holiday were both relatively high, and a higher percentage of hunters hunted both segments of the fall season than in 2010, 42% versus 34%. Despite the participation trends and the fact that many WMUs were returned to the traditional season structure while the Thanksgiving season was maintained, hunter satisfaction in 2011 (46%) decreased from 2010 (57%). As in 2010 and similar to trends observed nationally, available time, higher turkey populations and places to hunt had more of an influence than season structure on fall turkey hunting participation.

We held the annual pheasant working group meeting with Pheasants Forever and other partners (51 total attendees) at PPL's Montour Preserve. At this meeting, with assistance from Executive Office and BWHM staff, we presented information and received public input on all aspects of the pheasant management plan (WPRAs, large-scale habitat trends and programs, propagation activities, upcoming pheasant hunter survey, educational efforts, etc.).

Additional opportunities for stakeholder comment on game bird management programs were provided through interaction with attendees at numerous informational presentations to a variety of audiences such as civic and sporting groups, schools, and landowners.

Wildlife Diversity – 91 representatives from more than 50 Pennsylvania conservation organizations participated in the Wildlife Diversity Forum; approximately 12 members attend each PABS OTC meeting, approximately 12 members attend each MTC meeting, approximately 20 officers, technical committee chairs and standing committee chairs attend each steering committee meeting, 4 PABS representatives (president, past president and 2 technical committee chairs) attended the Harrisburg advisory meeting.

Game Birds - Over 8,800: 72% response rate on survey of 5,000 waterfowl hunters; 20 stakeholders at annual waterfowl symposium; five stakeholders at Woodcock Limited/PGC meeting; 90 correspondences received on preliminary ruffed grouse management plan; 50% response rate on fall turkey hunting survey of 10,000 license holders; 10 stakeholders at PANWTF/PGC meeting; 51 stakeholders at annual pheasant management meeting; 54 correspondences received on preliminary northern bobwhite quail management plan. Additional inestimable numbers reached via information presented on agency website and through various media.

Game Birds – Solicited public comments on preliminary management plans for ruffed grouse (90 correspondences received) and northern bobwhite quail (54 correspondences received). An attitudes survey of 5,000 waterfowl hunters and 10,000 hunters was conducted regarding fall turkey hunting. Presented waterfowl harvest and population

information at the annual waterfowl symposium at Presque Isle SP, and received input from the public and waterfowl organizations on waterfowl season proposals. Met with Woodcock Limited of PA, NWTF and Pheasants Forever to review progress on implementation of plans and discuss opportunities for collaboration.

Game Birds - Incorporated stakeholder requests for changes to structure of Northwest Duck Zone season, and for expanded snow goose harvest opportunities. Made revisions to grouse and quail management plans based on public comments received on the preliminary versions of those plans.

The Bureau of Wildlife Habitat Management expended \$27,021.09 under the MOU with PennDOT for stakeholder coordination on transportation projects through out the Commonwealth. An additional \$11,642.04 was expended under the MOU with DEP (Bureau of Mining and Reclamation) relative to coal mining projects and stakeholder coordination meetings.

The State Game Lands Banking Agreement, adopted as a partnership with PennDOT and the Federal Highway Administration, provides advance mitigation (lands) to offset permanent acreage losses to State Game Lands resulting from bridge replacement or minor road improvement projects. The Vargo SGL Bank in Northumberland County is eight acres in size and as of June 30, 2012, 1.986 acres had been debited from this SGL bank. The Hoffman SGL Bank is 55 acres in size and as of June 30, 2012, 5.810 acres had been debited from this SGL bank. The ability to debit from existing SGL Banks has streamlined the mitigation process in that projects with less than five acres of impacts to State Game Lands can be debited these impacts from existing land banks, instead of having to address each project on a case-by-case basis with replacement lands. Two PennDOT districts are in the process of establishing State Game Land Banks, one in the southwest and a second in the southeast.

The PGC Wind Energy Voluntary Cooperative Agreement continues to work with wind developers to avoid, minimize, and mitigate potential adverse impacts to wildlife from wind energy development. There are currently 33 Cooperators which have signed on. These Cooperators are providing pre and post-construction surveys to better understand impacts to wildlife and to research methods to predict the extent of mortality at proposed facilities. Ironically, many developers whom have not signed the Cooperative Agreement are completing the same requirements as Cooperators but not receiving any of the benefits.

Strategic Objective 5.3 Promote a league of partnerships to achieve mutual goals for wildlife and habitat.

The Deer and Elk Section personnel provided maps of elk calf locations for display at the Elk Country Visitor Center.

PGC staff participated in AF Council and Technical Section meetings, as well as Atlantic Coast Joint Venture Technical Committee and Management Board meetings, to discuss

and develop recommendations on migratory game bird hunting seasons, nongame migratory bird conservation initiatives and habitat conservation programs. Many of the migratory game bird survey and banding programs described under Goal 1 are cooperative efforts with federal and other state wildlife agencies. We have a cooperative agreement with Ducks Unlimited, Inc. to provide financial support to the Baie Lavallière waterfowl habitat restoration project in Quebec. This area provides important wetland habitat for many species of migratory birds and is an important staging area for waterfowl associated with the AF and Pennsylvania.

Cooperative efforts on management for a number of resident game birds included attendance of Game Bird Section staff at the annual Northeast Upland Game Bird Technical Committee meeting to discuss regional game bird population and habitat management projects and charges provided to the committee from the Northeast Wildlife Administrators; and response to a survey from the Association of Fish and Wildlife Agencies (AFWA)'s Resident Game Bird Working Group on state-level implementation (successes, challenges, and areas for AFWA assistance) of national management plans for resident game bird species.

Collaboration continued with various stakeholders involved in early succession habitat initiatives, including Wildlife Management Institute's Appalachian Mountains Young Forest Initiative, Appalachian Mountains Golden-Winged Warbler Initiative, Woodcock Limited, and Ruffed Grouse Society as well as several DCNR State Parks and District Forest offices. Cooperative habitat management efforts are a major focus of the species management plans for grouse and woodcock. We initiated discussions with the Clearwater Conservancy on a collaborative approach to habitat management and outreach for landowners and municipalities surrounding SGL 176 (Centre County), with the long-term goal of establishing and maintaining landscape-scale buffers and corridors to benefit habitat quality on and around this important SGL. BWM staff also attended the annual meeting of the conservation group Woodcock Limited.

A strong partnership was maintained with the NWTF and PANWTF. BWM staff regularly attends annual and quarterly PANWTF Board meetings to both provide information (PGC quarterly turkey technical committee reports) and receive input. The turkey biologist continues to serve on the NWTF Turkey Technical Committee. We also work closely with the NWTF regional biologist who provides technical guidance in all aspects of wild turkey management. The ongoing hen harvest and survival rate study continues to receive important financial support from the NWTF, PANWTF, and USFWS.

The WMU 5A Wild Turkey Task Force, formed in 1997, is comprised of staff from PGC, DCNR Bureau of Forestry, NWTF, PANWTF and local NWTF chapters. The task force meets once annually to review progress on the existing turkey management recommendations for WMU 5A. Implementation of these recommendations has resulted in an increased turkey population in WMU 5A, allowing for a re-opening of the fall turkey season in 2010 under a conservative 3-day format following seven years of a closed fall season.

Pheasants Forever is an important partner in establishing, monitoring, and improving habitat on WPRAs. The WPRAs Manual, available on the PGC website, provides guidelines on the roles and responsibilities of the PGC and partner organizations in the WPRAs effort. The Pennsylvania CREP Amendment was approved, providing an additional 20,000 acres to be potentially enrolled in WPRAs. We will work with other Bureaus, Pheasants Forever, USDA and other partners to take advantage of this opportunity to inform landowners, improve habitat on the ground, and benefit populations of pheasants and other grassland-dependent wildlife.

BWM staff serves on the national management board and the technical steering committee for the National Bobwhite Conservation Initiative.

A meeting was held with staff from the PCFWRU focusing on recent Unit research, introductions to new Unit personnel, and discussion of opportunities for collaboration on future research projects of mutual interest.

Successful development and implementation of strategic conservation objectives require collaboration from a spectrum of stakeholders. To bolster conservation partnerships and identify potential areas of mutual interest, the PGC hosted the first-ever Wildlife Diversity Forum in cooperation with the Wildlife For Everyone Endowment Foundation. The PGC aimed to raise awareness within the conservation community of the full breadth of the agency's mission to conserve all birds and all mammals for all people, for all time; to inform participants about Pennsylvania's Wildlife Action Plan and its upcoming revision; to exchange information on accomplishments and progress made over the last decade; to provide updates on the state of Pennsylvania's birds, mammals and their habitats; and to motivate multiple stakeholders to better understand and advance wildlife conservation programs and projects at the local, state and national level.

Ninety-one participants representing over 50 Pennsylvania conservation organizations attended the two day event. An additional 15 PGC staff assisted. The first day began with brief presentations to ensure all participants received similar background information. We then divided into eight breakout groups to brainstorm and categorize conservation issues into seven categories (policy/funding, education/communication, scientific research, population monitoring, habitat management, land protection, and conservation planning & design). A poster session and banquet dinner that evening offered networking opportunities for agency personnel and conservation partners. The second day focused on prioritizing 340 conservation issues identified during the previous day's breakout sessions and discussing actions that could be taken to address priority issues. To accomplish these challenging tasks, forum participants were assigned to second-day breakout groups by the area of expertise indicated on their registration form. Each group clarified language describing the top issues within their category, suggested conservation actions, and, if possible, identified organizations that could take those actions. Suggestions will ultimately be considered during the Wildlife Action Plan revision process and results incorporated as part of stakeholder involvement documentation.

The Wildlife Diversity Forum was only the start to a long conversation with various partners in coming months and years as we update the Wildlife Action Plan jointly with the Pennsylvania Fish and Boat Commission by, September 30, 2015. This conservation blueprint for the state's wildlife defines specific actions to address threats proactively before species decline to a point requiring costly federal protection under the Endangered Species Act.

Bird and mammal monitoring and recovery is accomplished through the cooperation of at least 85 organizations (notably Audubon Pennsylvania and the PSO) contributing their expertise and personnel including hundreds of volunteers, resulting in thousands of volunteer hours per year. The PABS serves an official advisory role to the PGC through its Ornithological and Mammal technical committees and Steering Committee. Involvement of the Pennsylvania Natural Heritage Partnership facilitates intra-state data management benefits. Examples of new partnerships include the Wildlife For Everyone Endowment and Richard King Mellon Foundation for the Wildlife Diversity Forum, the Borough of State College for provision of alternative roosts for bats excluded from residential buildings and the Central Appalachian Goshawk Project for a goshawk survey.

Regionally, monitoring and research by the bird, mammal, and grants/planning sections are coordinated for greater efficiency and effectiveness through regional (interstate) committees such as the Northeast Fish and Wildlife Diversity Technical Committee, the Atlantic Coast Joint Venture, the Appalachian Mountain Joint Venture, the North American Bird Conservation Initiative, and the Federal Aide Coordinators, and Indiana Bat recovery team. This coordination assures improved (10%) match rates for work on federal endangered species (Indiana bat and piping plover). National guidance and coordination occurs through the regional Wildlife Action Plan committees. PGC biologists served on the steering committee for the second Northeast Regional Conservation Framework workshop, and helped review and select grants guided by this Framework.

Diversity Division biologists participated in at least 38 meetings and 46 conference calls with partner organizations and agencies to achieve mutual goals for wildlife and habitat during the past fiscal year. Regional diversity biologists met with private landowners to learn their particular interests and evaluate habitat on their properties, and with NRCS personnel regarding USDA Farm Bill programs that can help to implement habitat management plans. Regional biologists also participate in meetings of county conservation districts, watershed and stewardship associations, woodland owners groups, conservancies, and local special-interest working groups.

Wildlife Diversity – Regional Wildlife Diversity biologists assist landowners applying for USDA Farm Bill support available for wildlife habitat improvement through various NRCS programs. PCFWRU provides grassland management on reclaimed mine lands. IUP facilitates ongoing implementation of breeding habitat management for golden-winged warbler supported by federal SWG funds.

Game Birds - We have a cooperative agreement with Ducks Unlimited, Inc. to provide funds in support of the North American Wildlife Management Plan and the North American Wetlands Conservation Act in Canada. Cooperative woodcock monitoring efforts with Appalachian Mountain Young Forest Initiative were expanded in spring 2012. We are also working with PSU Center for Watershed Stewardship on a multi-parcel private lands plan for riparian early successional habitat improvement in a Centre County watershed, and providing technical assistance to DCNR Bureaus of Forestry and State Parks on managing these lands for early successional species. We continue to provide financial support (in cooperation with other agencies) for the NWTF regional biologist and the Northern Bobwhite Conservation Initiative coordinator.

Wildlife Health - The relationship which was created with investigators at PSU who are determining the prevalence of enteric pathogens in wild raccoon populations and that with University of Pennsylvania School of Veterinary Medicine who are testing portions of the sample for raccoon roundworm eggs continues as samples continue to be analyzed in both laboratories. These studies are now complete and awaiting publication of their results.

Two presentations were made to the Animal Health and Diagnostic Commission regarding the status of wildlife disease matters including the impact of new fees for CWD and necropsy testing, and the PGC position on the return of an elk that wandered into a CWD positive state.

Peer review was provided to the National Wildlife Health Center for their recent accumulated data sets and their presentation for wildlife health professionals.

A presentation on wildlife disease surveillance in Pennsylvania was made to private practitioners at the Animal Diagnostic Lab's annual meeting.

Through the direct efforts of the Bureau of Wildlife Habitat Management's Real Estate Division, Agency land acquisition funding was provided by various partner relationships directly resulting in numerous State Game Land acquisitions. There was \$68,820 provided by The Conservation Fund to help acquire 56.825 acres adjoining SGL 93, Somerset County; a 0.30-acre donation from Leroy and Lola Spangler adjoining SGL 217 Lehigh County; \$92,236 was provided by the Western Pennsylvania Conservancy and \$125,000 was provided by the Coastal and Estuarine Land Conservation program to acquire the 81,91-acre Colussi property adjoining SGL 314, Erie County; there was \$10,000 from the National Wild Turkey Federation, \$5,000 from the Federated Sportsmen's Club of Berks County and \$1,000 from the Schuylkill County Sportsmen Association towards the acquisition of the 27.2-acre Kutz property adjoining SGL 106 in Berks County.

With our support, the NRCS has secured funding for the Working Lands For Wildlife Program that is specifically allocated for private lands habitat work on forested private lands to benefit the golden-winged warbler, a state wildlife action plan species. This year, we conducted targeted outreach to 3,200 private landowners in five counties,

received 278 responses, had 140 applications, and 70 likely contracts will be implemented using \$1,100,000 in USDA funding to create early successional habitat. To assist the USDA NRCS with technical service to deliver this implementation funding, we are cost-sharing with Indiana University of Pennsylvania, the US Fish and Wildlife Service Partners for Wildlife Program, and California University of Pennsylvania on a National Fish and Wildlife Foundation (NFWF) grant totaling \$431,470 to do outreach, landowner visits, plan development and implementation oversight to ensure the success of the overall project.

GOAL 6: Develop sustainable funding sources that support the agency's mission and identity.

Strategic Objective 6.1: Partner with the *Wildlife For Everyone Endowment Foundation*, other foundations and Non-Governmental Organizations to financially support wildlife conservation programs and projects.

Through partnerships the Game Commission was able to increase the size of two existing State Game Lands and add 84 acres to the State Game Lands system. During FY 11 The Conservation Fund continued their commitment to recently created SGL 93 when they assisted with acquiring 56.82 acres in Shade Township, Somerset County. In fiscal year 2006 the Game Commission acquired our first tract of land in Somerset County north of the proposed site of the Flight 93 National Memorial creating SGL 93 named in honor of Flight 93's crew and passengers who heroically sacrificed their lives on September 11, 2001. (SGL 93 originally located in Clearfield County was renumbered SGL 331.)

In a partnership with sportsmen's groups the Commission was able to acquire the 27.2-acre Kutz property adjoining SGL 106 in Berks County. The National Wild Turkey Federation provided \$10,000, the Federated Sportsmen's Club of Berks County provided \$5,000 and the Schuylkill County Sportsmen Association provided \$1,000 towards the acquisition price of \$42,120.

Strategic Objective 6.2 Increase the use of grants, mitigation and reimbursements.

Grant funding from the USFWS has assisted us with implementation of banding efforts targeting black ducks (\$5,526). In fulfillment of the grant requirements, we prepared a summary report on 2012 post-season black duck banding accomplishments and submitted it to AF Migratory Game Bird Technical Section Banding Committee and USFWS-BDJV staff. We also developed and submitted a proposal requesting a similar level of BJDV funding in 2013 to continue this work.

BWM staff assisted BWHM and regional personnel in developing and evaluating habitat proposals for submission to PANWTF (for turkey-related work) and the Ruffed Grouse Society "PA Drummer" program (for grouse and woodcock projects).

A federal P-R program research grant is covering 75% of the total project costs for the wild turkey hen harvest and survival rate study, for a total of \$1,239,825 over the life of

the project (\$268,000 in FY 2011). Grant assistance is also being provided by the NWTF and PANWTF (\$56,060 and \$35,000, respectively, for the last 4 years of the study). We prepared and submitted quarterly project reports to NWTF and an annual report to the USFWS in compliance with the requirements for the respective grants.

The Bureau of Wildlife Habitat Management benefited from a grant program valued at \$250,000 during the Fiscal Year 2011. Through a partnership with the Western Pennsylvania Conservancy (WPC) the Game Commission was able to increase the size of SGL 314 by 81.91 acres. WPC applied for grants and received \$125,000 from the Coastal and Estuarine Land Conservation Program by using \$32,764 from the Game Fund as match and with an additional \$92,236 from WPC.

Grant funding is integral to habitat management programs. Last year, 23 grants were funded for over \$20.5 million

We were operational with active grants in the following areas;

USFWS

(10) Pittman-Robertson Program funded grants including operations and maintenance, habitat improvements, infrastructure improvements, big-game research and wildlife health programs.

(3) Section 6 T&E Species Grant dealing with Indiana Bat and Piping Plover

(12) State Wildlife Grant program grants

USDA-NRCS (1) Wildlife Habitat Incentive Program grant

USDA-APHIS (1) CWD grant.

USDA Farm Service Agency Voluntary Public Access and Habitat Improvement grant

Amount of funding received from government grants:

Section 6 T&E- \$124,000.00

SWG- \$850,000.00

PR- \$15,100,000.00

VPA-HIP-\$3,000,000.00

In 2010, The Habitat Division secured a \$3 million competitive grant award from the Farm Service Agency to increase participation in the Game Commission's Hunter Access program and improve habitat on cooperator lands. Of 28 states that applied for these Voluntary Public Access and Habitat Improvement program funds (VPA-HIP), the Game Commission received the largest grant award. By end of Fiscal 2011 we had committed almost \$2,000,000.00 to approved grant activities and will plan to have completed commitments on the total of \$3,000,000.00 by, September 30, 2012.

The wild turkey hen harvest and survival rate study was awarded a federal Pittman-Robertson program research grant covering 75 % of the total project costs, or a total of \$1,239,825 from the beginning. A grant proposal was submitted to The National Wild Turkey Federation (NWTF) requesting \$56,060 for the last 4 fiscal years of the study. The PA Chapter NWTF has committed to funding \$35,000.

USDA Veterinary Services provided a grant of \$70,000 for statewide CWD surveillance again in 2011.

Furthering grant funding opportunities, the Bureau of Wildlife Habitat Management worked collaboratively with BWM, and DCNR to write and submit a grant proposal for a USFWS Habitat Conservation Planning Assistance Grant (*Habitat Conservation Plan for Indiana Bats associated with Forest Management Activities on Pennsylvania Game Commission (PGC) State Game Lands and Pennsylvania Department of Conservation and Natural Resources (DCNR) State Forests and State Parks*). If awarded, the grant will provide for much needed funding to address Indiana Bat management requirements within the Commonwealth.

During the reporting year, two previous Federal Assistance Program grants (PA-W-76-E and PA-W-80-E) were combined into one grant (PA-W-76-E-12). A new grant proposal was developed and submitted to the U.S. Fish & Wildlife Service by the Hunter Education & Outreach Division. This proposal was awarded a grant in the amount of \$1,218,000.

For this fiscal year the Pennsylvania NASP program benefitted greatly from non-governmental organizations as indicated in the chart below. The funding was used to enroll schools in NASP program or update equipment for older schools (circa 2002).

Granting Organization	Amount funded	Use
Easton Foundation	\$14,246.00	Partially fund equipment kits for 15 different schools to enroll in NASP
Morrell Targets	\$2220	Used to supply targets for NASP schools
Fishing Creek Sportsmen's Association	\$1561	Sponsored Benton Area High School to enroll in NASP
Department of Education	\$3,219	Grant used to purchase equipment for Harrisburg Christian School to enroll in NASP
Rocky Mountain Elk Foundation Grant (2010)	\$2000	Four schools were enrolled using funding from a grant allocated to the agency in 2010
Total	\$23,246.00	

Strategic Objective 6.3 Seek legislative action to provide alternative funding sources.

A bill was introduced to provide an increase in license fees but it never moved through the legislature. As was mentioned at the annual report alternative funding sources could be an excise tax on arms and ammunition such as Pitman Robertson. Additionally a portion of the \$220 million generated by hunting activity could be provided. With the budget climate as it is, there is no anticipation of alternative funding related to taxes in the near future.

Strategic Objective 6.4 Create a *Friends of Wildlife* donation program.

A formal program has not been developed. The Conservationist Certificate Program was developed and courses were provided to interested parties that resulted in many graduates of the program. These new volunteers will be a great asset in the future.

Donations made to the Game Commission as part of license sales were \$19,596.

GOAL 7: Promote a diverse, professional and efficient organization.

Strategic Objective 7.1 Ensure that agency employment and volunteer recruitment information is widely distributed to the public.

We continue to use the volunteer instructor recruitment tools outlined below. They share a common theme/slogan, “*Pass It On.*” The tools include the following:

Recruitment DVD – This is a six-minute video which cameos the role and importance of volunteer instructors and how to apply. It is being played at the conclusion of all hunter education classes, at sportsmen’s clubs, county fairs, sport shows, and other public venues.

Banner Displays – Fourteen attractive, full-color displays are now in use at shows and fairs statewide. They include the capability to loop the above video.

Recruitment Brochure – This is a full-color, tri-fold design highlighting the duties, expectations and rewards of being a hunter education instructor. It also includes application information. Another 5,000 copies of the brochure have been printed and distributed during this reporting year.

Internet Content – The above recruitment DVD together with a modified brochure also appears on the agency’s website under the navigation title, “Becoming an Instructor.” The site is linked to an online application request form.

The above suite of recruitment tools was recognized by the Association for Conservation Information, Inc. as one of their 2011 national award winners for its excellence in content and design. The group is comprised of state and federal natural resource agencies from across North America.

Strategic Objective 7.2 Promote and increase professional development opportunities for employees

Several Wildlife Management staff served as peer-reviewers for articles submitted to the *Journal of Wildlife Management*, *Wildlife Society Bulletin* and *Journal of Mammalogy*.

Game Bird Section staff participated in numerous working meetings of technical and professional committees of which they are members, including the AF Council/Migratory Game Bird Technical Section, Atlantic Coast Joint Venture Game Bird Technical Committee, Eastern Management Unit Dove Technical Committee, Northeast Upland Game Bird Technical Committee, Midwest Pheasant Study Group, and National Bobwhite Technical Committee. Section biologists also participated in various training opportunities including a workshop on winter black duck banding/use of explosives for capturing wildlife; SILVAH Allegheny Hardwoods (forest management) training; a golden-winged warbler land managers' workshop; Northwest Region and statewide BWHM conferences; the annual meeting of the Pennsylvania chapter of The Wildlife Society; and three training sessions for new supervisors on general supervisory issues, conducting interviews, and preparing employee performance reviews.

Wildlife Diversity Division biologists serve on a variety of technical committees for the AF, Appalachian Mountain Joint Venture, Northeast Wildlife Diversity and the PABS. They delivered professional presentations during the national conference of The Wildlife Society, the annual USFWS WNS conference, the annual meeting of the Northeast Bat Working Group, and a Pennsylvania Academy of Natural Science Symposium. These and other professional and research conferences, including Wildlife and Sport Fish Restoration and the Association of Fish and Wildlife Agencies, provided opportunities to participate in educational seminars in their areas of expertise. Web seminars provide an increasing number of opportunities to interact with peers and expand knowledge contributing to the PGC's management of species of greatest conservation need. Regional Wildlife Diversity Biologists participated in training for golden-winged warbler habitat management, hardwood forest management, use of prescribed fire for habitat management, and global information and positioning systems.

Disease surveillance training was completed for the entire agency's full time field staff and many of their supervisors, as well as Deputy WCOs in all of the Southeast Region and Centre County. In addition, specific directions were provided to regional personnel engaged in disease sampling throughout the year.

Tri-annual immobilization training was provided for region and bureau personnel across the state. Chemical immobilization training specific to the deer trapping teams and those using carfentanil was provided. Four of those taking the carfentanil training were from the Virginia Department of Game and Inland Fisheries and one was from the WVDNR. Instruction in wildlife disease surveillance (16 hrs), field necropsy (8 hrs) and chemical immobilization (16 hrs) was provided for the 36 members of the cadet class at the Ross Leffler School of Conservation.

Several Wildlife Management staff acted as peer-reviewers for articles submitted to the *Journal of Wildlife Management*, *Wildlife Society Bulletin* and *Journal of Mammalogy*. Also most were involved with technical committee meetings related to their area of expertise at regional and national levels.

Wildlife Health - Peer review was provided to the National Wildlife Health Center for their recent accumulated data sets and their presentation for wildlife health professionals.

Wildlife Diversity - Restoration and management of peregrine falcons in Pennsylvania at the Pennsylvania Wildlife Rehabilitation annual conference; peregrine falcon management objectives for PABS OTC; session on technical aspects of Indiana bat telemetry at The Wildlife Society national conference; four presentations: Pennsylvania state report, 2011 Appalachian Bat Count results and implications, use of ultraviolet light in WNS diagnosis, development of a position statement on the caving moratorium and protection of hibernating bats at Northeast Bat Working Group annual meeting; the Appalachian Bat Count program and WNS spread and mortality at Pennsylvania Academy of Sciences symposium, status of Pennsylvania bat populations for PABS MTC; recommended changes to the caving moratorium for WNS-saturated northeastern states at the USFWS annual WNS national meeting.

Deer and Elk - (1) 11 by J. T. Fleegle, "Life and Times of the Whitetail" in each monthly issue of *Pennsylvania Game News*, (2) Two Game News articles by C. S. Rosenberry, J. T. Fleegle, and B. D. Wallingford, and (3) Two peer-reviewed journal articles by C. S. Rosenberry, J. T. Fleegle, and B. D. Wallingford in cooperation with colleagues at the Pennsylvania Cooperative Fish and Wildlife Research Unit.

Survey and Statistical Support - R. Boyd, M. Weaver and J. Johnson, Small Game and Furbearer Harvests, Dec. 2011 issue of *Pennsylvania Game News*. J. B. Johnson, co-author of "Patterns of Acoustical Activity of Bats Prior to and Following White-Nose Syndrome Occurrence" in *Journal of Fish and Wildlife Management*. J. B. Johnson, lead author of "Nocturnal Activity Patterns of Northern Myotis (*Myotis septentrionalis*) during the Maternity Season in West Virginia (USA)" in *Acta Chiropterologica*. J. B. Johnson, lead author of "Roost Networks of Northern Myotis (*Myotis septentrionalis*) in a Managed Landscape" in *Forest Ecology and Management*. J. B. Johnson, lead author of "Effects of Acoustic Deterrents on Foraging Bats" in USDA Forest Service, Northern Research Station, Research Note.

Wildlife Diversity - D. Brauning, co-author of "Status, biology and conservation priorities for North America's eastern Golden Eagle (*Aquila chrysaetos*) population" in *The Auk*, D. Brauning, co-author of "Dispersal, band recovery and causes of mortality in reintroduction and rapidly growing population of Peregrine Falcons" in *Journal of Raptor Research*; D. Gross, sole reviser of Yellow-Bellied Flycatcher account in *The Birds of North America Online* hosted by Cornell Lab of Ornithology; G. Turner, lead author of "A five year assessment of mortality and geographic spread of White Nose Syndrome in North America and a look to the future" in *Bat Research News*; G. Turner, co-author of

“Frequent Arousal from Hibernation Linked to Severity of Infection and Mortality in Bats with WNS” in *PLoS One*.

BWM Director & Division Chiefs - Association of Fish and Wildlife Agencies fall meeting, North American Wildlife and Natural Resources Conference, Northeast Association of Fish and Wildlife Agencies meeting.

Deer and Elk - Northeast Deer Technical Committee

Game Birds - AF Council and associated Technical Committee Meetings (winter and summer); Atlantic Coast Joint Venture Management Board and associated Technical Committee Meetings (winter and summer); Winter Black Duck Banding Workshop; EMU Dove Technical Committee Annual Meeting; Woodcock Wingbee; National Wild Turkey Technical Committee Meeting; Midwest Pheasant Study Group Meeting; National Bobwhite Conservation Initiative Technical Committee; Northeast Upland Game Bird Technical Committee; Wildlife Society – PA Chapter conference; BWHM conference; Northwest Region Land Management Conference; Golden-Winged Warbler Land Managers’ Workshop

Pheasant Propagation - Pennsylvania Game Breeders Association

Game Mammals - Northeast Black Bear Technical Committee; Mid-Appalachian Bear Study Group; Eastern Black Bear Workshop; Northeast Furbearer Resources Technical Committee.

Survey and Statistical Support - Applied Bayesian Analysis in WinBUGS and SAS, Brigham Young University.

Wildlife Health - Wildlife Disease Association

Wildlife Diversity - AF Council meeting and associated Technical Committee meetings, North American Bird Conservation Conference Joint with Partners in Flight, Appalachian Mountain Joint Venture Management quarterly board meetings (4), U.S. Committee for North American Bird Conservation annual meeting, Northeast Wildlife Diversity Technical Committee meetings (2), PABS Steering Committee, OTC and MTC semiannual meetings (6), WNS National Symposium, Federal Assistance Coordinators meeting.

The Bureau of Wildlife habitat management is well represented on technical and professional committees and organizations including the Association of Fish and Wildlife Agencies Onshore Oil/Gas Shales Subcommittee, Energy & Wildlife Policy Committee, (Agriculture Committee, Biofuels Working Group, Forestry Working Group, CRP Working Group, Farm Bill Sub-Committee, Invasive Species Sub-committee, Upland Gamebird Working Group, and PA State Technical Committee), The Pennsylvania Forestry Association, Governor’s Invasive Species Council, Pesticide Advisory Board, Mile-a-Minute Working Group, Pennsylvania Association for Sustainable Agriculture,

Pennsylvania Farm Bureau, U.S. Sportsmen's Alliance, Theodore Roosevelt Conservation Partnership, Boone and Crocket Club, National Muzzle Loading Rifle Association, Pope and Young Club, National Rifle Association, The Wildlife Society, PA Trapper's Association, Northeastern Bat Working Group, Environmental Quality Board, Great Lakes Wind Collaborative, Environmental Review Committee, Interagency Review Team, National Wind Coordinating Collaborative, Best Management Practices Committee, and Woodcock Limited

Two wind energy presentations were given at conferences reaching 100+ people. Staff participated in eight newspaper interviews/articles. Staff attended the following conferences, meetings, workshops, and trainings:

- Northeast Bat Working Group (oral presentation on bat impacts from wind energy and poster presentation on impacts to mammals of concern from wind energy development to ~100 people)
- USFWS Project Leader Course
- USFWS Wildlife – Economics Webinar
- USFWS – Land Based Wind Energy Guidelines Webinar
- National Wind Coordinating Collaborative Webinar – Collision Risks of Songbird and Bats
- National Wind Coordinating Collaborative Webinar – Offshore Bat Studies in New England Region
- PennDOT Meeting – Wind Energy Update (oral presentation to ~15 people discussing impacts to birds and mammals from wind energy versus transportation projects).
- Microsoft Access beginner and intermediate training

The Bureau conducted its semi-annual statewide management conference including updated habitat development programs, techniques and accompanying field tours and related training & information briefs. This semi-annual effort results in improved adaptive management outcomes and habitat improved programs efficiency for all statewide wildlife habitat managers and foresters alike.

Strategic Objective 7.3 Increase employee knowledge and understanding of the Pennsylvania Game Commission.

Deer biologists provided deer management training program to all PGC employees during meetings in the regions and Harrisburg. All agency staff completed annual deer management training.

BWM staff prepared and presented wildlife management programs for the week-long new employee orientation program, and for the WCO Cadet Class.

The Bureau of Wildlife Habitat Management conducted a major workload analysis of Food and Cover Corps complement in Fiscal Year 2010. The analysis led to personnel re-allocation throughout the state including a new land management group in the

southwest region. The adjustments are improving habitat management capability by improving efficiency.

On private lands, a cooperative agreement with Pheasants Forever is providing two positions to make landowner contacts and enroll acres in the Upper Susquehanna CREP, in areas where NRCS has considerable conservation program backlogs. An amendment that adds an additional 19,000 acres to the Chesapeake Bay CREP was approved in May, and will require additional staff that will be funded through our cooperative agreement with Pheasants Forever.

Strategic Objective 7.4 Analyze workloads to determine organizational structure and requirements.

Game Management Division staff held review and planning sessions for the waterfowl, wild turkey, and pheasant/quail species programs.

Breeding waterfowl survey plots with no waterfowl observations in recent years were evaluated to determine the necessity of continued annual field checks. Some of these plots were moved to a pool of “constant zero” plots to be checked less frequently, thus enhancing survey efficiency without affecting data quality.

Training workshops were held for new dove banders and regional turkey trapping crews.

A presentation was provided on “Grouse and Woodcock Ecology and Management” to foresters, LMGS’s, and Food & Cover employees at SWRO meeting, and provided a list of ruffed grouse reference materials requested for distribution to regional staff.

A review was conducted of Wildlife Management Units. Staff expended considerable staff time and energy on complying with details of new Commonwealth procedures on travel planning and reimbursement, and responding to BCPO Travel Audits Section challenges of expenses submitted.

Training was provided to regional land management staff on pheasant stocking policy and practices, and input was received regarding improvements to the stocking program as we worked to update our program. The PGC continually strives to produce a quality pheasant and quality hunting experiences, and to release birds in such a way that the birds are not hidden or wasted. The PGC likes to see as many of the birds as possible end up in the hunter’s bag, and strive to produce pheasants at a reasonable cost.

The wildlife veterinarian and BATS completed the web-based Pharmaceutical Management System, and provided field personnel with instruction on its use.

Pharmaceuticals were acquired and provided to projects and regions as requested for research and conflict resolution. Drugs and supplies were also distributed to the research deer trapping teams. Out-of-date or contaminated drugs received were inventoried and incinerated. Improvements in techniques and practices, to include support of all animals

being immobilized, included continued development, field testing and evaluation of a drug regime for large (larger than 300 pounds) bears, were advanced.

Strategic Objective 7.5 Promote recognition for employees and volunteers.

PGC policy establishes guidelines, standards and qualifications for awarding volunteer hunter education instructors and others. S.O.P. 30.5 – *Education and Outreach Awards and Recognition* provides for the following:

- Outstanding Hunter Education Instructor Award
 - Regional Instructor of the Year
 - State Instructor of the Year
- Hunter Education Service Award
- Conservation Ethics Award
- Senior Wildlife Conservation Award
- Junior Wildlife Conservation Award
- Certificate of Appreciation
- Certificate of Participation

This S.O.P. is scheduled to be expanded to include other agency volunteers in FY2012-13.

Each year the agency strives to recognize volunteer hunter education instructors and others for their contribution to Pennsylvania’s rich hunting heritage. Below is a summary of the awards established by agency policy and the number of recipients during this reporting period.

AWARD CATEGORY	# VOLUNTEERS RECOGNIZED
Outstanding Hunter Education Instructor	135
Regional Instructor of the Year	6
State Instructor of the Year	1
Hunter Education Service	374

Numerous conservation awards were provide to volunteers who served to enhance he Game Commission’s mission in a variety of ways.

Three awards for life saving were also presented to PA Game Commission personnel.

Additionally Deputy Wildlife Conservation Officers in each of the regions were recognized as Deputies of the Year. From those candidates a Deputy of the Year for the agency was chosen.

Wildlife Conservation Officers were recognized by the National Wild Turkey Federation and Shikar Safari.

Strategic Objective 7.6 Modernize the administrative infrastructure.

The project to tie our land management records and Game Lands planning systems together is well underway. GeoDecisions was awarded the contract to develop the Spatial Integration Management System (SIMS) that will tie together the Commission's land records, non-spatial data related to the Game Lands, the maintenance plans and accomplishments for our Game Lands, and the documents that relate to the acquisition of lands and activities on those lands.

The PGC has successfully completed the pilot phase of our Computer Aided Dispatch (CAD) System. We are almost finished with the deployment of the CAD system to the remainder of our Wildlife Conservation Officer (WCO) force. As our officers, dispatchers and administrators gain experience with the CAD system processes, procedures will be refined to enhance the efficiency of the system.

Due to the rising costs of our mainframe computer we have begun a project to migrate our computer applications to a server-based platform. While we are rewriting the programs on our mainframe we will modify the programs to better meet the needs of our employees and to better serve our constituents.

In an effort to improve our harvest reporting rate we implemented an Interactive Voice Recognition (IVR) system to collect harvest reports. Now, hunters and trappers can report their harvests through the Internet, by phone, or by using the paper report cards in the hunting and trapping digest. We encourage sportsmen to use the On-line or IVR systems for harvest reporting. These methods give us the best quality data and they are cheaper than processing the mail-in postcards.

Because we now have so much research data that cannot be reproduced we have designed our Northwest Regional Office to serve as a Disaster Recovery (DR) site for many of our electronic files. The Northwest office is located far enough away from Harrisburg that it should not be affected by a localized disaster. Like an insurance policy we hope we never need to use the Northwest office as a DR facility but we must be as prepared as possible to react to a disaster situation.

The Forestry Division has continued to increase efficiency by developing and implementing automated data collection software for tallying of timber and for use in "Silvah" data collection for forest stand analysis.

GIS technology is essential to improve efficiency and maximize habitat programs. Currently, 621,955 acres of State Game Land's information is updated in GIS format. The Habitat Division also created several IT tools to modernize field data collection and provide a project tracking database.

GIS-based maps (30-40 per week) are being created by Regional GIS staff and the program Section Chief for projects including real estate acquisitions, legal cases, and wildlife management plans.

Improved PNDI electronic communication and review processes involving permit applicants, consultants and industry representatives has resulted in quicker PNDI response letters improved environmental review process. Likewise, PNDI submissions are now being accepted via email in addition to traditional mail or fax submissions.

Strategic Objective 7.7 Analyze processes to insure continued improvement of programs.

Process improvement is a constant at all levels within the agency. Major areas of improvement are being developed as part of the analysis of the migration from the mainframe to a sequel environment. Each process is being reviewed for improvement.

Each year an analysis of the Automated License Sale System is conducted to improve sales mechanics as well as look at improving customer service.

The PGC's use of fire for habitat improvement is constantly being reviewed to insure success and improved process while reducing resource requirements.

Every three years the regions and bureaus budgets are reviewed as a zero based budget where all programs are analyzed and appropriate budget adjustments are made.

The Hunter Trapper Education Program is being reviewed in order to shorten the time for the classes without compromising the International Hunter Education Standards.

Title 34: Section 328

Accountability

- (C) **Financial Accountability:** The Commission shall improve the financial accountability of its various functions through performance measurement in accordance with its strategic plan.

Financial Accountability

For fiscal year 2011-12, once again, the PA Game Commission continued the implementation of a “zero-base” budget approach for the Bureaus, Regional Offices and Executive Office. Zero-base budgeting requires all expenses to be justified in accomplishing the goal and mission of the agency. This method is instrumental in controlling spending and expenses because the budget is built from zero rather than building the budget on top of what was spent during the previous fiscal year. The Game Fund balance as of June 30, 2012, was \$51,180,554 which is an increase of \$5,345,301 from June 30, 2011.

The total spending plan increased by \$13,208,674, while the projected revenue for the same period also increased by \$10,948,352 from the previous year. The increase in revenues was a result of numerous increases, however the most significant would be ground rentals and royalties from oil and gas leases, which increased approximately 77%. A significant decrease in revenues was due to the restructuring of the investment pools by the Treasury Department. We recognized a \$5.3M decrease from the previous year.

The increase in spending over the previous fiscal year was primarily due to the following reasons; salary and benefit increase of \$2.7M, on and off road equipment maintenance of \$1.7M, law enforcement vehicle replacement of \$1.5M, replacement of equipment and machinery in the amount of \$2.7M, increase in payments to other state agencies in the amount of \$1.5M and the new CAD initiative which will automate our dispatch and record management system costing \$1.2M. During fiscal year 2011-12, a total of \$1,551,756 was paid in transaction fees and harvest reporting fees to the vendor for the functionality of the PALS system. It should be noted there was a \$325,000 penalty assessed, reducing the amount owed to the vendor.

Continuing into the current fiscal year, 2012-13, once again, the Game Commission has been notified by the U.S. Department of Fish and Wildlife Services that additional federal monies from excise tax could become available as a result of increased sales of hunting equipment and ammunition. In order to draw down these additional federal dollars, it is necessary for the Game Fund to incur the initial expense and then request reimbursement. As such, it is necessary to request a higher spending authority from the Game Fund.

In a similar situation, we are still awaiting reimbursement of 75% from PEMA/FEMA for the damages that occurred as a result of Hurricane Irene and Tropical Storm Lee. Although Pennsylvania was declared a federal disaster and will be eligible for federal funding, the agency is incurring expenses from existing spending authorization and awaiting the funding to be transferred. Again, it is necessary to request an increase in our spending authority to cover these up-front expenses. Although we have received some reimbursement, a significant amount is still waiting to be processed. It is projected that the Game Commission has incurred damages up to \$5 million.

In the face of fiscal challenging times, the agency is committed to finding solutions to ensure the agency's mission is accomplished. Cost-saving measures continue to be reviewed and implemented where possible throughout our headquarters and region offices. In addition to the cost saving measures already in place, the Game Commission has continued the procedures for approval of overtime and compensatory time. Prior approval will be required at the Bureau Director level, as well as monthly reporting to the Executive Office. The executive committee continues to review all personnel actions prior to approval, to ensure availability of funds. All vacant positions are being analyzed in detail and approval to fill those vacancies is being granted only for mission-critical positions.

The monthly financial reports continue to be prepared and distributed to Executive staff, Region and Bureau Directors and the Board of Game Commissioners' Executive Committee. The monthly reports reflect: revenues collected to date as compared to the estimated revenues projections; a monthly financial status report for the Executive Office, each Bureau and Region Office; and a Personnel Projection report that provides expenditure information to date and the projection through the end of the fiscal year. Quarterly, the Budget Analyst meets with each Bureau and Region Office to review the fiscal details of programs and make necessary budgetary adjustments. These monthly reports have proven to be a more effective way to monitor program activity and ensure fiscal accountability.

ESCROW ACCOUNT

The Pennsylvania Game Commission requires mitigation for surface uses related to natural resource recovery. This typically takes the form of more land being transferred to the Game Commission. In addition, the agency often agrees to complicated real estate exchanges with entities. In both of these cases, there typically are many steps in terms of permitting, subdivision, title work on the property to be acquired by the Game Commission for mitigation, and other similar issues involved in land development and acquisition. The agency requires some form of security for this mitigation or exchange. Often this security is in the form of escrow accounts, a common real estate settlement tool. Persons wishing to exchange with the Game Commission will put aside money in an account which can be drawn upon under certain circumstances. Often, the Board of Game Commissioners needs to approve the purchase of a certain property through a public meeting or title work. Sometimes federal approval of an exchange is necessary. In all cases, the escrow accounts are held by a third party, chosen by the person contracting with the Game Commission, to guarantee the transfer of land to the Game Commission. Once all necessary steps for the transfer have taken place, the escrow agent will release funds to consummate the intended transfer.

Although there are restrictions, the Game Commission may look at properties for acquisition anywhere in the Commonwealth, as long as it meets certain criteria. If the Game Commission finds suitable land meeting the criteria, the agency must first receive approval from the U.S. Fish and Wildlife Services before moving forward.

The land must be suitable for wildlife management and hunting access, as was the case on the original lands. The land currently may be in a forested, wooded or agricultural condition. The following table provides an overview of the escrow accounts.

Title 34: Section 328

Accountability

- (D) Law Enforcement Accountability:** The Commission shall maintain a system to respond to citizen complaints against wildlife conservation officers and deputy wildlife conservation officers. The Commission shall release information relating to the number and nature of complaints received on at least an annual basis. The Commission may release further information related to the nature of complaints, provided that the release of such information is not prohibited or restricted by any contract, regulation, order of court or statute to the contrary.

Complaint Tracking System & Internal Affairs:

Title 34 requires a system that will track citizen complaints against Wildlife Conservation Officers and Deputy Wildlife Conservation Officers. However, in the interest of providing the best service possible, the Game Commission established an Internal Affairs policy to respond to citizen complaints against any Game Commission employee or volunteer.

Due to the timing of this report it is not uncommon for a few complaints to be filed late in the calendar year. In such cases the investigation and final determination are not yet known when this report is written. For this reason the report will list both the completed year-end numbers from the previous year as well as the numbers generated preliminarily in the reporting year.

The Professional Responsibility Coordinator responded to nine formal complaints during fiscal year 2011-12. A “formal complaint” infers an allegation made via a formal *Complaint Verification Form* of misconduct or unprofessional behavior by an employee or volunteer. All formal complaints are fully investigated.

The complaints were of unprofessional conduct or not following proper procedures. None of these complaints alleged the improper use of force.

Seven of the cases have been concluded and two still are under investigation. Of the seven cases that were concluded, four were exonerated; two were not sustained and one was sustained.

Within the Commission’s complaint system, “exonerated” means that the incident occurred, but the employee’s actions were justified and consistent with policies and directives; “not sustained” means that the allegation is not supported by a preponderance of evidence; and “sustained” means that the allegation is supported by a preponderance of evidence.

GROWING GREENER II
DECEMBER 31, 2012

Report of Pennsylvania Game Commission Activities
Related to Growing Greener II Funding

In July 2005, the Pennsylvania Game Commission joined the rest of the Commonwealth in hailing the enactment of Growing Greener II, a voter-approved plan that invests \$625 million in environmental programs. Included in this legislation is an allotment of \$20 million for state facilities and lands managed by the Commission. The Commissioners have subsequently approved the use of Growing Greener II funds for proceeding with critical infrastructure upgrades at Commonwealth-owned lands including buildings, roads and dams managed by the Game Commission. These projects are just part of needed renovations, repairs and upgrades at state-owned facilities managed by the Commission.

These projects have been completed, are under construction or are being designed. The time frame for the projects is from July 1, 2011 to June 30, 2012. These projects total \$3,431,152.05 in funds used for upgrades to building facilities and other improvements to infrastructure.

Northwest Region

Northwest Regional Office: The Northwest Regional Office was constructed back in the 1950s. The existing building was too small to service the public and adequately house the regional work staff. The existing building also had structural and facility deficiencies including a leaky roof, substandard doors and windows, poor insulation and inadequate wiring and data systems. The new building nearing completion will be an energy efficient structure that can house all the regional personnel and has room for staff expansion. The existing building was demolished before the new building construction. The regional office staff was moved to temporary rental office space.

The Game Commission signed a funding agreement with DGS allocating \$2,513,982.05 million for the project. Construction of the new building began in May 2011 and was completed in March 2012. The PGC Northwest regional staff moved into the new building in early April 2012.

Pymatuning Wildlife Education Center (SGL 214): The existing visitor center at Pymatuning is an outdated building which cannot adequately host the public at this location. The building has substandard HVAC and electrical systems and has no room for hunting administration, staff offices and other public programs. The existing building does not have ADA compliant restrooms and the roof, windows and doors are substandard according to current building codes. A new building will be constructed at the site that is based on the design of the Middle Creek Visitor Center. The old building will be demolished after the new building is completed.

The Game Commission signed a funding agreement with DGS allocating \$700,000 in Growing Greener funds for the project. The PGC allocated an additional \$1,250,000 for the project and has executed a Letter of Commitment for these additional funds to DGS. DGS has hired Lami Grubb Architects of Pittsburgh to design the building. The design has started and the new building construction is expected to begin in Summer 2014.

Northcentral Region

Howard Nursery Residence: The existing residence for the superintendent of Howard Nursery was constructed in the early 1900s. The existing house has problems with wiring, plumbing and has no insulation. The basement walls of the existing house are deteriorated and the basement frequently floods causing additional problems with the electrical and plumbing systems.

The PGC opened bids for a new 1,500 square foot ranch house on October 31, 2012. The new house will have three bedrooms and two full bathrooms and will be a modular construction. The foundation of the house was completed on December 21, 2012. The new modular house is scheduled to be set on the foundation on January 14, 2013. The nursery superintendent is expected to move into the new house before the end of January 2013. The total cost of the project is \$162,070.

Southeast Region

Clarks Creek Road (SGL 211): A second section of the access road has to be constructed from the new bridge over Clarks Creek to reach the boundary of State Game Land 211. This section of the road is approximately 1,700-feet in length. Once the access road is completed, vehicles can reach game lands in Clarks Creek valley from PA Route 325.

Plans and specifications have been prepared by the Game Commission. The PGC is still waiting for a permit from DEP for this project. The project is expected to be constructed in Autumn of 2013. The cost estimate for this project is \$55,100.