Building Confidence Through Science

The discussion could have occurred anywhere: the local restaurant, hunting camp, or as a rant on Facebook.

“I hunted the first three days of spring turkey without hearing a gobble,” said Bob to his hunting friends. Hands folded across his chest, it was obvious that Bob was annoyed.

“First thing the Game Commission needs to do is get rid of the second spring turkey tag. Then, they need to get rid of the fishers that are wiping out the turkey population!”

These types of personal explanations, often referred to as anecdotal evidence, occur every day. After all, every hunter has an opinion.

Although anecdotal evidence is of some value, it is important to use the scientific method to manage wildlife populations. For the scientific method to work, we must have reliable methods and data to measure populations.

No doubt, a hunter’s anecdotal evidence covers the entire spectrum of opinions. For example, ask 10 hunters what they think of turkey hunting in the area, you are likely to get 10 different responses. And don’t even start a conversation about deer! How do you manage wildlife with such a diversity of responses? You can’t.

The Game Commission employs professionally trained wildlife biologists to design research that can help answer these questions: What is the survival rate of wild turkeys? What are the causes of mortality? How many gobblers can be harvested annually and still maintain an appropriate population?

Many times, research demonstrates that what we thought was impacting a population, such as fishers preying on wild turkeys, is simply not the case. In other words, what we think is happening may not be the case at all.

Not only do our wildlife biologists conduct their own experiments to gain better insight on wildlife, but they also stay on top of research being conducted nationally. Although there is a benefit of replicating research done elsewhere, resources are limited. Our scientists prioritize research needs in order to maximize the benefits of research.

Pennsylvanians recognized long ago the need for trained wildlife biologists to study and provide recommendations for managing the state’s wildlife. But sometimes, the harsh realities recommended by our biologists are not always popular with hunters.

But in the hands of these wildlife professionals, science builds confidence. The information gained through hypothesis testing, data analysis, and observations, referred to as empirical evidence, provides the confidence that wildlife are being managed responsibly. A great example is the recent work Wildlife Biologist Lisa Williams completed on the impact of West Nile virus on grouse. She was able to get hunter support for her recommendation to close the late grouse season because the science built confidence in the recommendation.

(continued on page 4)

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Wildlife Protection
Game Protector Robert E. Zimmerman was formally added to the Pennsylvania Game Commission’s Fallen Officers Memorial and Fallen Officer’s Flag on May 11, 2018 at the Harrisburg Headquarters. Zimmerman died while on duty in an automobile accident on May 13, 1957. Current Northeast Information and Education Supervisor Bill Williams, Retired State Game Warden Bill Bower, and RLSC Cadet Cody Jones participated in the ceremony along with Ceremonial Unit Members Mike Reeder and Scott Frederick. Additionally, Zimmerman’s name was enshrined on the National Law Enforcement Officers Memorial in Washington D.C. on May 13, 2018 during National Police Week. Family members attended both events along with agency staff. Game Protector Zimmerman was the tenth Pennsylvania Game Commission officer that received this honor. Zimmerman began his career with the Pennsylvania Game Commission as a member of the eighth training class that graduated from the Ross Leffler School of Conservation in Brockway, Jefferson County, on March 16, 1957.

Wildlife Habitat Management
The Pennsylvania Game Commission is using funds from the United States Fish and Wildlife Service Pittman-Robertson program to replace, repair, and renovate existing infrastructure on state game lands. With an expected downturn in the availability of federal funds, a plan was put in place several years ago to improve as much infrastructure as possible while this unique funding source was able to support it. This program has a 75 percent federal to 25 percent state cost share on these projects. The Game Commission Engineering Division has bid out projects on 19 state game lands and currently has several projects under construction. These infrastructure projects include buildings, roads, bridges, dams, and shooting ranges. These projects will benefit the public, the environment, and habitat management programs.

Information & Education
Bob D’Angelo, who manages the agency’s Big Game Scoring Program, had the busiest year in the past 12 years measuring Pennsylvania deer racks.

“In all my years of scoring, I scored more bucks taken during the 2017 season than any other year. Other Game Commission scorers were busy as well,” he said. “In my first 11 years of officially scoring whitetail antlers, I scored seven Pennsylvania bucks that qualified for the Boone & Crockett Club’s records, which takes one impressive buck to qualify. In 2017 alone, I scored five that made that club’s records.”

So far this year, and score sheets are still coming in, 150 new entries to the whitetail categories have been added to the state’s records.

The two largest bucks added to the 2018 Record Book, which will be published in October, are a nontypical in the firearms category taken in Westmoreland County that scored 224-3/8, and a nontypical in the archery category harvested in Perry County that scored 204-7/8.

Fallen Game Protector Robert Zimmerman’s name on the National Law Enforcement Officers Memorial.

Bill Andrews’ Perry County buck will take the third place spot in the nontypical archery category in the Pennsylvania Big Game Records book.
Wildlife Management

Black Bear Monitoring

As part of the annual monitoring of black bear populations, Game Commission staff visited the winter dens of 50 adult female bears to assess reproduction. Data was collected on the number of cubs, the length of time between litters, the age when sows first produce cubs, and the number of cubs surviving from the previous year. All cubs that were examined and given identifying ear tags and a general physical. Den visits also provide an opportunity to refit or replace radio-collars and inspect the overwinter health of hibernating bears.

In 2018, Game Commission staff visited 50 dens and inspected 104 bears, including 35 adults or yearlings and 69 cubs. An additional 40 adults or yearlings were seen at dens but not handled, confirming survival. The average litter size was 2.9 cubs, and the sex ratio of cubs was 42 percent female to 58 percent male. Survival of cubs marked the previous year was approximately 80 percent, which is typical, and the overall health of bears examined was good.

Automated Technology

Wireless Installed at Middle Creek Visitors Center

Bureau of Automated Technology staff installed a cellular antenna on the roof at the Middle Creek Wildlife Management Area Visitors Center to enhance the Verizon reception. Wireless access points and other network equipment were installed to provide wireless connectivity using that cellular connection at the Visitors Center. The wireless service is available for use by the public.

Joint Mapping Resource

The Game Commission and Department of Conservation and Natural Resources are working together to create an authoritative mapping resource for hunting information. Information from both agencies’ GIS webservice will feed into a web map giving the hunter a consistent user experience while viewing state game lands and state forest land data. Additional layers, features, and tools will continue to be added to this site: www.hunting.pa.gov. The joint site is expected to go live in June. Game Commission employees Mark Niessner and Tom Makibbin took the lead on this project. More information about the new site will be in the 2018-19 Hunting and Trapping Digest.

Outstanding Wildlife Work

A recent article in the Science Advances journal evaluated the scientific basis of hunt management plans for 27 groups of game species across 62 North American jurisdictions (U.S. states and Canadian provinces). The authors reviewed a total of 667 management plans for the presence of four “hallmarks of science” (measurable objectives, evidence, transparency, and independent review) using 11 specific criteria. The results reveal some encouraging statistics for the Game Commission’s species management plans. For example: The overall average score for the 14 Pennsylvania plans evaluated (7.21) placed second to Washington state (7.75). Pennsylvania’s white-tailed deer management plan score of 10 tied for the top overall score with plans from Wisconsin (deer), Washington (mountain goats and bighorn sheep), and Montana (bighorn sheep). In addition to the deer plan, Pennsylvania’s black bear, beaver, fisher, wild turkey, and ruffed grouse plans all ranked within the top 10 percent of all plans evaluated. These achievements highlight the quality scientific research used to manage the state’s wildlife.
Updates from the REGIONS

Northwest Region
In 2017, for the first time in nearly 60 years, two pairs of piping plovers nested in Pennsylvania. Initial observations in 2018 show that the first nesting pair has returned to the Gull Point Natural Area of Presque Isle State Park. Based on the birds’ behavior, Game Commission Biologist Cathy Haffner believes there are 3 to 4 eggs in the nest. A temporary fence will soon be constructed around the nest using 2-inch by 4-inch square fence. This will allow the plovers access to the nest while keeping out most predators. Hopefully, the second pair will also return.

Southwest Region
State game wardens from the southwest region recently hosted 35 students from West Virginia University for a day of bear research and management training. The Game Commission staff provided the freshman and sophomore wildlife science majors from Professor John Edwards’ summer wildlife camp a hands-on opportunity to learn how to sedate, tag, and handle live black bears caught by local state game wardens. This educational partnership has been provided annually in the southwest region for West Virginia University students for more than 20 years.

Northcentral Region
In April, eight members of the Loyalsock Men’s Club worked with the Game Commission to plant 40 apple trees on State Game Lands 134 to improve local habitat. The specific area that was selected had been part of the Game Commission’s Northcentral Game Farm, which is now closed. Northcentral Region employees are in the process of removing the fences that once held pheasants and turning the area into wildlife habitat such as this orchard. The area is no longer designated as a propagation area and is now open to the public.

Building Confidence Through Science, continued...
The intensity of science needed to responsibly manage wildlife increases as hunting pressure increases, especially for popular game animals like deer, bear, elk, and wild turkey. As such, the Game Commission hires species-specific wildlife biologists to monitor and research these populations. This is especially crucial in Pennsylvania, as we have some of the highest hunter densities in the nation.

The role of science also plays out in how we manage our 1.5 million acres of game lands. Foresters, land managers, habitat management crews, and wildlife biologists design and implement practices that have been vetted in scientific literature, in addition to the agency’s own research. Using the latest science has dramatically transformed how we prioritize habitat management activities. These priorities are reflected in the comprehensive management plans written for all of our game lands.

Similar to wildlife biologists, the Game Commission employs professionally trained foresters who keep up with current practices to sustain healthy forest habitat. As a result, our habitat management priorities have focused on managing forests at a much larger scale, and the importance of mixing forest ages across large areas. Current research on wildlife from songbirds to deer has clearly documented the need for this large-scale approach.

We’ve also moved away from intensive agriculture on game lands and continue to transition to more minimal maintenance and old field management approaches. Planting agricultural crops simply does not provide as much benefit to wildlife as managing native vegetation. After all, if modern agriculture was good for wildlife, Lancaster County would still be overrun with pheasants and quail!

The use of prescribed fire represents a true revolution in how we manage habitat. The benefits of fire are based on decades of research. For example, 40 years of U.S. Forest Service research demonstrates the need for fire in maintaining oak forests. In addition, countless other researchers have demonstrated the necessity of reintroducing fire back into the landscape to benefit wildlife. The result is much better wildlife habitat at a reduced cost, especially when compared to other traditional habitat practices.

Science builds confidence. But only if we tell the story. Our challenge is to expand efforts to communicate the science. Often, the methods used to measure wildlife populations and manage habitat can seem abstract. However, with clear and consistent communication we can use science to increase the public’s confidence in our work. - Bryan Burhans, Executive Director
**Southcentral Region**

Information regarding an adult illegally shooting a gobbler during the youth spring turkey season was called into the Operation Game Thief (OGT) tip line. Details were sparse, but several days later State Game Warden Jeremy Coughenour investigated the general location of the suspected violation. The kill site was located and a subsequent interview of the property owner revealed that he shot the bird, his daughter did not have a mentored youth permit and he only took the beard, feet and fan. In addition to these violations, his property was baited with salt blocks around permanent tree stands and he recanted a statement about killing a buck there last season. The area is located in Disease Management Area 2, Bedford County where it is unlawful any time to feed or entice wildlife by artificial means. This proves that the slightest information is sometimes all Pennsylvania state game wardens need to uncover and prosecute crimes against wildlife. In this particular case, the end result of a thorough investigation uncovered more than just an illegal turkey.

**Northeast Region**

Northeast Region Waterfowl Biologist Molly Giles is hopeful that aquatic plants plucked from the muck on State Game Lands 313 in Tioga County will soon take root and provide food and cover for waterfowl and other wetland species on Splashdam Pond on State Game Lands 13 in Sullivan County. Nearly 500 giant bur-reed plants were recently transplanted to an impoundment in Colley Township by region habitat management crews with guidance from Luzerne County Conservation District Watershed Specialist John Levitsky.

Splashdam Pond attracts a variety of waterfowl, however, it is mostly an open water marsh with sedges around its border and little over-water cover needed to attract and hold ducks and geese. Giant bur-reed is a persistent emergent plant with parts that remain above the waterline through winter and into the next growing season. The plant produces golf ball size clusters of seeds that are eaten by many species of ducks and the tubers are eaten by muskrat and Canada geese. Geese, mallards, and black ducks favor old muskrat mounds as nesting locations because they are ideally situated away from land predators.

“The ultimate goal is to create a “hemi-marsh” consisting of a 1:1 ratio of open water to food and cover vegetation,” said Giles. “These plants will provide wetland wildlife food in the form of seeds and tubers while serving as habitat for macroinvertebrates, an important food source for nesting hens and waterfowl broods.”

**Southeast Region**

In an effort to promote the Game Commission’s hunter recruitment, retention, and reactivation efforts (R3), Southeast Region Game Commission employees collaborated with Channel 11 News Reporter Holly Harrar to film a five-week news series called “Women in the Woods.” The news segment followed Harrar’s journey through taking the online hunter-trapper education course, obtaining a hunting license, practicing at the range, pre-hunt scouting, hunting for spring gobblers, and finally learning to prepare the results of a successful hunt with Shawn Bailey, host of the foodchannel.com show, "Game On! Prep to Plate in 30 Minutes!"

Harrar, who may be more recognizable through her pageantry accomplishments as Miss Philadelphia 2016, had never hunted and had only fired a gun one time in her entire life. When approached with the concept of filming the process of becoming a licensed hunter, Harrar eagerly accepted the challenge. Hopefully, Harrar’s journey will inspire more women to try hunting and in turn help curtail the decline of licensed hunters in Pennsylvania.

To view the Women in the Woods segments, visit Harrar’s YouTube channel.
Just the Facts . . .

Does the spring gobbler season start too late?

According to data from satellite transmitters on 254 hen wild turkeys throughout Pennsylvania (2010-2014), the median incubation date of first turkey nests is May 2, which coincides well with our long-time method of setting the gobbler season opening date as the Saturday closest to May 1.

Coordinating the opening of the season to occur after half of the hens have already started incubating eggs results in a decrease in illegal and accidental hen mortality, as well as nest abandonment of the hens that are in the process of laying their clutch. Hens in the egg-laying stage are more susceptible to nest abandonment than hens that have begun incubating (incubation begins after a full clutch is laid).

Spring hunting during the pre-nesting period can lead to unsustainable levels of female kill and has the potential to negatively affect population dynamics, future harvests, and hunter satisfaction.

Eight states (including Pennsylvania) open the spring season only 1-14 days prior to mean incubation initiation (during egg-laying). The other states are: Massachusetts, Maine, New Hampshire, New York, Vermont, Wisconsin and West Virginia.

Maintaining the current regular spring season opening date in Pennsylvania to coincide with the peak of turkey nest incubation is biologically important. This will minimize the probability of accidental and illegal hen mortality, as well as nest abandonment of turkey hens that, any earlier, would be in the process of laying their clutch.

Unfortunately for the hunter, this timing often occurs after the first gobbling peak. Fortunately for the hunter there typically is a second gobbling peak, albeit smaller, about midway through the hunting season. Timing of the start of the spring gobbler season involves a trade-off between detriment to wild turkey reproduction and optimization of hunter satisfaction. Due to Pennsylvania’s strong turkey hunting tradition, with the most spring turkey hunters in the nation at 225,000 hunters compared to the two closest states of Missouri (149,000) and Wisconsin (141,000), the Game Commission must favor the biological aspects of the resource.