Tracking the Wild Turkey

Three states cooperate on gobbler survival study.

Scott Smith

By Mike Schiavone

Connie Adams

To catch a flock of turkeys, biologists deploy a large net that contains the birds until biologists can carefully remove them.

On a cold, snowy, February morning, a small group of biologists and technicians waits patiently in hidden blinds and a nearby parked truck for a large flock of turkeys to make its way down the hillside to a small pile of cracked corn. As the turkeys come within a stone's throw of the bait, they accelerate to a quick trot, each wanting to beat their comrades to the easy meal.

The field team watches closely. Someone's finger is poised on the button that will ignite the explosive charge to fire rockets that will carry a large net over the flock. The birds must be in position with their heads down so that the controlled chaos that is about to ensue will result in the most birds caught without being injured.

Wait. Wait. Now!

With a bang, the net deploys and turkeys hop around under the webbing like popping corn. DEC staff, college interns and volunteers quickly descend on the scene to carefully extract birds from the net one at a time and place them safely in specially designed boxes.

One by one, every male bird has both legs outfitted with a metal band labeled with a toll-free number a hunter can call to report his or her harvest. After the turkeys are banded, they are released at the location where they were captured, and the tracking begins…

With turkey populations expanding in the northeastern United States, biologists responsible for managing these great game birds realized some of their data was getting stale. They longed for better information on turkey survival and harvest rates, and better estimates of wild turkey numbers.

So, in 2006, DEC joined the National Wild Turkey Federation (NWTF), Pennsylvania Game Commission, Ohio Department of Natural Resources, and Pennsylvania State University on a cooperative, four-year project to examine the harvest and survival of male wild turkeys (or "gobblers") during the spring hunting season. Over four winters, biologists trapped turkeys in 54 of upstate New York's 55 counties. During this time, DEC staff and biologists in Ohio and Pennsylvania banded a total of 3,266 gobblers; more than 1,500 were adults (or toms) and 1,700 were juveniles (or jakes). The data collected allowed biologists to more accurately estimate turkey harvest rates (the percent taken by hunters) and survival rates (the percent that survive from one year to the next).

Connie Adams

Biologists place captured turkeys into separate boxes and then band the birds one at a time.

During the study period, hunters (and a few other lucky folks) returned bands from 1,429 birds—nearly half of those banded.

Some hunters were no doubt surprised and delighted to find bands with the words "$100 Reward." The sizable reward—placed on about half of the banded gobblers—virtually guaranteed that those birds were reported.

When we analyzed the information from these bands, we learned that the annual spring harvest rate of gobblers in New York was about 17% for jakes (males under two-years-old), and 36% for toms (adult males). For some time, we had suspected that hunters were "passing up" jakes in favor of toms, and now we had evidence to support this theory. Similar patterns and estimates were observed for the other two states, as well.

Additionally, we learned turkey harvest rates were highest in the western part of the state, particularly in the Lake Plains and Appalachian Hills regions. To help explain this, we looked at the number of hunters, hunting effort, and landscape-scale habitat characteristics such as the amount of forest cover within an ecological zone. We did not find a link between hunting participation and effort (hunting "pressure") and the harvest rates observed, but there was a relationship—albeit a weak one—between harvest rate

Lance Clark

Volunteers, college interns and DEC staff worked to capture and band male turkeys for the four-year study. Here, DEC's Becca MacBlane holds a recently banded male turkey.

and the amount of forest cover. As the amount of forest declined, harvest rates increased. So, in areas like the Lake Plains where forest habitats are more fragmented, turkeys may be more vulnerable to harvest because hunters keyed-in on these smaller patches of habitat.

Data also provided us with a good estimate of the annual survival rate of male turkeys. These numbers varied for toms and jakes, and from one state to another. In New York, for instance, about two-thirds of jakes survived to the following year, while only about one-third of toms survived. Ohio and Pennsylvania saw similar survival rates.

Band return data also helped biologists learn how and when turkeys died. In addition to hunting in the spring and fall seasons, turkeys were killed by poaching, vehicle collisions, predation and disease. In all three states, mortality was lower for jakes than for toms. Annual survival rates for toms were only 30-40% due to high harvest rates and relatively high mortality from other sources. Other researchers found that annual natural mortality (not caused by humans) was 24% for juveniles and 30% for adults.

Rocco Saccone, Jr.

Based on results of the gobbler survey, biologists estimate there are about 61,000 toms and 64,000 jakes in New York.

When a hunter turned in a band from a turkey he or she killed during the spring season, or when someone turned in a band from a bird killed by a car or predator, we got valuable information on how far that bird moved from where it was captured and banded. We could also infer what type of terrain they had

National Wild Turkey Federation /Mossy Oak

Fall Harvest Rates

This study was designed to look specifically at spring turkey hunting. However, about 5% of reward bands recovered were from turkeys taken in the fall. The few recoveries reported suggested relatively low harvest rates during the fall hunting season, but getting a fair estimate of fall harvest rates would have required additional banding of wild turkeys immediately prior to the fall hunting season. What we could tell from the data we had, however, was that more than two-thirds of fall harvest reward band recoveries were from jakes, which suggested fall harvest rates were greater for jakes than toms.

Connie Adams

Biologists placed bands on both legs of the male turkeys.

to cross to get there. Turkeys gather in large flocks during the winter, but as the days grow longer and warmer, and breeding season kicks into gear, those flocks break into smaller groups. Our findings indicated most turkeys were recovered within four miles of their capture location, though some birds (mostly juveniles) did disperse more than 20 miles. Unlike other birds, turkeys don't move very far.

After learning about survival, mortality, reproduction, distribution and movements, it was time to address a key question: "So, how many are there?"

Bryan Swift

Following banding, toms and jakes were released at the same location where they were captured.

Bryan Swift

Learning by Doing

One of the most challenging aspects of wildlife research is finding efficient techniques that yield good information. Biologists have been capturing and banding turkeys for more than 50 years, but are still perfecting methods.

For example, when conducting a "band-recovery" study, biologists assume that the bands placed on a bird's legs stay there. Unfortunately, the "butt-end" style of band (a metal band squeezed together to form a butt joint around a turkey leg) used in many studies can open up over time and fall off as gobblers walk, fight, forage and fly. Turkeys have strong beaks, too and perhaps could pry such bands off given enough time.

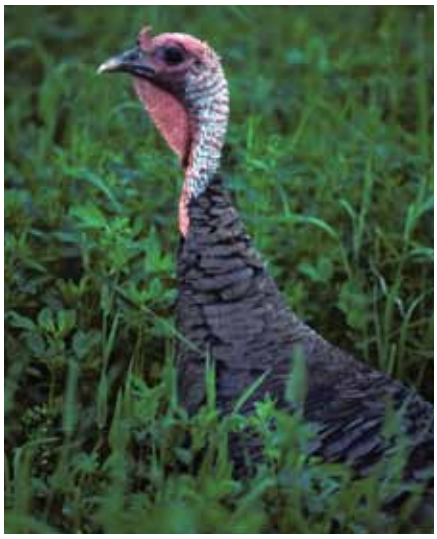
In our study, we tested the butt-end band design against a type of band that locks in place with a rivet. By putting one of each type on the same turkey, we could later determine how long they stayed on a bird. We found that after 15 months, more than half of the butt-end crimped bands had fallen off. This information will be helpful to biologists when designing future studies of wild turkeys across the U.S.

That's where the collaboration with other states came in. By combining band return data from this study with harvest data gathered by other state agencies, we built a solid estimate of the abundance of male wild turkeys. During the study, we estimated the average number of gobblers in New York to be about 125,000, of which 61,000 were toms and 64,000 were jakes. Though we banded only males, we estimated that New York's wild turkey population likely exceeds 250,000 birds because biologists have previously found there are always more females than males. Pennsylvania's gobbler population averaged about 109,000 birds (83,000 toms, 26,000 jakes), followed by Ohio at 71,000 (34,000 jakes, 37,000 toms).

A project of this scale—three states, dozens of people, thousands of turkeys—was an extraordinary opportunity for personnel from NWTF and the three cooperating states. The exceptional determination, dedication, and teamwork of all of these organizations and many volunteers and cooperating landowners helped make this project a success. The results will continue to help wildlife managers ensure that wild turkeys will be around for people to enjoy for years to come.

Biologist **Mike Schiavone** lives in Altamont and routinely sees turkeys on his daily commute to DEC's Albany headquarters.

This research was supported by a grant from the NWTF, the New York State Chapter of NWTF, hunting and trapping license sales, and Federal Aid in Wildlife Restoration, a federal tax on sporting arms, ammunition, and archery equipment.



Gustav Verderber

Both jakes and toms have red, blue and white heads with no feathering (like the bird shown here), while hens' heads are a blue-gray color, often with some light feathering on the nape of the neck and top of the head.

What Is It?

If you guessed the photo on the Table of Contents page is of a breast feather of an eastern wild turkey (*Meleagris gallopavo silvestris*), you're right. Turkey breast feathers are striking in appearance, exhibiting an iridescent quality. This iridescence is actually the result of how the feather's structure reflects light, and is not caused by pigment. Also interesting to note is that while breast feathers may look pretty simple, when overlapped in layers on a turkey's breast, they form a nearly impenetrable shield.

Here are some other interesting facts about turkeys:

- Are social, usually found in flocks.
- Are able to fly at 2-3 weeks old; adults can fly 40 to 55 mph.
- Can run up to 12 mph.
- Adult male turkeys (gobblers or toms) have 5-12 inch long beards. Gobblers have ½-1½ inch long spurs (used for fighting) on their legs.
- Though uncommon, around 15% of females (hens) have a beard and 1% have spurs.

Susan L. Shafer