GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

FAQ on Turkey Declines, Reproduction, and Harvest

What is the status of Georgia's turkey population?

State agencies and researchers across the southeast have been monitoring turkey harvest, reproduction, and other population parameters for years, and have seen alarming declining trends. Georgia is no exception. Several methods used to monitor turkey harvest and reproduction have produced data showing turkey populations are exhibiting downward trends. Specifically, reproductive indices have shown poult production is a fraction of what it was two decades ago. The poult per hen average has been on the decline since the late 1990s and is about one-third of what it was at its peak. It is currently hovering around 1.5 - 1.6 poults per hen. This is below the threshold of 2 poults per hen generally considered to be the break-even point for a sustainable turkey population. Additionally, while fluctuations do occur, harvest success has decreased in recent years.

What is causing these declines?

We do not have evidence that one single factor has caused turkey populations to decline. It is more likely a combination of multiple factors. The limiting factor on turkey reproduction is predation – a majority of nests and broods are predated each year. We do know that some predator species such as coyotes have increased in numbers, but we are still learning about the complex interactions between predators, habitat, and turkey populations. We also know that landscape-level habitat changes have occurred, particularly in the Piedmont of Georgia, where turkey declines have been the sharpest. These habitat changes, such as short timber rotations, suburban development, and hardwood removal, have generally decreased the quality of the landscape for turkeys, but allow for generalist wildlife species (including many predators) to thrive.

Another factor that we are just beginning to understand is the possible disruption of breeding due to hunting activity. Our research has shown that gobbling, an essential component of turkey breeding, is disrupted by hunting activity and the removal of toms from a landscape. Removal of toms, particularly dominant toms, may be impacting breeding activities and these disruptions could be influencing productivity in ways that are currently not understood.

Finally, we know that weather has always played an important role in turkey reproductive success, and we know that in recent years, we have seen more extreme

weather fluctuations that can stress a turkey population – wet springs are wetter, droughts are longer and drier, etc.

Together, these stressors are likely the reason many local populations have suffered. Also, the variation of these factors across the landscape causes variation in the turkey population density. Some pockets of the state have good turkey numbers, which impacts hunters' support for regulatory changes and efforts to improve turkey populations.

What is the Wildlife Resources Division doing to reverse these declines?

The Wildlife Resources Division (WRD) is actively working to conserve and improve turkey habitat throughout the state on both public and private lands through timber harvest, prescribed burning, and other habitat projects on WMAs. Each year, WRD partners with the National Wild Turkey Federation and other partners on habitat improvement projects throughout the state, as well as on acquisitions of new properties. We also engage private landowners through the Private Lands Program, where biologists assist landowners with habitat improvements for many species, including wild turkeys.

We know quality habitat is vital to sustaining turkey populations, but most turkeys and turkey habitat in Georgia are on private lands where WRD has no land management control. If we want to improve turkey reproduction, we must look at other ways to manage the population sustainably, such as setting harvest regulations based on the best available science and adjusting them if needed.

If habitat and predation are the main causes for decline, why are we considering changes to hunting regulations?

There is not one specific driver for turkey population declines. It is most likely a combination of multiple factors that have stressed populations, including the disruption of breeding season in heavily hunted populations. It is impossible to control many of these factors such as habitat and predation at a scale that will be meaningful statewide, but we can set hunting regulations that are biologically appropriate and aimed at keeping harvest at sustainable levels.

What are the pros and cons of different regulation frameworks?

Some regulation changes, such as decreasing the season bag limit, would likely lower mortality in males and retain more birds in the population. A daily bag limit could lower harvest mortality and reduce disturbance from hunters, which may improve breeding.

Other regulation frameworks may not only affect harvest mortality but could improve poult production through improved breeding success. A regulation framework that moves the season timing back, or that limits harvest to one bird per hunter in the early part of the season, would allow breeding to continue undisturbed through peak breeding and egg laying, which may improve reproduction. Peak incubation in Georgia is April 10, which means that a majority of breeding is occurring during the first two to three weeks of the season. This coincides with the majority of turkey harvest in Georgia – 55-65% of total harvest occurs prior to April 10, which likely impacts breeding success.

I see plenty of toms strutting and gobbling before the season starts. Why would we want to move the season later?

Toms engage in behaviors typically associated with breeding such as strutting, gobbling, and drumming well before actual breeding with females occurs. Male turkeys have a complex hierarchy that is established before breeding begins, so they will develop their pecking order through these behaviors and other interactions among their social group. In Georgia, these activities occur as early as January and February, and continue into March.

After the hierarchy is established, breeding with hens and the intense competition that occurs begins in March and continues while hens are laying their eggs. Hens lay one egg daily leading up to incubation and continue to breed during this period. The disruption caused by hunting activity during this critical period has potential to negatively impact breeding and subsequent nesting.

Thanks to improved GPS tracking technology, recent research projects have been able to pinpoint the start of incubation with much improved accuracy over previous techniques. In Georgia, the peak start of incubation is April 10, with little difference between North and South Georgia.

We have been hunting turkeys early in their breeding season for decades. What has changed?

If the population is healthy, then it can sustain harvest throughout the breeding season, particularly if hens are producing more than enough poults to replace themselves and the harvested males. In recent years, this has not been the case. The landscape of Georgia has changed, particularly in the Piedmont, where turkey declines have been the sharpest. Habitat has become more suitable for predators and it is easier for them to destroy turkey nests. Additionally, WRD restocked turkeys in areas across the state, leading to an “explosion” of reproduction in many areas of good habitat. These restocking efforts ceased about 20 years ago. Now most states, including Georgia, must better understand these declines before we can determine if restocking would be beneficial and successful.

Why doesn't WRD resume restocking turkeys in areas with low populations?

When southeastern states were restoring wild turkey populations, most of these states looked very different from today. Much of Georgia had excellent turkey habitat but no birds, while other parts of the state had pockets of land with high turkey numbers. WRD staff were able to move turkeys from these areas with high populations into areas of good habitat and they thrived. Habitat conditions were very different from today due to changes in forestry practices and human development. Additionally, there are still many questions about causes for turkey population declines. Currently, it is not in the best interest of the resource to relocate turkeys to new areas of the state.

What did the research on Cedar Creek and B.F. Grant Wildlife Management Areas tell us?

Researchers at the University of Georgia, with support from the Wildlife Resources Division, have been studying turkeys on these two sites since 2017. This study has provided a wealth of data regarding female nesting ecology, space use and habitat selection, brood ecology, male harvest rates and gobbling chronology, and more. Additionally, GPS transmitter technology has provided us with precise nesting timelines. In Georgia, the median date of onset of incubation (when hens are sitting on nests) is April 10. We have learned hens will mate with multiple dominant males up until the last egg is laid. So, the period leading up to April 10 is important for breeding as competition is fierce for the fittest gobblers to breed the laying hen.

One recent key update is the research publication assessing turkey gobbling chronology and what drives gobbling behavior. Researchers assessed what impacts gobbling, and found that breeding behavior in hens, as well as hunting activity, are two major drivers of gobbling. We know that hunting, whether through removal of vocal gobblers or disturbing birds in the woods, has a negative effect on gobbling activity. This effect is strong enough that removal of 4 birds per 2400 acres (approximately one bird per square mile) is enough to cause gobbling to cease on a site. This is similar to data shown through other studies in the Southeast in which gobbling activity on hunted areas was greatly reduced after hunting season started, but the same reduction did not occur on non-hunted areas over the same time period.

This project is currently slated to continue for at least 6 more years and will continue to give insight into wild turkey breeding and nesting ecology as well as the indirect impacts of hunting. It will also explore new objectives, such as parentage and relatedness among clutches and turkey social groups across the landscape.

What predators kill the most turkeys?

A wide variety of predators consume turkeys during different life stages. Important nest and poult predators include raccoons, rat snakes, and other mammals such as opossums, foxes, coyotes, and bobcats. Major predators of adult turkeys include bobcats, coyotes, and great-horned owls. For gobblers, hunters are the main cause of death on an annual basis.

Why don't we have a bounty on coyotes or other predators?

Many states have tried and ultimately abandoned bounty systems for coyotes. These states did not find any evidence that bounties improved game species populations, or even that they decreased coyote populations. Many of the coyotes submitted for bounty collection were going to be killed anyway. The money offered is seldom enough to motivate new hunting and trapping efforts on a scale that could make a difference. These programs also prove to be very expensive, costing state agencies hundreds of thousands of dollars that could be spent on more effective management techniques such as habitat improvement.

Has spreading chicken litter caused turkey declines?

In short, we do not have evidence that using chicken litter as fertilizer in pastures directly affects turkey populations. However, theoretically, chicken litter may be able to transmit a parasite that is lethal to turkeys, *Histomonas meleagridis*. This parasite causes blackhead disease, which is almost always fatal to turkeys, but does not cause significant disease in chickens.

Chickens commonly carry a cecal worm, *Heterakis gallinarum*. This worm carries the *Histomonas* parasite, which can live for long periods of time in the worm and its eggs. When chickens defecate, they shed the eggs of the cecal worm, which are picked up by turkeys, or earthworms which are then eaten by turkeys. In a laboratory setting, turkeys that were housed in chicken litter were susceptible to blackhead disease, but we do not have direct evidence that this occurs in the wild.

Chicken litter that is composted, or that comes from broilers, is not as high risk for containing *Histomonas* because the short life span of a broiler does not allow enough time for the completion of the full life cycle of the cecal worm. Chicken litter from breeders, particularly if it is not composted, is at higher risk of containing the parasite.

While we have had occasional cases of blackhead disease in the southeast, we do not have direct evidence that these cases were from the spreading of chicken litter as fertilizer. We also do not have evidence that turkey population declines are a result of blackhead disease. Typically, when a disease affects wildlife at the population level,

evidence in the form of sick or dead animals exists on the landscape. This has not been the case with turkeys and blackhead disease and researchers do not believe that this is a major factor in turkey population declines.

Q&A on Proposed Regulations

Why aren't you delaying the season start on private land to the second Saturday in April?

Many of our public lands, particularly WMAs and National Forest land, experience higher harvest pressure than private lands resulting in a greater disturbance during early breeding season. It is biologically appropriate for us to move the season opener further back on public land with the goal of improving reproductive output on our WMAs.

In 2020, privately owned forestlands experienced an average of one hunter every 563 acres, while public lands experienced an average one hunter every 121 acres. Harvest on private lands averaged one bird harvested every 1600 acres, while on public lands it averaged one bird every 914 acres.

Given these differences in hunting pressure on public and private land, we hope that, along with the additional proposed bag limit changes, a one-week season adjustment on private lands will improve poult production.

Why are you giving private land hunters more opportunity than public land hunters?

We acknowledge the loss of opportunity, particularly for public land hunters. WRD is mandated to set regulations that are biologically sound, and within that framework, we strive to maximize hunter opportunity. As noted previously, hunting pressure and harvest are higher on public lands. Given the increased pressure during breeding season, the biologically sound regulation framework is an opening date as close as possible to the April 10 peak in nest incubation.

Why are you reducing the daily bag limit to one bird?

A daily bag limit is expected to reduce the total harvest by about 850 birds (the 5-year average for 2nd or 3rd bird harvested on the same day). In addition to reducing harvest pressure on a flock, a daily bag limit will increase the proportion of gobblers retained in the population the following year.

Why are you limiting public land users to one gobbler per WMA?

A one-bird bag limit per WMA will reduce harvest on some of our most heavily pressured WMAs, as well as reduce hunter activity during the breeding season. The intent is to improve hunter success and hunter satisfaction on WMAs, and to keep populations sustainable for future hunters to enjoy.

We have to do more on public land to improve turkey production. WRD puts a huge amount of resources into habitat efforts on WRD-managed lands, but if we don't effectively manage hunting pressure and disturbance, we won't see the full benefit of other management actions. We don't have the control over private lands, so we rely on landowners and hunters to manage themselves, their habitat, and their turkey populations within the season dates and limits statewide. Reducing the limit to 1 per area is not only to help reduce overall gobbler mortality on any given area, but it also better allocates opportunity amongst public land hunters.

Why aren't you considering banning decoys?

While it seems reasonable to assume that with better, more realistic decoys, hunting is going to get easier and more toms will be harvested, we do not have any research to show that this is the case. And since we are mandated by statute to implement regulations based on sound scientific principle, we are not planning to implement such a ban at this time.