



Highlights from the North Carolina Wild Turkey Ecology Research Project 2020–2024

The primary objectives of this five-year, statewide study were to determine (in each region of the state) hen and gobbler annual survival rates, hunter harvest rates, the timing of gobbling activity, the timing of nesting activity, nesting habitat, nest success, and brood survival. To meet these objectives, the study sought to annually capture and mark at least 50 female turkeys and 30 male turkeys in each region. The ultimate goal of this study was to provide a comprehensive understanding of wild turkey ecology across North Carolina’s mountain, piedmont, and coastal ecoregions, and the results will serve as a foundation for the Commission to manage turkey hunting, populations and habitat in North Carolina. The following below are just a few of the results and management implications.

SUMMARY STATISTICS

- 708 turkeys were trapped: 468 female and 240 male.
- 328 Adult and 87 Juvenile females were tracked by GPS satellite transmitters.
- 145 Adult and 59 Juvenile males were tracked by VHF radio-transmitters.

- 414 nests were located and monitored and habitat evaluated.
- 105 broods (groups of newly hatched turkeys) were tracked.
- Automated recorders tallied 63,456 gobbles.
- The study was conducted on privately owned property, with total of more than 250 landowners and 20,000 acres.

TIMING OF NESTING

RESULT:

- Average start of egg-laying was April 11.
- Average start of incubation was April 24.
- Nest timing was consistent across years and did not vary between the mountain, piedmont, and coastal regions. Nest timing is driven by daylength rather than weather or green-up.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- This result suggests that North Carolina’s spring turkey season should not start earlier than it currently does, and shifting the season later might help improve nesting success. It also suggests that continuing a state-wide season-opening date is appropriate.

NEST SUCCESS

RESULT:

- On average 25% of nests successfully hatched and 75% failed.
- Primary cause of nest failure was predation.
- Nest success was related to habitat quality.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- Habitat management is the key to minimizing predation and supporting robust turkey populations. Successful nesting requires a high density of woody saplings and broad leaf plants. This type of vegetation makes it harder for predators to find the nest.
- Timber thinning, light disking in openings, and controlled burning are excellent tools to promote and maintain nesting cover in forests, woodlands, shrublands, and grasslands.



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BROOD AND POULT SURVIVAL

RESULT:

- On average, only 30% of wild turkey broods in the study had one or more poults reach 28 days of age after hatching.
- This low brood and poult survival was consistent across regions and years.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- The low number of poults making it successfully to 28 days of age suggests that high-quality brooding cover is lacking, making the broods vulnerable to high levels of predation.
- Brood survival can be increased by promoting plant diversity and the low-growing grasses, weeds, and shrubs that provide overhead cover for young turkeys as they travel with the hen and feed on insects.
- Active forest management combined with the management of fields, roadsides, and forest openings using rotational disking and prescribed burning creates and improves summer brooding habitat.

HUNTER HARVEST—ADULT GOBBLERS

RESULT:

- Across all regions and years, adult male wild turkey harvest was 30% or less.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- Previous studies throughout the range of wild turkeys have shown that harvest levels of 30% are sustainable.
- Results of the NC study suggest that current hunting season length and bag limits are appropriate but should not be increased.
- On average, 50% of adult gobbler mortality is caused by hunters.

HUNTER HARVEST—JAKES

RESULT:

- Approximately 5% of jakes (or 1-year-old males) are harvested.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- The low number of jakes being harvested shows that hunters are choosing to harvest mature adult males.
- Although jakes typically make up about 15% of the total harvest, the harvest rate of jakes is only 5% of the total number of jakes that are in the population.
- Regulations to protect jakes are not needed.

HEN SURVIVAL

RESULT:

- Annual survival of hens averaged 71%, with survival during incubation being substantially lower than other times of the year.
- Annual survival of hens was slightly lower in the piedmont than in the mountain or coastal regions.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- Successful nesting is critical to turkey populations, both for hatching new poults and also for survival of hens. Hens are very vulnerable to predation while incubating their nests on the ground, particularly at night when they would normally roost in a tree.
- Quality habitat is critical!
- Forest management and other habitat management activities that promote a diversity of forest ages, forest types, and beneficial vegetation ensure the availability of good nesting cover over time.

GOBBLING ACTIVITY

RESULT:

- Gobbling activity was similar across all regions, but gobbling activity did vary from day to day and from year to year.
- Gobbling activity was not consistently related to nest timing.
- Gobbling activity continued through the hunting season.

WHAT DOES THIS MEAN FOR MANAGEMENT:

- Hunter satisfaction is tied to gobbling activity, and so satisfaction can be expected to vary from one year to the next.
- Gobbling activity is only one of several pieces of information necessary to determine when hunting seasons should occur.



To learn more about wild turkeys, visit
[NCWILDLIFE.ORG/SPECIES/WILD-TURKEY](https://ncwildlife.org/species/wild-turkey)



NC STATE UNIVERSITY



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