

Summary Declines in the production of wild turkey poults (chicks) have occurred since the late 1980s, leading to population declines across the eastern USA. In 2021, the Iowa DNR began a 10-year study to understand wild turkey ecology in southeastern Iowa. This region is a mosaic of agriculture, forest, and grasslands. While these combine to make seemingly quality wild turkey habitat, populations in the region remain low. With the last rigorous wild turkey research in Iowa occurring over 25 years ago, this study aims to understand how modern factors influence population change, particularly hen (female) survival and nesting success in Iowa.

Methods Hens (adults >1 year old and juveniles <1 year old) are captured each winter from December to March in four parts of southeastern Iowa. Each hen is marked with a global positioning system (GPS) transmitter, which allows researchers to collect their locations up to every 15 minutes. Hens are tracked daily during the nesting season to determine when they start nesting and to monitor their survival. Upon nest completion, the outcome of each nest is determined, remaining eggs and shells are collected for study, and habitat features around the nests are measured.

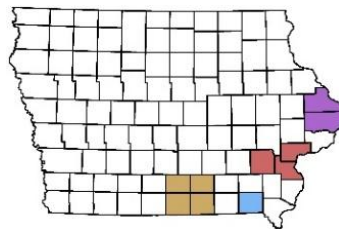
Objectives The purpose of this study is to monitor adult, juvenile, and poult wild turkeys to better understand population processes, including survival, mortality, nesting, and hatching, disease exposure and prevalence rates, seasonal and annual movements, size and distribution of home ranges, and habitat use. This information will be used to evaluate how various factors affect population growth and change, as well as to inform habitat management for wild turkeys in Iowa.

2025 Highlights

- 84% of adult hens nested; this is the highest nesting rate observed among all study years
- 26% of hens hatched a nest, which was slightly above normal (24%) for this study
- 67% of hens survived the year, which was well above the average of 58% annual survival
- Several nests had high counts of unhatched eggs (6–12 eggs), with one nest hatching only 1 of 10 eggs
- One hen incubated a nest for 73 days, far past the typical 28 days; the eggs were infertile or died during development
- Hen 015 was recaptured over 6 miles away from where she was originally caught as a juvenile in 2021 (pictured below)

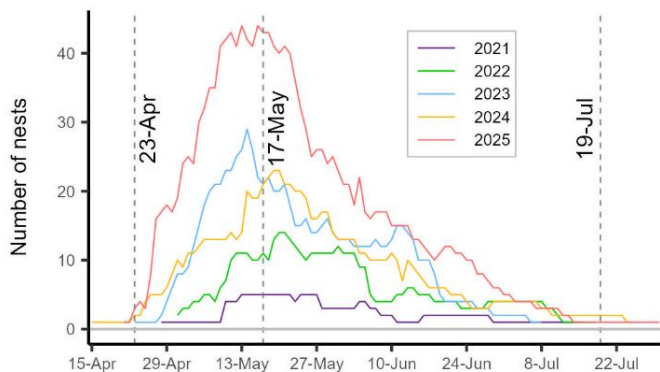
Turkey Capture Summary

- 214 adult and 60 juvenile hens captured since 2021
- 180 adult and 45 juveniles tracked with GPS transmitters



Timing of the Nesting Season

- The average start, peak, and end dates of the nesting season were April 23, May 17, and July 19, respectively
- Average nest incubation was 28 days for hatched nests



Nesting Habitat

- 65% of nests were in grass, 34% in forest, 2% in row crops
- 35% of nests were in Conservation Reserve Program (CRP), prairie, or fallow fields, whereas 5% were in pasture or hay
- 9% of nests were in road ditches, 5% in grass waterways

Nest Success

- 262 total nests confirmed from 154 different hens
- 62 nests successfully hatched at least 1 poult
- 17%–33% of nests hatched each year
- 26% of adults that lost their first nest re-nested on average
- 73% of nests were first attempts, 24% second, and 3% third

Hen Success

- On average, 24% of adults and 16% of juveniles successfully hatched a nest in a given year
- 79% of adults incubated at least 1 nest in a given year
- 21% of adults did not incubate a nest; it is unknown if they started a nest but lost it during egg laying

Nest Fate

- Predation accounted for ≥65% of nest loss, which is consistent with past studies in Iowa and the Midwest
- Nest abandonment accounted for 3% of nest loss
- Hay mowing and livestock accounted for 2% of nest loss

Clutch Size, Sex Ratio, and Egg Fertilization (adult nests)

- Clutch size for first nests was 10.7 eggs (range 4–19 eggs)
- Clutch size for second nests was 8.5 eggs (range 4–11 eggs)
- Genetic analysis indicated that sex ratios of eggs are about evenly males and females, but ratios vary highly among nests
- Only 82% and 69% of eggs hatched in successful first and second nests, respectively
- Of 306 usable unhatched eggs inspected, all were fertilized

Annual Hen Survival

- Survival averaged 58% for adults and 83% for juveniles
- 71% of mortality occurred between April and August
- Suspected Predation (61%) and disease (13%) were the leading causes of mortality

Poult and Brood Survival

- In 2021 and 2022, 58 eggs (79%) hatched from 8 nests; about 38% of the poults survived to about 3 days old
- In 2023 and 2024, about 10% of broods (with at least 1 poult) survived to 4 weeks

What This Means for Turkeys in Iowa

- Turkey numbers likely fluctuate because of highly variable and low nest success and hen survival each year.
- The 2025 spring harvest was the second highest on record (following 2024). Statewide harvest opportunities are still good, but may vary by location across the state.
- Forest management, like timber harvest and prescribed fire, creates diverse forest ages and promotes growth of native understory plants beneficial for turkeys. Areas with regular forest management tend to support nesting and brood rearing among study hens by creating dense ground cover.
- Predation rates on hens and nests are similar to the 1990s when turkey populations were high. Despite poor fur markets and low furbearer harvest, predation rates seem unchanged.
- Using genetic analyses, 6 mammalian carnivores plus deer, woodchuck, and cattle have been detected at predated nests. Nest loss was not attributed to any single mammal.
- 65% of all nests were in some type of grass cover. Since 1990, 2,600 square miles of grasslands (hay, pasture, CRP) were lost in Iowa – equivalent to a strip of grass 9 miles wide from Davenport to Omaha.
- Nearly 10% of nests were laid in road ditches, where only 8% hatched — meaning about 1 in 10 nests are unlikely to succeed based solely on nest-site selection.
- 1 in 3 birds tested positive for LPDV. LPDV is a poultry virus recently found in North America in 2009. It can cause sickness and death in turkeys (but no known human effects).

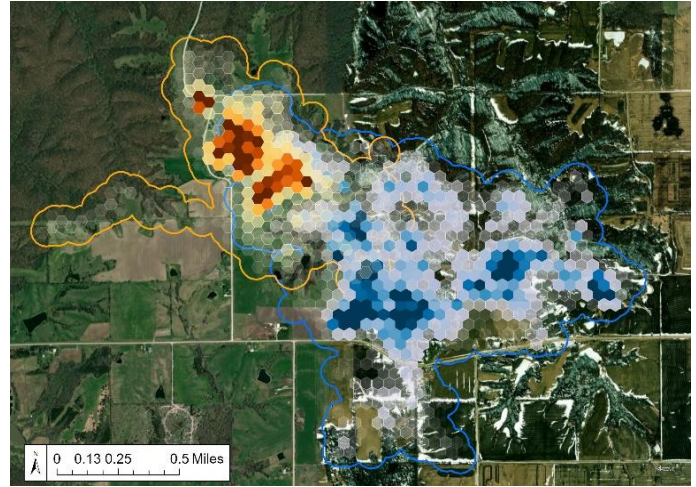
Transmitter

Female wild turkeys are fit with backpack GPS transmitters. Transmitters collect hen locations up to every 15 minutes and transmit data to researchers via cell towers.



Home Range

This adult hen has a range of 1,140 acres (>1.75 square miles) and uses distinct areas in summer (orange) and winter (blue). Darker colors indicate areas of higher use.



Hatched Nest

Nest successfully hatched on June 5, 2025. Unhatched eggs (upper right) are opened to determine fertilization. Genetics are pulled from each egg to determine the sex ratio of clutches.



Hen Exploration

Starting on April 26th, this adult hen traveled 29 miles over 8 days before returning to within 1 mile of where she started in her normal range.

