

## Finally Fall: Birds on the Wing – Migration: Part 2

There are four main [flyways](#), or migration routes, in North America that most birds follow between their summer and winter homes. Scientists know this because of bird banding programs and bird watchers that have been collecting data for over a century. In North America, [bird banding](#) started in 1902 when a scientist named Paul Bartsch put identification bands on black-crowned night-herons in the eastern US. Now, banding is coordinated through the US Bird Banding Lab and Canadian Bird Banding Office. Banders apply for permits and keep an inventory of myriad band sizes for any species in North America. At Duke Farms, we have employees who are licensed to catch, band and release birds on the property. To date, Duke Farms staff have banded more than 5,000 birds! The data collected helps to solve the mysteries about resident birds vs. the migratory birds coming through by way of the Atlantic Flyway.



*Clifford Berek directs the bird banding program at Duke Farms*



*Immature bald eagle at Duke Farms fitted with GPS transmitter to follow its movements*

But there's so much more to know. There are new [technologies](#) that are helping scientists learn more about where birds are going than they ever have before. One of these is GPS technology. In 2011 the NJDEP and Conserve Wildlife Foundation launched a program called New Jersey [EagleTrax](#) to learn about the non-breeding, sub-adult period of bald eagle life cycles and use the data collected to help protect communal roost sites. Juvenile eagles are tracked by attaching a solar charged, battery powered satellite GPS transmitter to them. The data collected includes their exact location, altitude, flight speed, date, and time of day. The transmitters let us see where the eagles go to forage and roost at night. We can also see where they go after fledging, and where they end up throughout the seasons. In 2019, Duke Farms became an active participant in the EagleTrax program when a male immature bald eagles was fitted with a GPS transmitter. It has been an eye-opening experience to follow "Duke's" movements. You can learn all about the program here and see Duke's journeys [here](#).

Another technology that is shedding light on the mysteries of migration is radio telemetry. The [Motus Wildlife Tracking System](#) is an international collaboration organized by [Bird Studies](#), Canada which uses a chain of radio towers to track the paths of migratory birds. Even small migratory songbirds can be safely fitted with miniscule solar powered radio telemetry devices called nanotags that send out radio signals every few minutes. More than 750 receiving towers along the major flyways have antennae that pick up signals from tagged birds as they pass within a few km of the towers. The towers connect to the internet and download the tag ids from the birds that pass by. Duke Farms has built a tower and is participating in Motus technology to track American kestrels.



There are other amazing resources available today to help every bird enthusiast learn more about bird migration and to follow the seasonal paths of birds around the globe. The Cornell Laboratory of Ornithology in Ithaca New York has developed tools that you will definitely want to check out including:

- [Birdcast](#) From September through November when birds are moving south, Birdcast uses weather radar to predict when pulses of heavy migration will be moving through. You can use this tool to check migration forecasts in your area and see migration in real-time.
- [Ebird Status and Trends](#) Using bird observations from hundreds of thousands of bird watchers, this tool shows maps that indicate species abundance and movements between North and South America. You can see where birds go in winter and when they return to your area. You can also become an e-birder and add your data to this massive database.
- [Merlin Explore Birds](#) This phenomenal tool helps you identify the birds you observe, and the Explore Birds feature lets you know when to expect birds to be in your area.

#### Activity: Follow Duke, the Bald Eagle

- Go to the Conserve Wildlife website for New Jersey [EagleTrax](#)
- From the top of the map of eagle journeys, click on the name Duke. Duke is the eagle that was born at Duke Farms in 2019. He was fitted with a solar powered GPS backpack before he fledged the nest in June 2019. The unit has been tracking his location for more than a year. Read about Duke's story and see where he's been traveling.
- There are two years of locational data; 2019 and 2020 .Choose 2019 from the left top box on the map. Look at each month. Then click on 2020 and look at each month's route.
- Duke's journey is color coded by month. Check out each month and answer these **questions**:
  1. Where did Duke fly to in August of 2019 when he left the nest area?
  2. Did he ever return to Duke Farms in 2019?
  3. Is Duke a neotropical migrant?
  4. What kind of migrant is Duke; short range or medium range?
  5. Did he ever go back to his original nesting area?

6. Where do you think he will go this winter? How can you find out where he goes?

#### Answers

1. He went down to the Chesapeake Bay area.
2. No, but he did return in 2020.
3. No, Duke is not a neotropical migrant as he never flew to Central or South America.
4. He is a medium range migrant so far as he moved between a few states.
5. Yes, he visited Duke Farms in 2020.
6. Check this map again in December, January, and February to find out where he spends the winter.

#### Additional Resources

- [Bird Migration](#)
- [Bird Cast video](#)
- [Cornell Naturalist Outreach: Migration](#)
- [Researching migration](#)
- [Mesmerizing Migration animation](#)
- [New tools to study Bird Migration](#)
- [Climate Change and Bird Migration](#)
- [Seven Things to Help Birds](#)
- [How Do Scientists Map Migration?](#)

#### More Ideas

Advancements in technology have allowed us to know more about birds and their travels. Teaching about these technologies in partnership with map reading skills and the analysis of data can also be integrated with topics in meteorology, mathematics and many areas of science. For more options, contact Kate Reilly, Manager of Education, Duke Farms at [kreilly@dukefarms.org](mailto:kreilly@dukefarms.org).