

## Finally Fall: Birds on the Wing – Migration: Part 3

**Incredible Facts from Scientific Investigations:** What are some things scientists have learned from all these years and methods of research? Consider these ten incredible facts:

1. **Migrating birds can fly thousands of miles in their annual journeys**, often traveling the same route year after year. The most extreme example is **the arctic tern, which can fly more than 49,700 miles each year, racking up more miles than any other migratory bird**. Traveling between arctic breeding sites and Antarctic summering grounds, arctic terns make an annual journey that is roughly equivalent to flying twice around the globe.
2. **Migratory birds can travel at the same speeds we drive our cars**. Birds fly from 15 to 55 miles per hour, depending on the species, prevailing winds, and air temperature. At these rates, migratory birds typically fly from 15 to 600 miles each day!
3. **Birds can remember and return to the exact location where they were born**. We know that they navigate using the sun, stars, Earth's magnetic field, and landmarks. But exactly how they do this remains a mystery, partly because migrating birds have enhanced senses, including smell to help them migrate.
4. **Birds can fly at great altitudes**. Bar-headed geese are the highest-flying migrating bird reaching five and a half miles above sea level while they fly over the Himalaya mountains in India.
5. **Birds often double their body weight before taking off**. To prepare for the grueling migration, birds enter a state called hyperphagia where they eat and eat to put on fat, which will fuel their long journeys. The black poll warbler for example doubles its body weight so it can fly 2,300 miles nonstop for 86 hours!
6. **First-year birds usually make their very first migration on their own**. Somehow, many manage to find their winter home despite never having seen it before and return the following spring to where they were born.
7. **Some species like waterfowl and cranes follow pathways related to important rest stops** that provide critical food supplies for the birds' survival on its journey.
8. **Many small birds take different routes in the spring and the fall** to take advantage of seasonal patterns in weather and food.
9. **The bar-tailed godwit can fly for nearly 7,000 miles without stopping**, making it the bird with [the longest recorded non-stop flight](#). During the eight-day journey, the bird doesn't stop for food or rest, demonstrating jaw-dropping endurance.
10. **Migration is treacherous for birds, and millions don't make it back to their starting point**.



[Decline of the North American Avifauna](#), a new study published in September 2019 in the journal *Science*, reveals that since 1970, bird populations in the United States and Canada have declined by a shocking 29 percent. That's a staggering [3 billion birds](#)! The results show tragic losses across diverse groups of birds and habitats from iconic songbirds such as wood thrushes to long-distance migrants like swallows. Few birds are spared.

In addition to storms, predators, cold fronts and lack of food, there are so many threats to migratory birds that are caused by humans. The biggest threat is always habitat loss from development or



agriculture. Birds may not find their summer or winter homes still exist when they reach the end of their journeys.

The danger of flying over long distances, or even short ones, has grown for birds as tall buildings and their glass facades have sprouted all over our cities. Because windows are usually invisible to birds, they smash into them with frightening regularity. In fact, window collisions account for up to 1 billion bird deaths in the United States each year. Collisions with TV, radio, and cell towers additionally cause up to 10 million bird fatalities per year.

For birds, migrating at night is riskier than ever. Most notably, the shining lights atop communication towers attract and disorient birds. Many species are attracted to the lights of tall buildings and millions are killed each year in collisions because of the lights. Cornell Lab of Ornithology is spearheading a [lights out](#) campaign to help birds by getting people to turn lights out at night to protect migratory birds.

Migratory birds have been protected from hunting and collection since 1918. The Migratory Bird Treaty Act (MBTA) is among the oldest wildlife protection laws on the books that protects birds from people. When Congress passed the MBTA in 1918, it codified a treaty already signed with Canada in response to the extinction of many bird species from hunting for sport or for their feathers. For over a hundred years, this treaty has made it a crime to kill birds intentionally or unintentionally from things like oil spills and electrocution on power lines. Recently the federal government proposed rules to weaken the law by allowing unintentional killing of birds. This rule change was struck down in the courts in 2020. But even with protection, human activities continue to threaten the lives of birds.

And then there's the big unknown of climate change. As temperatures are getting warmer, plants are leafing out and flowering earlier in the year and insects are emerging earlier. In turn birds are returning from their nonbreeding grounds sooner. The emergence of plants, insects, and birds arrival may become misaligned in the future, and migratory birds face the possibility of an ecological mismatch between their own seasonal timing and the timing of the foods that they eat. And that would mean ecological disaster. Explore a story map about migration and climate change [here](#).

All of this is pretty devastating to birds and bird lovers around the world. But there are things we can all do to help birds recover and thrive again. Here is a seven point [action plan](#) that all of us can follow to help birds. And next time you see a flock of birds heading south in the fall, don't hesitate to shout out my old ornithology professor's cheer of encouragement, "Good Luck Guys!" They never needed it more!



### Activity: Observe How Abundance of Birds Changes Over Time

- Explore Cornell Lab of Ornithology eBird [status and Trends](#) program to see where birds move throughout the year.
- This program shows abundance of birds and where they move to and from for every month of a year. The program has this information for 610 species. You can pick a bird off the list provided or search for a particular bird.
- Example: For this activity begin by choosing **gray catbird** off the list or enter the name gray catbird into the search box at the top of the page.
- When you click catbird, a page with several abundance maps will appear. Choose the first map that is called **abundance animation**.
- This map opens with a look at the distribution of catbirds in the month of January. The abundance of catbirds is color coded with the deep purple representing the highest abundance, while the gray color means no catbirds.
- Click the play arrow and observe the speeded – up animation of where the birds move to and how their abundance changes throughout each month of a year.
- Now click through the year slowly by using the arrow keys at the bottom right corner of the map. Find New Jersey and watch what happens in New Jersey as you click through the year.



Gray Catbird

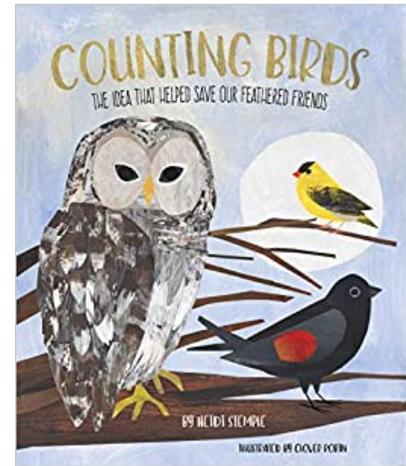
1. What months do we begin to see purple occur in New Jersey? What does this mean?  
**Answer:** *Purple is visible in late April and the beginning of May. It means that catbirds have returned to New Jersey during spring migration.*
  2. What month do we no longer see purple in New Jersey/ What does this mean?  
**Answer:** *By November, the purple is gone. It means that the gray catbirds have all left New Jersey.*
- Explore the other maps that are available about gray catbird; there is so much information about where catbirds are living and breeding.
  - Choose another bird and repeat the exploration; do this for as many birds as you can.
  - Think of other questions and answers you can derive from these maps.



## Read All About It!

### **Counting Birds: The Idea That Helped Save Our Feathered Friends**

by Heidi E.Y. Stemple is a 2019 Outstanding Science Trade Book for Students K–12 and a 2019 Best STEM Book for K–12 Students (National Science Teachers Association and the Children's Book Council) and winner of the 2019 Riverby Award. It beautifully captures the creation of the now global movement to count and protect bird species, pioneered by Frank Chapman. It invites young naturalists to follow in his footsteps and continue the work of observing and preserving native species.



## 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?](#)