



Notes from the Field

Young Scientist Newsletter

Migratory Birds



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Why do animals migrate??

Migration is the large-scale movement of populations of animals. A group of birds moving between breeding and wintering grounds is the most thought of example, however migratory behavior is seen in mammals, fish, insects, crustaceans, reptiles, and amphibians. Humpback whales get the award for longest migration by a mammal because they travel over 6,000 miles, from Alaska to Hawaii, to breed and care for their calves. On Christmas Island, every autumn millions of red crabs move from their forest burrows across the island to the beach to mate. The trip typically takes a week to complete and they make the return trip within days or weeks of their arrival on the beach. There is even the vertical migration of copepods and other **zooplankton** within the ocean water column over the course of a day (**diel vertical migration**).

Photo Credit: National Geographic



Photo Credit: White Wolf Pack

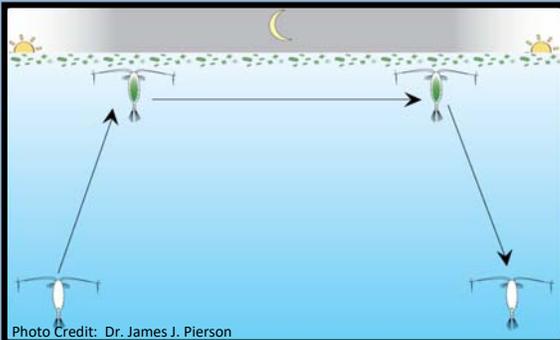


Photo Credit: Dr. James J. Pierson



Photo Credit: Paul Colangelo

Migratory patterns are as diverse as the animals that make them. Most are motivated by temperature or food availability and made to support reproduction and the raising of young. Some are complex roundtrip journeys over large bodies of water while others are **altitudinal** treks up and down mountains. For some, like salmon, it is a one-way trip from the ocean into freshwater where the parents die after **spawning**. For monarch butterflies, it is a multi-generational relay between the cooler climates of the Rocky Mountains and the warm winters in Mexico.

(**Bold words** can be found in the glossary on **page 6**)

We are going to focus on bird migrations because southeastern Louisiana is a critical stopover location for many long-distance migrants.

Photo Credit: National Geographic



Permanent residents are birds that do not migrate. They are able to find enough food all year long and can handle weather changes.

The **Seaside Sparrow** is a salt marsh specialist. This small bird nests, feeds and finds protection within the grasses of the marsh so it doesn't need to migrate. Unfortunately, continued land loss along the coast threatens their home and very existence.



Photo Credit: Science Blogs

Short-distance migrants don't travel very far and are often simply moving between higher and lower altitudes in the same area.

The **Spotted Owl** is often called an altitudinal migrator because it moves from higher to lower altitudes in the winter to find food and avoid snow in the Sierra Nevada Mountains. Its large, brown eyes make Spotted Owls incredible nighttime hunters and their hooting calls can be heard for miles.



Photo Credit: Cornell

Bird Migration Patterns

Medium-distance migrants typically cover an area of one to several states.

The **American White Pelican** is one of the largest birds in North America. Its huge wingspan and uniquely large head and bill make the pelican an easy bird to spot. Rather than dive-bomb the water like Brown Pelicans, White Pelicans will dip their pouched bill into the water to catch fish. You'll find these birds near inland lakes in the summer and out on the coast in the winter.



Photo Credit: Cornell

Long-distance migrators will often cover thousands of miles as they travel between their breeding grounds and their wintering grounds.

The **Painted Bunting** is often described as the most beautiful bird in North America. The rainbow-colored males will sing to the well-camouflaged green females during the breeding season. Painted Buntings spend the winter in Mexico and Central America and return to the southeast United States to breed and raise their young.



Photo Credit: Bird Identifier

Long Distance Migration

Long-distance migrations are challenging and quite risky. Migratory birds often cross large bodies of water or mountain ranges and must deal with unpredictable weather. It is a physically demanding journey that not all individuals survive. You may be wondering why they do it if there are so many risks. For some birds, it is a necessity driven by decreasing amounts of food and the shorter days we experience in the autumn and winter. These birds fly south to the tropics where food is abundant and then return north to breed and raise their young. By nesting in the Northern Hemisphere in the spring and summer, migratory birds are able to raise more offspring because of the burst of insect and plant life following winter.

Our knowledge of the how and why of migration is limited and based on years of observation. What we have learned is that migration seems to be a behavior built into the genes of these birds. First-year birds often make the first trip south on their own but somehow they know exactly how to find a wintering ground they have never seen before and return north to the very place they were born!



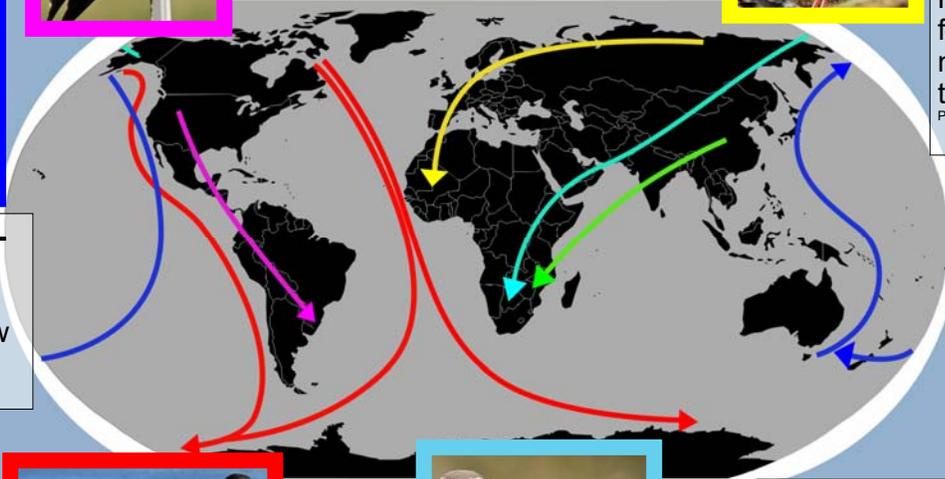
Short-tailed Shearwater — a mid-size seabird that migrates between the Bering Strait and Australia and New Zealand.
Photo Credit: New Zealand Birds Online



Swainson's Hawk — this prairie hawk migrates from the western U.S. down to South America in large flocks.
Photo Credit: Audubon Society



Ruff — a Eurasian wading bird that winters in northern Africa and southern Asia. Males have unique feathers around their neck and head to attract mates.
Photo Credit: Deviant Art



Amur Falcon — a small falcon that migrates in large flocks from Siberia and China across India and the Arabian Sea to southern Africa.
Photo Credit: National Geographic

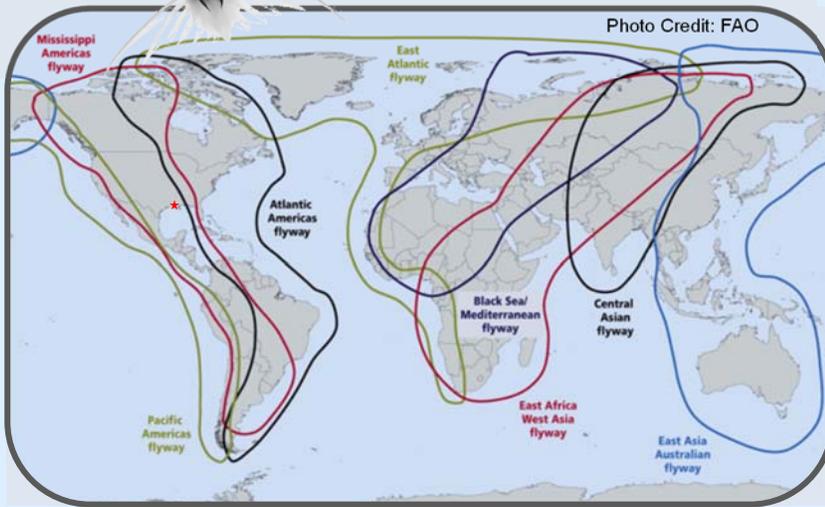


Arctic Tern — as a long-distance champion, this mid-size tern experiences two summers by flying from the Arctic to Antarctica.
Photo Credit: Wikipedia



Northern Wheatear — this small bird breeds in northern Asia and winters in southern Africa. "Strays" are sometimes found by birders in North America.
Photo Credit: SurfBirds

Flyways

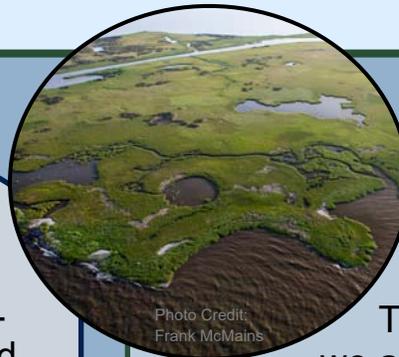


A flyway is the flight path taken by a migratory bird. It is a geographic area that includes the bird's breeding grounds and wintering grounds as well as the land and water it covers during migration. Using these types of maps and a collection of knowledge, scientists and bird enthusiasts can predict when particular birds will arrive at various points along their route with great accuracy.

The Gulf Coast, and Louisiana's coastline in particular, serve as an important stopover point for birds migrating across the Gulf of Mexico between Central and South America and the northern US and Canada. Birds that migrate between these two regions are part of the **Nearctic-Neotropical** bird migration system. Three flyways make up this system: Atlantic Americas flyway, Mississippi Americas flyway, and Pacific Americas flyway.



The Indigo Bunting – a bright blue, insect eating bird that spends spring and summer breeding throughout the eastern United States and winters in Mexico and Central America. This small bird can fly hundreds of miles across the Gulf of Mexico without stopping before arriving in Louisiana. The marshlands along our coast are productive, high in **biodiversity**, and the perfect resting point for tired birds. The salt marsh soil is nutrient rich and full of insects, grasses are green, and flowers are blooming. The Indigo Bunting can rest its wings and refuel before continuing its journey north into the mid-west states.



How does marsh loss affect migratory birds?

The rapid land loss we are experiencing along the Gulf Coast means there are fewer resources for the many animals (including humans) and plants that live here. Migratory birds rely on the marshes for food and shelter after their exhausting flight across the Gulf of Mexico. As land disappears, the birds might have to fly a little farther or change their path to find that much needed food and rest.

Bird Watching 101

Bird watching is a popular activity in southeastern Louisiana because of the huge diversity of birds that live and travel through. In fact, people travel from all over the country in the spring and fall to watch migratory birds as they stop over along our coast. Bird watching is something that you can do while playing outside, hiking, fishing or hunting. Binoculars are a great way to see far off birds or to see the details of those nearby. Otherwise, all you really need is an identification book or a smartphone with one of many bird identification apps.



Here are some tips to help the amateur birder:

-Be patient. You may not spot many birds right away but if you take a minute to stop and look around, you will be surprised as to how many are around.

-Keep your eyes and ears open. Listen to the birds chirping, singing and calling and you can sometimes follow the sound back to the bird.

-Look at the ground and in the bushes, not just the sky. There are some incredible birds soaring high above your head but many of the most beautiful are hanging out closer to ground level.

-Do your research. Many websites can tell you when a certain area has the most birds and clues as to what you will find. There are resident, non-migratory birds that you can find year-round but many species will only be around during certain seasons.

-Download an app to your smart phone. The Audubon Society, the Cornell Lab of Ornithology and Peterson Field Guides all have free apps that can help you identify what you are seeing (Be sure to ask an adult before downloading or buying anything on your phone!).

-Have fun! Relax and enjoy the time outside. Invite your friends to join you and keep track of how many birds you spot as a group.

Birds you might see

Prothonotary Warbler

Photo Credit: Audubon



Swallow-tailed Kite

Photo Credit: Audubon



Indigo Bunting

Photo Credit: Audubon



Great Blue Heron

Photo Credit: Audubon



Grey Catbird

Photo Credit: All About Birds



Brown Pelican

Photo Credit: All About Birds



Scarlet Tanager

Photo Credit: Carolina Bird Club



American White Ibis

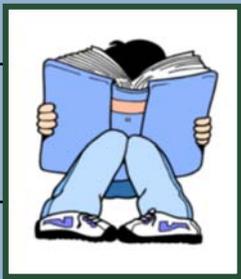
Photo Credit: Audubon



Scissortail Flycatcher

Photo Credit: Larkwire





Glossary of Terms

Altitudinal migration— a short-distance animal migration between higher and lower altitudes.



Biodiversity— the variety of all life on Earth; all of the different plants, animals and micro-organisms and the ecosystems where they are found.



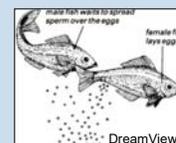
Diel vertical migration— a migratory pattern where organisms travel up to surface waters during the night to feed and return to depth for more protection during the day; a behavior seen in many zooplankton species.



Nearctic-Neotropical — referring to birds that nest in the United States and Canada (the “nearctic” region) and spend the winter feeding in Mexico, Central and South America, and the Caribbean (the “neotropics”)



Spawning— the release or depositing of eggs; seen in fish, frogs, crustaceans, and molluscs.



Zooplankton— animals that are suspended in water and drift with the current or weakly swim; usually, but not always, very small in size.





For More Information:

- Animal Migration—Nature Education
<https://www.nature.com/scitable/knowledge/library/animal-migration-13259533>
- Flyways—Bird Life International
<http://datazone.birdlife.org/sowb/casestudy/the-flyways-concept-can-help-coordinate-global-efforts-to-conserve-migratory-birds>
- Flyways of the Americas—Audubon
<http://www.audubon.org/birds/flyways>
- Guide to North American Birds—Audubon
<http://www.audubon.org/bird-guide>
- Mesmerizing Migration—The Cornell Lab of Ornithology
<https://www.allaboutbirds.org/mesmerizing-migration-watch-118-bird-species-migrate-across-a-map-of-the-western-hemisphere/>
- Migratory Bird Pathways and the Gulf of Mexico—USGS
<https://www.nwrc.usgs.gov/factshts/2005-3069.pdf>
- Migratory Flyways of North America—Texas Parks and Wildlife
<http://tpwd.texas.gov/huntwild/wild/birding/migration/>
- The Basics of Bird Migration— The Cornell Lab of Ornithology
<https://www.allaboutbirds.org/the-basics-how-why-and-where-of-bird-migration/>

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Photo Credit: Castaways On The River Blog