

By Mary Hoff

Splendid Flyers

Whether they fly by day or night, go solo or in a flock, migratory birds are amazing.

THE YOUNG **EASTERN BLUEBIRD** was feeling mighty restless. Since hatching in late June and leaving the nest box three weeks later, he had led a busy life. He had perfected flying skills by swooping around the grassy field near his nest in central Minnesota. Like a basketball player practicing layups, he had practiced capturing and eating grasshoppers and other insects until he rarely missed one. As summer wore on, the little bird seemed to always be hungry. He ate so many insects and berries that his weight had almost doubled since August. Now, as days grew shorter and cooler, he felt ready to fly far away from his first home.

Finally, one day, he spread his wings and leaped into the sky. Flapping

Clockwise from top left: After nesting in Minnesota, a common loon flies to the Gulf Coast of Florida. The purple martin is social and travels to Brazil in a flock. The male eastern bluebird migrates with other adults. Canada geese fly day or night in flocks with family members.



TOP LEFT: LOON BY DAVID BRISLANCE. TOP RIGHT: PURPLE MARTIN BY STAN TEKIELA. BOTTOM: MALE EASTERN BLUEBIRD BY BILL MARCHEL. MIDDLE LEFT: CANADA GEESSE BY BILL MARCHEL.

hard, he climbed higher than he ever had before. Far above his field, he flew into a surprise: a flock of other songbirds, flowing southward like a stream. Joining the flying river, he followed his instinct and his companions.

Flying during the day and resting and eating at night, the flock eventually arrived in southern Missouri. Something inside the young bluebird told

him he had arrived at his destination.

Like the bluebird, many birds *migrate*, flying from one state or country to another when seasons change. Each fall, millions of birds leave for homes hundreds or thousands of miles away. Where do the *seasonal migrants* go and why? How do they get ready? How do they find the way? Scientists have helped unravel some mysteries of *migration*—but more remain to be solved.



The mourning warbler flies to Central America for winter. The American robin stays around as long as it finds food.

Why Fly Away?

Why do many Minnesota birds go south for winter? You might guess they are trying to escape the cold. But most are looking for habitat with plenty of food. Warblers, swallows, and other birds that eat insects migrate to places that have more insects than Minnesota does in winter. Loons, pelicans, and other fish-eating birds travel to places with open water. So do mallards and other ducks that eat plants and animals that live in water.

Why do migratory birds come back to Minnesota in spring and stay for summer? In summer Minnesota has good habitat for birds to raise a family, and birds find less competition for places to build a nest. The long daylight hours give parent birds lots of time for finding food for hatchlings. With plenty of sun and rain, forests and fields grow ripe with berries and seeds for birds to eat. Insect-eating birds find lots of bugs. In summer, Minnesota is for the birds!



The loon's velvety black-and-white summer dress changes to steely gray in fall when it flies to its saltwater home.

Ready, Set, Go!

How do birds know when to get ready for the fall journey? Shortening daylight hours are one clue. Cooler temperatures are another. Berries, seeds, and insects become scarce. Changes inside its body make a songbird restless, as though it wanted to fly rather than rest.

Imagine you want to go on a long hike. How would you prepare? You might get new shoes. Before migrating, many birds shed their old, worn-out feathers and grow new, fresh ones. Sometimes new feathers give birds a different look—for example, loons trade their black-and-white northern suit for a southern outfit of gray and white.

Before a trip, you might eat a big breakfast and pack a lunch. In the fall, insect-eating songbirds start eating more high-calorie foods such as berries. Over two to three weeks, a songbird gains layers of fat it can use as fuel on its long-distance journey. During summer, 5 percent of a bird's body may be fat. Right before migrating, it may be 40 percent fat or more.

If you're going to hike with others, you might meet at a trailhead in a park. Some migratory birds gather together before they fly. Loons gather on lakes in *rafts* of dozens. Purple martins join up by the thousands around big lakes before taking off for Brazil.

LEFT PAGE, OUTSIDE: MOURNING WARBLER BY DAVID BRISLANCE. LEFT PAGE, INSIDE: AMERICAN ROBIN BY BILL MARCHEL. RIGHT PAGE: LOONS BY DAVID BRISLANCE.



Swainson's hawks migrate to South America in flocks of thousands. These birds fly only during the day.

Day or Night?

Many small birds—such as sparrows, warblers, thrushes, vireos, and shorebirds—migrate at night. Predators such as hawks are less likely to see them in the dark. Flying in cool night air requires less energy than flying in the heat of day. When the sun comes up, the birds can stop to rest and find

food to refuel their bodies.

Ducks, geese, loons, hawks, eagles, and other large birds migrate during the day. Hawks and eagles can take advantage of *thermals*—patches of upward-flowing air caused by the sun's warmth. On this warm air, they can rise and soar without flapping their wings.



North winds help push migrating birds south, but stormy skies sometimes force the travelers to land.

Flight Plans

Birds change their flight plans with the weather. When the sky is cloudy or foggy, they might wait for a clear sky so they can see better. Birds might wait for strong winds to calm or to shift to the direction they want to travel.

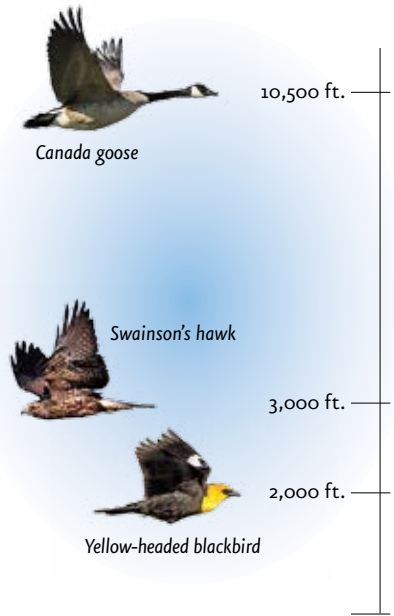
Different birds might take slightly

different paths to the same destination. In some species, such as red-winged blackbirds and ospreys, the males migrate separately from the females. In some species, such as common loons, the young travel apart from the parents.

High Fliers

How high a migrating bird flies depends on its species, the weather, and other things. Birds may fly higher above deserts to stay cool. They may seek out layers of air with favorable winds.

Hawks and other birds that catch thermals usually stay within 3,000 feet above the Earth's surface. Ducks and geese may go as high as 10,500 feet—almost 2 miles high. Songbirds often migrate just over 2,000 feet in the air, but they may travel at 12,000 feet over large bodies of water.



Researchers outfitted a few Minnesota loons with tiny geolocators to track fall and spring migration routes.

How Fast and Long?

Most migrating birds fly at speeds of 20 to 30 miles per hour—about the speed a car might drive on city streets. Loons are among the fastest flyers, traveling nearly 70 miles per hour at times.

Migrating birds such as ruby-throated hummingbirds and blackpoll warblers fly 500 miles or more all at once to get

across vast stretches of ocean. Other times, migrants stop regularly along the way to fuel up. Baltimore orioles fly about 150 miles each night. Depending on the distance and the weather, they might take two or three weeks to reach their southern homes in the Caribbean, Central America, or Mexico.

THIS PAGE, TOP: SWAINSON'S HAWK BY MICHAEL FURTMAN. BOTTOM: STORM CLOUDS BY BILL MARCHEL.

THIS PAGE, TOP TO BOTTOM: CANADA GOOSE BY BILL MARCHEL. SWAINSON'S HAWK BY MICHAEL FURTMAN. YELLOW-HEADED BLACKBIRD BY STAN TEKIELA. LOON BY BILL MARCHEL.

Clockwise from top: red-winged blackbird, common loon, turkey vulture, purple martin, blue-winged teal, Baltimore oriole, American white pelican, yellow-rumped warbler.



Homebody or Traveler?

Chickadees, barred owls, cardinals, crows, and some bald eagles stay in Minnesota year-round. Blue jays may leave one winter but stick around the next. Golden eagles migrate to Minnesota for winter from nest sites in northern Canada. Most shorebirds migrate through Minnesota on their travels between South America and the Arctic.

Many species of our summer birds migrate between Minnesota and southern states or countries. They stay in their winter location for a predictable period of time, then return to their summer nesting habitat. Like musicians in an orchestra playing different notes at different times, migratory birds fly at different times to different destinations.

Illustration by
Bill Reynolds



Migrating ducks and geese follow the Mississippi River south in fall and north in spring.

Steer by the Stars

Have you noticed that the sun rises on one side of your house and sets on another? Have you seen how the moon and stars seem to move through the sky over the course of the night? You can use the sun, moon, and stars to tell which way is north, south, east, west. Birds do this too. Day travelers use the sun and their internal clocks to tell south. Night fliers can use the North Star as a guide.

How do birds *navigate* when the sky becomes cloudy? By testing birds, scientists think some birds can sense magnetic fields or detect faint odors. These abilities help them to find their

way to wintering grounds in fall and back to summering grounds in spring.

Physical clues help give a sense of direction. The Mississippi River, for example, is like a highway for many migratory birds. Some 40 percent of all waterfowl that migrate through the United States use the Mississippi as a flyway.

Young birds migrating south for the first time in the fall appear to have an inborn sense of which direction to fly and how far to go. A bird gets to know the way so well that it can return to the same places year after year.

LEFT PAGE: ROBERT HURT, RIGHT PAGE: STAN TEKIELA.



A bird-friendly spot has seeds to eat. Among trees and bushes, birds can hunt for insects and hide from predators.

Dangerous Journeys


Long-distance migration is dangerous. Not all birds that migrate return. Many drown, are eaten, are killed in collisions or by hunters, or die in other ways.

As people change our planet, birds face new dangers. With more buildings and roads, birds have fewer places to find food and shelter. Glass and tall buildings can block flight paths and cause birds to crash. Here are some ways we can help birds.

Duck Stamps. Anyone can buy a duck stamp to help protect places for waterfowl. Duck hunters must buy one. Sold online, the collectible Minnesota Migratory Waterfowl Stamp costs \$8.25.

Bird-Friendly Yards. Fill bird feeders with seeds during spring and fall migration. Put fresh water in a birdbath. Plant trees and shrubs. Put up nest boxes.

Prevent Cat-astrophe. Scientists estimate that housecats outdoors kill more than a billion birds every year in the United States. Keep pet cats indoors.

Bird-Safe Windows. Each year millions of migrating birds die after flying into buildings, communication towers, wind turbines, and windows. To help birds see windows, put up stickers. To learn more, go to mn.audubon.org/what-can-you-do. 

TEACHERS RESOURCES:

Teachers Guide: www.mndnr.gov/young_naturalists

Cornell Lab of Ornithology Education Program: ow.ly/QqHzc

Journey North: learner.org/jnorth