

The Risky Lives of Birds

Birds are the only dinosaurs that survived the mass extinction 66 million years ago, so take note of that when you look at the first bird you see after reading this article.

The diminutive dinosaur you will see is in one of four categories. First, it may be a permanent resident in Newton. Woodpeckers, Chickadees, Titmice, Blue Jays, Crows, Mallards, Great Horned Owls, and Red-tailed Hawks are examples.



Male Baltimore Oriole

Secondly, it may be one of our summer residents that include Baltimore Orioles, Barn Swallows, Pine Warblers, Phoebes, Woodcocks, and Towhees, birds that are going south soon.

Third, it may have arrived from the north recently and may be about to fly south where there are insects to eat during the winter. Examples are most warblers, Spotted and Solitary Sandpipers along the banks of the Charles River, Sharp-shinned Hawks, Rusty Blackbirds, Green-winged Teal, and Northern Pintail ducks.



Rusty Blackbird

Finally, the bird may have come to us from the north and will stay with us through the winter. Birds of this sort are the Dark-eyed Juncos, White-throated Sparrows, Hooded Mergansers,

American Robins from Canada, Ruddy Ducks on Crystal Lake, and Common Goldeneyes on the Charles River. In the latter three cases, these birds have survived a trip fraught with danger.

The research on bird migration has been long in developing. This is because bird navigational ability is something humans don't share. As examples of their feats, Bar-tailed Godwits fly across the Pacific Ocean every fall non-stop from Alaska to New Zealand. This is a 6,500 mile flight that takes them nearly eight days to complete. A slight deviation from the true path, without corrections over the trackless Pacific Ocean, and they would miss these islands.

A percentage of our local Ruby-throated Hummingbirds fly across the Gulf of Mexico after they leave us in the fall. The Bar-tailed Godwit seems more impressive, but that's debatable when you look at the sizes of the two species. In terms of grams of body weight per mile flown, our Hummers are the champs. We know these feats of flight because we now have diminutive electronic tracking devices that we strap on their bodies.

How can they accomplish these feats of navigation? The direction they choose to go in migration is genetically inherited. But past experience from making the trip also plays a role. In the middle of the 20th century, a Dutch ornithologist, Ab Perdeck, took groups of European Starlings at migration time and let them loose some 600 miles southeast of where he caught them. The younger birds ended up about 600 miles southeast of their normal



Fall plumage Blackpoll Warbler

wintering ground. The older birds, which had made the correct trip in previous years, adjusted their flights to go to the correct place.

Since we have some of this directional ability, the above description is easier to imagine. But the flight of Blackpoll Warblers that you may see around Newton in the fall is less so. They take off over the Atlantic Ocean between Nova Scotia and Virginia, including some from Cape Cod. Depending on the take-off point, they fly for two or three days over the open ocean and arrive on the northern coast of South America. The average distance is about 1,900 miles. Our sensory equipment would not allow us to do anything like that.

There are several navigational aids birds use to migrate. The most common are landmarks and visual cues learned from

the first migration. Birds also use the sun as a compass of sorts. Experiments that created a “fake sun” caused birds to orient in the wrong direction.



PHOTO: PETE GILMORE
Eurasian Teal

They learn to recognize the North Star and the stars around it. They use this information to stay on course overnight. They learn the position of this star complex and stop at the latitude appropriate to their winter home when the North Star is at the correct, lower angle. They also shift their altitude when migrating, finding the best winds to carry them along.

Most astonishing to us humans is the scientifically established involvement of vision in connection with the earth’s magnetic field. It has been shown that birds use this as a navigational tool. We still don’t know what senses accomplish this. There is evidence that young birds need both eyes and some landscape to use this sense, and as they get older, this gets fixed in the right eye.

There is a second sense that allows birds to use the earth’s magnetic field for orientation, and it is located in the upper mandible of their beaks. We thus see that there is a whole ensemble of back-up sensory means by which birds can

It has also been shown that birds have a sense of time because the motion of the sun throughout the day is accounted for in their flying. In addition, birds use the stars to navigate.

navigate as they migrate. They, like humans in traffic, use whichever is most suitable for the moment.

Offsetting these ominous factors is the knowledge, from various experiments, that the ability to vary their migratory pattern in different ways is present in birds’ genetic inheritance. They are not locked into one pattern. Our hummingbirds fly across the Gulf of Mexico, but also migrate down the coast of Mexico. We also see so-called vagrant species of birds in Massachusetts every year. We had a Eurasian Teal one year in Cold Spring Park. We had a Prothonotary Warbler in Nahanton Park last year. These accidental appearances may be the salvation of some species as the Earth warms. The outliers may keep the species afloat. We should look at migratory instincts as a labile talent, able to adapt to change.

And if the obvious dangers of these migrations were not enough, the birds will now be coping with climate change. Their arrivals in the north are timed to coincide with explosions of food supplies, such as insects and horseshoe crab eggs. If they are in the tropics and our northern climate has an earlier spring, the food for their chicks may be absent.

Good places to look further into these matters are the “Birds of North America online “ at <http://birdsna.org> and the book *Ten Thousand Birds, Ornithology since Darwin*, by Tim Birkhead, Jo Wimpenny, and Bob Montgomerie. You can access some information about species of birds at the Explore BNA website mentioned above without joining. The book can also be downloaded as an e-book for convenient referral and storage.

But please do yourself a favor and spend a minute with that little dinosaur you will find outside in your yard. Be thankful it is there. ■

✿ Pete Gilmore

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PHOTOS, LEFT TO RIGHT: PETE GILMORE, SUZETTE BARBIER