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LIVING

A migration primer

Edwin Way Teale, an American literary naturalist, likened the seasons to tides, ebbing and flowing across the continent. He describes how, like a surge of water, the tide of spring advances up the United States and into Canada at the average of about 15 miles a day. "Each year the season advances towards us out of the south, sweeps around us, and goes flooding away into the north."



OUR CHANGING SEASONS
Drew Monkman

Early spring migrants essentially chase the tide of spring northward by following isotherms, or bands of like temperature. American robins, for example, follow the 2.5 C isotherm as it moves northward from the birds' wintering grounds in the southeastern and Gulf states. When the daily temperature has averaged about 2.5 C for a week, large numbers of robins can be expected. The average daily temperature is the value halfway between the daily high and low.

Birds almost always wait for a tail wind before migrating in large numbers. A tail wind is a wind blowing in the same direction as the bird is headed. Most species also tend to fly at an altitude offering the best wind conditions. Tail winds are usually strongest at higher altitudes. A spring tail wind is produced when there is a warm front advancing from the south or southeast. When we enjoy an influx of warm air in the spring, migrants tend to arrive with it. Fortunately for the birds, wind patterns are seasonal. During both spring and fall migration, the dominant winds tend to blow roughly in the appropriate direction.

If the warm front meets a cold front from the north, the birds are often forced to land. This is because the warm air in which the birds are flying overrides the cold front. The rising warm air cools with altitude, and it soon becomes too cold for the birds. This can sometimes result in "groundings" of large numbers of birds in a small area. Birders at Point Pelee on Lake Erie hope for such an occurrence each spring.

The dependency on favourable winds means that peak arrival times for many migrants can vary by a week or more. This is especially true for early spring migrants coming up from the southern United States. The arrival times of birds that winter in the tropics do not depend on the vagaries of the weather to the same extent. They leave their tropical winter homes more or less at the same time every spring and arrive back on their Canadian nesting grounds usually within a few days of the same date each year.

Most smaller birds tend to migrate at night. After sunset, the surface of the earth cools and the currents of rising warm air dissipate. As a result, turbulence in the sky decreases and the air becomes more stable. By choosing to fly in a less turbulent atmosphere, birds reap the benefit of expending less energy. Birds typically depart 30 to 45 minutes after sunset.

Technology now plays a major role in monitoring migration. Using radar, for example, it was estimated that somewhere in the order of three to four million birds crossed a line between Cornwall and Granby, Quebec on the night of April 15, 1994.

Because many migrants call during their night flights, microphones are also used to estimate the number of migrants passing overhead. It is thought that the calling helps birds maintain in-flight associations and probably organize their spacing. On a good night, it is possible to hear hundreds of faint peeps and chirps in the night sky. Many birds can even be identified to the species level by their flight call. Try to get into the habit of listening to the sky if you

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Most migrating raptors, such as the red-tailed hawk (above), choose to enter Ontario by way of the Niagara Peninsula rather than fly over Lake Ontario.

are out at night during the migration season.

Most migrants also follow well-defined flyways. A flyway is simply a migration route used by birds which connects their breeding and wintering grounds.

Ducks and geese passing through the

Kawarthas tend to follow the Atlantic flyway. After spending the winter in Florida and along the east coast of the United States, they fly up the Atlantic seaboard, and then head inland over Lake Ontario. Many will linger in places like Presqu'île Provincial Park before passing through the

Kawarthas. Most of the ducks we see here during migration will nest on the Canadian Shield, but some will carry on as far north as James and Hudson bays.

Raptors, such as ospreys, red-tailed hawks and sharp-shinned hawks, take a slightly different route. Most soar northward along the west side of the Appalachian Mountains. However, because birds of prey are daytime migrants and depend on lift from rising air, they won't fly across the open water of the Great Lakes. Compared to land, there is very little rising air over large water surfaces. Flying over Lake Ontario would require too great an energy expenditure by the birds. Most therefore choose to enter Ontario by way of the Niagara Peninsula.

If you have a chance, Grimsby is a great place to see migrating hawks in the spring. The best viewing is from the Beamer Memorial Conservation Area. Located on the Escarpment, conditions here produce superb raptor watching. First of all, strong updrafts are formed as wind blows off Lake Ontario and hits the Escarpment cliffs. In addition, rising currents of warm air known as thermals form over adjacent farm fields as the earth warms up in the sun. The birds use these updrafts and thermals to soar and glide effortlessly westward towards Hamilton before fanning out over southern and central Ontario. The spring raptor migration is monitored by members of the Niagara Peninsula Hawkwatch every day from March 1 to May 15. When conditions are exceptionally good, observers can count more than 1,000 individual raptors, including eagles and falcons, in a single day. Peak numbers of almost all species are recorded in April.

Songbirds arriving back in the Kawarthas in spring migrate at night along broad fronts. Unlike raptors, they choose to fly directly across Lake Ontario, often at very high altitudes. Large numbers sometimes funnel towards peninsulas such as Presqu'île and Prince Edward Point. They often move northward along river valleys and lake shores.

As for how migrating birds navigate, much remains to be learned. What can be said with some certainty, however, is that a variety of cues are used, and that different species rely on certain cues more than others. Indigo buntings appear to use the pattern of stars around Polaris in the north sky. Other cues include the earth's magnetic fields, knowing the location of the setting sun, landscape features such as coastlines and prevailing wind patterns.

Most waterfowl species and short-distance migrants learn migration routes from older birds with which they fly. Long-distance migrants such as hummingbirds, however, are probably born genetically programmed to fly for a certain amount of time in a certain distance. This is especially true for their first migration. On subsequent migrations, they may also incorporate learned information such as how to locate a particularly good breeding site.

Here is a peak migration timetable for the kawarthas:

- Blackbirds, robins — late March to early April
- Waterfowl — late March to mid-April
- Osprey — early to mid-April
- Swallows — mid- to late April
- Sparrows — late April to early May
- Loons — late April to early May
- Hummingbirds — early to mid-May
- Warblers — mid-May
- Flycatchers — mid- to late May

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