

# It's a bird, not a plane: Migrating songbirds depart on time

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This is a wood thrush in Belize. Credit: Kevin Fraser

A new study by York University researchers finds that songbirds follow a strict annual schedule when migrating to their breeding grounds – with some birds departing on precisely the same date each year.

The study, published in the journal *PLoS ONE*, is the first to track the migration routes and timing of individual [songbirds](#) over multiple years. Researchers outfitted wood thrushes with tiny geolocator "backpacks," recording data on their movements.

Spring departure dates of [birds](#) heading from the tropics to North American [breeding grounds](#) were surprisingly consistent, with a mean difference of only three days from year to year, the study reports. Fall migration, however, was far less predictable. Males on average flew faster than females, and first-timers lagged behind those with more than one journey under their wings.

The geolocators, which are smaller than a dime, are mounted on birds' backs with thin straps looped around their legs. The devices measure light, allowing researchers to estimate latitude and longitude by recording sunrise and sunset times.



This is a wood thrush with geolocator, Belize. Credit: Kevin Fraser

"It's quite surprising that the schedules of these birds are so consistent across the entire route, with some of them departing the tropics and arriving at breeding sites in North America on the same day in different years," says study author Kevin Fraser, a postdoctoral Fellow in York's Department of Biology, Faculty of Science & Engineering. "Much like airplanes, there are many factors that can influence birds' flight schedules, such as weather at departure and expected conditions at the

other end of the journey. Amazingly, these small songbirds are highly consistent in their timing between years."

Interestingly, while their departure times are precise, songbirds' migratory routes can vary widely. "Migratory routes sometimes differed by several hundred kilometres between years, which may reflect a fine-tuning of migration in response to wind and weather conditions en route, such as during large open-water crossings like the Gulf of Mexico," he says.

As for arrival times, birds need to be early to lay their claim to prime breeding grounds – but not too early.

"There is intense pressure for birds to get back to breeding grounds early to secure good territories, nest sites and, of course, mating opportunities. The early birds tend to do better and raise more young. However, cool weather in early spring can reduce food availability and even survival of early birds," Fraser says. He cautions that songbirds' consistent timing may come at a cost.

"The concern is that birds may not be able to flexibly adjust their schedules to meet new conditions with climate change," says Fraser. "This is a topic we're pursuing in current research."

The birds Fraser tracked were tagged in Pennsylvania and Costa Rica, at field research sites of his supervisor, York University Professor Bridget Stutchbury, who has studied the behavioural ecology of birds for decades. Her 2007 book, *Silence of the Songbirds*, details the threat to the species posed by climate change and habitat destruction.

"Numbers [of wood thrush] have plummeted in Canada by over fifty percent since the 1960s. When we lose the wood thrush, and other songbirds, we lose an integral part of the forest itself," Stutchbury says.

Provided by York University

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