

Bye Bye Birdies

Populations of many migratory species have plummeted--and, in some cases, global warming seems to be at fault

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Even after an unusually mild winter, the return of spring to North America feels like a blessing. Parents are dragging their toddlers to the park. Students are dusting off their Frisbees. And bird watchers, armed with binoculars and guide-books, are heading out to search for their favorite species.

But the birders may be in for a disappointment. Radar studies of annual migrations suggest that the number of birds winging along America's flyways may be down by nearly 50% over the past 30 years, and data from the U.S. Geological Survey's annual Breeding Bird Survey and the Audubon Society's Christmas Bird Count reflect a similar decline. Various reasons for the falloff have been proposed, but climate change caused by global warming is high on the list for many experts.

The evidence has so far been largely circumstantial, however, which is why a study in the current issue of *Nature* is so intriguing. Building on some 40 years of bird counts, Dutch scientists report that populations of a migratory species called the pied flycatcher have plummeted an astonishing 90% over the past two decades in some areas of the Netherlands. And in that case, there doesn't seem to be any doubt about why: flycatchers are on the wane because climate change has made them late for dinner.

Those agile, acrobatic birds spend the winter in West Africa and return to their Netherlands nesting grounds in the spring to lay eggs. When their hatchlings emerge, the parents feed them mostly with caterpillars. The timing of the flycatchers' migration has evolved over many thousands of years to coincide with an approximately three-week period after Dutch plants have flowered and caterpillars are most abundant.

Thanks to warmer average temperatures, however, plants in some parts of the Netherlands are flowering an average of 16 days earlier in the spring. The birds in West Africa don't know that; they still leave more or less at the usual time. And while the early spring they encounter in the north has induced them to move up egg laying a bit, they're still producing offspring nearly a week behind prime caterpillar season. Inadequate nourishment means dying birds and falling populations. "We think this is the first time anyone has really shown that an insufficient response to climate change can cause population declines," says study co-author Christiaan Both of the Netherlands Institute of Ecology.

But it's probably not the last. Global warming might explain some migratory-bird declines in North America as well, although Greg Butcher, director of bird conservation at the Audubon Society, warns that it is dangerous to make assumptions. "It's great," he says, "when you have a bird like the pied flycatcher, which has been studied for years, and you have enough detail to pinpoint what the problem is." The populations of some seabirds, such as kittiwake, are plunging not because the birds are having trouble timing their food supply but because the fish they feed on have shifted locations.

Other birds seem to be in trouble because of habitat loss. The decline of the rusty blackbird, for example—one of the most rapidly dwindling species in North America, says Butcher—may also be due to global warming, but the immediate cause seems to be a drying up of the Canadian wetlands where it breeds. The same may apply to the Canada warbler. The cerulean warbler, also in decline, is losing habitat not because of global warming but because of another human activity: the destruction of Appalachian mountaintop forests by coal-mining operations.

And some birds are actually doing fine, adjusting to change and even increasing their numbers—at least in the bird counts. Some hummingbirds, for example, that used to winter in Mexico don't bother to make the trip anymore because the U.S. is now warm enough all year long. A number of migratory species that nest in northeastern forests have rebounded because that part of the country is reforesting as agriculture declines. Bluebirds are thriving, says Butcher, because bluebird lovers have been setting up nesting boxes for them for the past half-century.

But even those success stories can be troubling. Natural ecosystems evolved at a glacial pace, over millennia. And while human-induced change may help some species thrive, it can also throw off the balance that keeps an ecosystem healthy—as some hungry Dutch hatchlings have discovered.