

News

# Birds of a Feather Do Indeed Flock Together, According to New Research

*A decade-long bird monitoring program shows Golden-crowned Sparrows are more likely to live and travel with their friends.*



By **Paige Curtis**  
Editorial Fellow, Audubon Magazine

August 29, 2023

Birds in This Story



Popular Stories

- [How to Tell a Raven From a Crow](#)
- [How to Make Hummingbird Nectar](#)
- [What Should Be Done About Flaco, the Eurasian Eagle-Owl Loose in New York?](#)
- [13 Fun Facts About Owls](#)
- [Get to Know These 20 Common Birds](#)



Golden-crowned Sparrows. Photo: Bruce Lyon

When former University of California, Santa Cruz graduate students Alexis Chaine and Daizaburo Shizuka started banding birds on their campus arboretum, they hoped to explore crown plumage variation among various visiting sparrows. Soon after, they noticed that the birds they banded, among them Golden-crowned Sparrows, consistently returned to the same section of the arboretum. This was 20 years ago.

Bruce Lyon, a professor of ecology and evolutionary biology at the university, was the PhD supervisor for both students at the time and remembers the first year of the banding project well. “On average, 50 percent of the birds we tagged [initially] returned the next winter,” Lyon says. “So we saw an opportunity to follow individuals across their winter lives.”

It’s well known that sparrows live and migrate in flocks. But a new study published in the [Proceedings of the National Academy of Sciences](#) finds that the precision with which Golden-crowned Sparrows return to the same site—often within 100 feet—depends on whether their flockmates return. The study, led by Anastasia Madsen and co-authored by Lyon, Chaine, Shizuka, and colleague Theadora Block, shows that the loss of flockmates lessened a Golden-crowned Sparrow’s loyalty to an overwintering site, while more winters spent there with the same birds, strengthened it. What began as an open-ended bird monitoring program now offers a rare peek into the social lives of birds and how their relationships affect their migration.

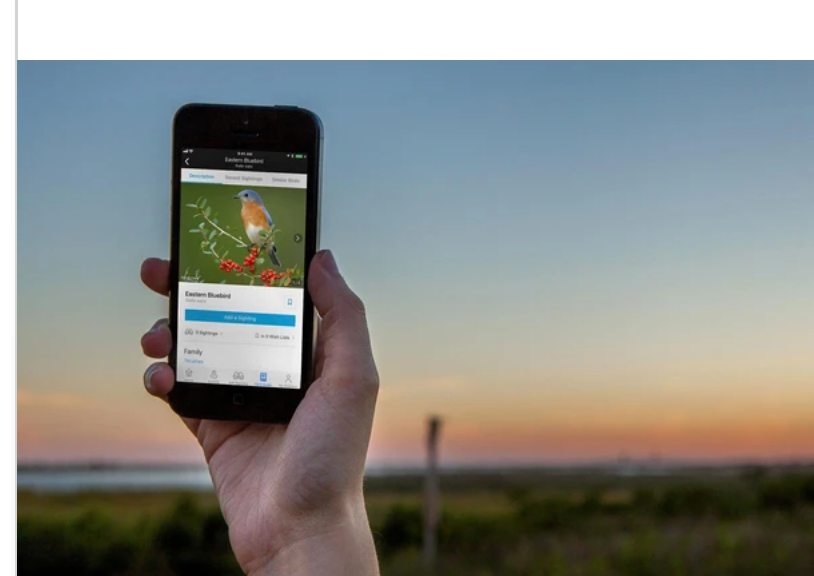
Site fidelity, the consistency with which animals return to the same general region or specific territories each year, has long posed a chicken-and-egg dilemma for researchers: Do individual birds associate with each other because they are attracted to the same location, or are they drawn to each other?

Researchers addressed that conundrum by comparing 10 years of behavioral observations against changes in site fidelity. Researchers tagged each individual sparrow overwintering in the University of California, Santa Cruz Arboretum and Botanic Garden, tracing each bird’s home range and how it changed over time.

Golden-crowned Sparrows typically breed in the tundra and shrubland of British Columbia and Alaska, [returning to the Pacific coast](#) in the fall. Researchers measured the demographic turnover (essentially a census of who returns and who doesn’t) among wintering flocks to understand how the home range of migrants shifted based on population changes. Sparrows that lost more close flockmates from the previous year had larger deviations in their home range location.

**Download the Audubon Bird Guide App**

More than 800 North American birds at your fingertips—all for free.



Sparrows that lost more close flockmates from the previous year had larger deviations in their home range location.

“Where an individual bird chooses to go was largely thought to be influenced by habitat traits and resource availability,” Shizuka says. “But we were able to show that long-term relationships with flockmates are also part of that landscape.”

The study builds on prior research around the hidden complexity within this sparrow species. Using the same dataset in a [2014 study](#), Lyon and his co-authors, including Chaine and Shizuka, found that flocks of Golden-crowned Sparrows are not random subsets of the whole population, but place-based communities with their own social structure. And these social connections are [not correlated with kinship](#) or the sex of individual birds.

There might also be benefits to associating with the same flock of birds. Golden-crowned Sparrows are skilled at differentiating between individuals in their flock by song, which scientists believe helps them avoid [aggressive interactions with unfamiliar birds and increase their feeding potential](#) with familiar ones.

Joely DeSimone and Emily Cohen, peer reviewers for the new study, co-published their own [commentary](#) on the findings, and believe discoveries like this are just the beginning of a broader paradigm shift within avian research.

“Increasingly, we’re coming to understand that social relationships are really important for migratory animals,” says DeSimone, a postdoctoral research scientist at the University of Maryland’s Center for Environmental Science Appalachian Laboratory. “The idea that social interactions affect where birds go and when is an entirely new area of research.” In the commentary, the authors point out that human-induced habitat loss may impact the quality of social relationships in birds, which study researchers got the chance to examine.

In the final year of the study, a parking lot was constructed on a portion of the field site. The structure removed about 15 percent of vegetation, including the forested and brushy habitat that Golden-crowned Sparrows like. As a result, sparrows migrating that winter showed major shifts in their home range and experienced the largest average loss of flockmates. Researchers hypothesized that sparrows likely left the field site in response to this disturbance. While more data is needed, this isolated incident shows that habitat loss can disrupt the social networks of birds.

Researchers still don’t know how social relationships shape bird behavior at other points in the migration cycle— like breeding season—and their impact on migration timing and success. For Lyon, these research gaps support the need for long term studies on other migratory bird species.

“We don’t know whether these Golden-crowned Sparrows are unique in terms of their winter social behavior, or whether it’s just not well documented in other species,” he says. “The kind of in-depth study we did is just not done that often.”

For Shizuka, the study’s findings are fascinating beyond the avian implications, providing insights that are transferable to humans. Just like these sparrows, “our genetic makeup and physiology is only one part of the broader story about who we are,” he says. “Who we’re surrounded by also matters.”



## How you can help, right now

**Get Audubon in Your Inbox**

Let us send you the latest in bird and conservation news.

Email address  
 [Sign Up](#)

**Find Audubon Near You**

Visit your local Audubon center, join a chapter, or help save birds with your state program.

[Explore the Network](#)

**Become an Audubon Member**

**Membership benefits include one year of Audubon magazine and the latest on birds and their habitats.** Your support helps secure a future for birds at risk.

[Join Today](#)

Spread the word. It’s the least you can do.

### Stay abreast of Audubon

Get updates about our conservation work and how to help birds.

Email address  
 [Sign Up](#)



National Audubon Society

Audubon protects birds and the places they need, today and tomorrow.

- [Home](#)
- [News](#)
- [Birds](#)
- [Conservation](#)
- [Get Outside](#)
- [Magazine](#)

- [About Us](#)
- [Press Room](#)
- [Careers](#)
- [Audubon Near You](#)
- [Notice of Annual Meeting](#)

- [Donate Now](#)
- [Renew Membership](#)
- [Join Audubon](#)
- [Monthly Giving](#)
- [Adopt a Bird](#)
- [Legacy Gift](#)
- [Audubon Products](#)
- [Online Store](#)
- [Take Action](#)