

Birds that eat at feeders more likely to get sick, spread disease

September 17 2015



Male finches on bird feeder. Credit: Bonnie Fairbanks Flint

Wild songbirds that prefer to eat at bird feeders have an increased risk of acquiring a common eye disease. In turn, these birds also spread the disease more quickly to their flock mates, according to an international research team led by Virginia Tech scientists.

The researchers found that this feeding preference, rather than its social position in the flock, as previously thought, was more likely to result in a bird contracting the eye disease. The results of the study, funded by the National Science Foundation, were published Wednesday in the journal *Proceedings of the Royal Society B*.

"Our results suggest that in this species, a few individuals—those that like eating at feeders—are likely very important in driving [disease epidemics](#)," said Dana Hawley, an associate professor of biological sciences in the College of Science, a Fralin Life Science Institute affiliate and member of the Global Change Center at Virginia Tech. "If this is true for other wildlife species as well, we may be able to more effectively reduce disease by targeting these 'high risk' individuals."

The authors monitored the social and foraging behaviors of wild flocks of house finches, a common backyard songbird, and the spread of a naturally-occurring bird disease called Mycoplasmal conjunctivitis, which is similar to "pink eye" in humans but cannot be contracted by humans. Infected [birds](#) have red, swollen eyes that can lead to blindness, and ultimately, death, as a result of not being able to see.

In the study, each bird was fitted with a unique chip containing a barcode that automatically recorded each time a bird visited one of the monitored bird feeders over an entire winter. When bar codes from different birds appeared at feeders around the same time, the researchers knew that those two birds were feeding together.

"This technology enabled us to capture where birds fed during the winter and who they chose to feed with," said Sahnzi Moyers of Portland, Oregon, a doctoral student in [biological sciences](#) in the College of Science, who works with Hawley.

The researchers used this data to reconstruct the birds' social networks.

Birds that were frequently seen together had stronger bonds. Based on previous work, the authors expected that birds that had many connections would be more likely to be exposed to the disease and to spread it.

"We expected birds that were more central in the social network, or had more friends, to catch the disease, because previous research has found that this was important for accessing information about where food is located. But, we found instead that it was birds' feeding preferences that were most important," said Damien Farine, a postdoctoral researcher with a joint appointment at the University of Oxford and the University of California-Davis and co-author of the study.

"Understanding which animals become sick, and which individuals are most likely to spread disease, can be critical to conservation," said James Adelman, an assistant professor at Iowa State University, a former postdoctoral researcher at Virginia Tech and co-author of the study.

Feeding birds isn't a bad thing for humans to do, as it helps birds survive the winter. However, the researchers recommend that bird feeders be cleaned and disinfected each time they are refilled to help reduce the likelihood of spreading disease.

More information: Feeder use predicts both acquisition and transmission of a contagious pathogen in a North American songbird, Published 16 September 2015. [DOI: 10.1098/rspb.2015.1429](https://doi.org/10.1098/rspb.2015.1429)

Provided by Virginia Tech

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