

Bird watchers help federal agencies pinpoint conservation priorities

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Migratory birds are a little like college students moving from home to school and back over the year. With each move they switch landlords, encountering new rules and sometimes vastly different living conditions. Whereas college students generally survive just fine, migratory birds depend on the cooperation of their landlords to maintain the habitats they need.

That's the finding of one of the most detailed assessments of bird ranges ever conducted, work begun as part of the State of the Birds 2011 report and published this month in the journal *Ecological Applications*. The findings allow public land managers to know exactly which species are most dependent on specific pieces of protected land, and to see how those species fit into the larger context of the nation's open spaces.

"The initial observation that got everybody excited was evidence that birds switched between agencies across the annual cycle," said Frank La Sorte, a research associate at the Cornell Lab of Ornithology and the study's lead author. "This analysis enables managers to look at the full life cycles of the birds they want to protect, and to know specifically which other public [land management](#) agencies they'd want to cooperate with."

The study analyzed 308 species of birds that live on lands managed by the Bureau of Land Management and U.S. Forest Service, the two largest public land managers in the western United States. Drawing on 1.7 million crowdsourced checklists submitted to the Cornell Lab's eBird

project, the researchers modeled where each species occurred in each week of the year across the nation. They then overlaid those results on a map of land management compiled by Jocelyn Aycrigg of the National Gap Analysis Program at the University of Idaho, a coauthor of the study. The map showed not only which lands were managed by the agencies, but what levels of formal biodiversity protection the lands had.

That level of detail—both about where birds go during the year and who manages the land they're on—allowed researchers to identify three general ways birds move across the landscape.

For example, birds like the Black-headed Grosbeak move from wintering grounds in Central America to forests in the western U.S. They migrate along river and stream corridors—largely BLM-managed—and then move upslope to Forest Service-managed habitats to breed.

The Mountain Bluebird, on the other hand, is a short-distance migrant that breeds in high-elevation forests managed by the Forest Service. In the fall they move downhill to spend the winter in open country under the BLM's jurisdiction. Some 19 other species follow a similar pattern.

Another 66 species don't switch agencies during the year, but live primarily on public land throughout the year. The Le Conte's Thrasher, a scimitar-beaked desert songbird that's on the 2014 State of the Birds Watch List, is an example. Some 85 percent of its entire range lies on public lands, according to the analysis done for the State of the Birds report. More than 40 percent is made up of BLM lands, but the National Park Service and Department of Defense each manage another 20 percent of the species' range. The analysis in this new study goes further—itemizing which individual BLM units support the most habitat for this species (and does the same for hundreds of other species).

These detailed breakdowns—first envisioned in the State of the Birds reports of 2011 and 2013—give land managers the power to zero in on species they can have the most effect on. Until now, they've had to identify important species from a list of hundreds using only large-scale range maps, seasonal checklists, and hard-to-access data from formal surveys.

"It can get overwhelming thinking you need to do everything for every bird," said Ken Rosenberg, a conservation scientist at the Cornell Lab and coauthor of the study. "This can really help hone in on what's important for your piece of land—so you know what are the main species you can concentrate on."

The study's focus on so-called multiple-use lands (places that are neither set aside as wilderness nor completely open to development) highlights a strategic opportunity for conservation, Rosenberg said. It's difficult to set aside new parcels of land, but adjusting priorities on existing lands can have a huge positive effect.

"Just a slight shift in, for example, grazing requirements on a million acres of multiple-use lands would have a huge effect on birds," Rosenberg said. "That's where all the potential for conservation is. The whole idea is to shift the arrow and make it easier for land managers to fit [birds](#) into their planning alongside all the other uses."

In the near future, La Sorte said, the same kinds of models will be available for private lands and for other countries. This should make it possible for land managers to cooperate across the entire region where long-distance migrants live—even [species](#) like the Barn Swallow and Swainson's Hawk, which fly almost the full length of North and South America each year.

The models are made possible by millions of volunteer reports from

thousands of bird watchers who participate in eBird. It's an example of the very real connection the eBird program makes between skilled hobbyists and formal science and conservation.

"It's an amazing thing and one that birders can be proud of," Rosenberg said, "How does my little old eBird checklist inform national conservation policy? This is how."

Provided by Cornell University

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