

## Study shows exurban residences impact bird communities up to 200 meters away

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This is one of the "human-sensitive species" looked at in the study. Credit: Julie Larsen Maher/WCS

As part of the study, scientists sampled the presence of 20 species of birds both near and far from 30 rural residences in the Adirondack Park. Calculating their occurrence at increasing distances from the residences, they determined that "human-adapted" species are 36 percent more likely to occur near the homes than in the surrounding mixed hardwood-

conifer forests, and that "human-sensitive" species were 26 percent less likely. Beyond 200 meters, occupancy rates were similar to the surrounding forest.

The report appears in the current online edition of the *Journal of Landscape and [Urban Planning](#)*. Authors of the study are Drs. Michale Glennon and Heidi Kretser of the [Wildlife Conservation Society](#).

Rural exurban development is residential development existing outside of cities and towns, and is generally characterized by larger lot sizes (5-40 acres or more) and lower density than suburban development. Exurban residences exist within an otherwise unaltered ecosystem.

Exurban homes change the environment by bringing vehicles, noise, lights, pets, people, and [food sources](#) into the forest, as well as by physically altering and fragmenting habitat. These changes can have myriad impacts, including altered [species](#) behavior and composition, increased human wildlife conflicts, new predator-prey dynamics, and decreased biotic integrity (a measure of how pristine a wildlife community is).

"Adirondackers take great pride in their surroundings and try not to unduly disturb the natural setting in which they live," said WCS Adirondack Program Science Director Michale Glennon. "A key finding of the study is that the [ecological footprint](#) of development can be much larger than its physical footprint. We found that even a small home and lawn can change bird communities some 200 meters away, which means more than 30 acres of the surrounding landscape, depending on what types of activities are occurring on the residential property. It is important that we learn how birds and other wildlife react to particular kinds of human activities, and find ways to minimize the negative impacts for wildlife in exurban areas."

The study found that species sensitive to human impacts include the black-throated blue warbler, black-throated green warbler, hairy woodpecker, hermit thrush, ovenbird, scarlet tanager and the winter wren. The presence of some species, like the scarlet tanager, are a good indicator of undisturbed forest health.

WCS Livelihoods and Conservation Coordinator Heidi Kretser said, "Some wildlife species are sensitive to exurban development and are less likely to be found near those residences than adapted species. More sensitive and less common species could ultimately be displaced from the area as a result of this kind of development."

The study was modeled after one conducted in a shrub-oak ecosystem in Colorado where scientists calculated a 180-meter ecological effect zone based on their results. Glennon and Kretser believe that the similar results in two different ecosystem types may indicate that human behaviors associated with exurban homes play a larger role in shaping avian community characteristics nearby than do habitat alterations created by construction and clearing.

While breeding bird communities were used to measure the impacts of exurban development in the study, the authors note that birds can serve as valuable indicators of overall biodiversity.

WCS Adirondack Program Director Zoe Smith said, "The Adirondack Park is one of the last large, intact, wild ecosystems in the northeastern United States, and it is becoming increasingly important as we face global threats like climate change. As we strive to find a healthy balance between conservation and the needs of humans within the park, we need to fully understand the impacts of different development patterns. This research is another step toward that understanding and can help inform decisions on development and land-use in this rural landscape."

Provided by Wildlife Conservation Society

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