Understanding why songbirds choose their homes

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New research centres on songbirds in Canada's boreal forest, such as the Canada Warbler pictured here. Credit: William H. Majoros/Wikimedia Commons (CC 3.0)

New research by University of Alberta biologists uses a new approach to modelling the populations of six species of songbirds in Canada's boreal forest—and the results show that standard modeling methods may not be accurately capturing species distribution patterns.

The study shows that birds of the same species do not necessarily use the

same habitats in different parts of the boreal forest, a phenomenon they termed differential habitat selection. They developed habitat models to account for this process to give better estimates of population size and distribution.

"Knowing how species select habitats differently in different parts of their range is an important first step towards a better understanding of their ecology and how populations will respond to human disturbances and conservation efforts," explained Andrew Crosby, postdoctoral fellow who works with Professor Erin Bayne in the Department of Biological Sciences.

The researchers examined nearly 20 years of population data following six boreal songbird species in the Canadian boreal forest, including the Blackburnian warbler, the Black-throated Green warbler, the Brown creeper, the Canada warbler, the Cape May warbler, and the Connecticut warbler. The results clearly show spatial variability in habitat selection within species.

"Bird populations may not respond to changing environmental conditions the way we expect them to if we assume that habitat selection is the same under all conditions and in all places," said Crosby. "This means that the same management actions will likely have different effects in different places. Policies and management strategies will be much more effective if they are tailored specifically for different regions."

The research provides a path forward for improving conservation planning and information for making informed policy decisions and resource allocation.

The paper, "Differential habitat selection in boreal songbirds influences estimates of population size and distribution," was published in *Diversity and Distributions*.

More information: Andrew D. Crosby et al, Differential habitat selection in boreal songbirds influences estimates of population size and distribution, *Diversity and Distributions* (2019). DOI: 10.1111/ddi.12991