

Canada Warblers stick together in diverse landscapes

Individuals cluster territories close together, even in areas of higher forest harvest activity.

Conserving species-at-risk is not always straightforward or conducive to simple solutions. The Canada Warbler, a nationally Threatened forest songbird, is a good example of this. The threats they face, and even their habitat requirements, seem to vary across their Canadian range.

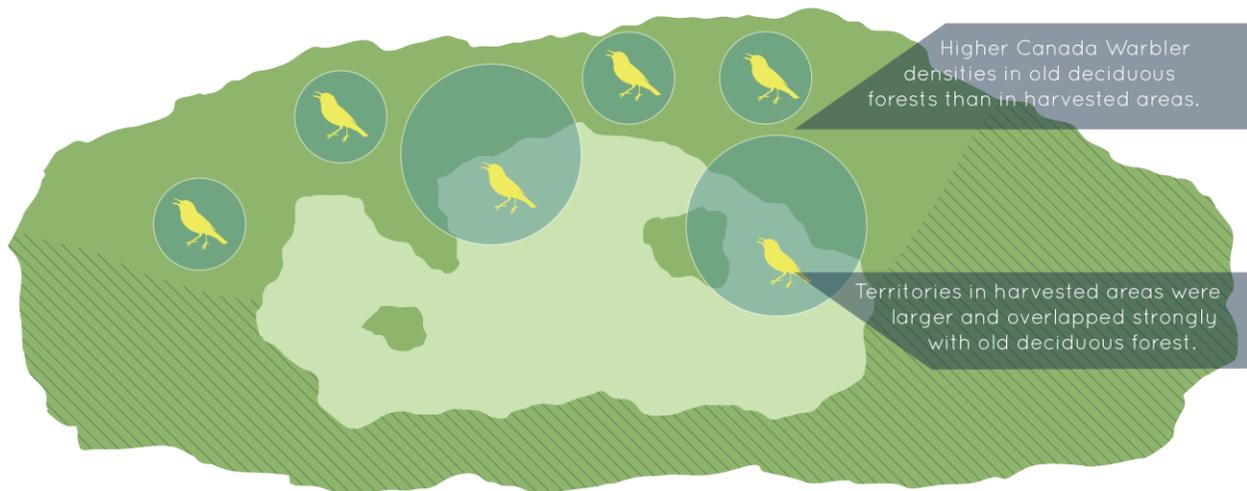
For forest managers, understanding how Canada Warblers use harvested landscapes is critical for addressing the question: **how can we harvest the forest in a way that will maintain suitable conditions for Canada Warblers across the landscape in the long term, and thus mitigate potential threats posed by forestry?**



On the Alberta-Pacific Forest Industries Inc. (Al-Pac) forest management tenure in boreal Alberta, [a recent study by University of Alberta researchers](#) confirmed that old aspen-dominated stands are important for the Canada Warbler. But their research went deeper than that, and the outcome is knowledge that may help forest managers conserve this songbird more effectively on harvested landscapes.

A preference for old aspen forest

Within the surveyed forests in the Al-Pac tenure, **Canada Warblers were more likely to occupy old aspen stands with dense shrubs** than recently harvested areas (i.e., harvested within the last 30 years). The few individuals that were found in harvested stands were observed near the edge of adjacent old aspen stands rather than in core harvested areas. Their home ranges also typically had limited overlap with the harvested area and were larger on average than those of birds solely using the old stands. This suggests there may be fewer resources (e.g., food, nesting sites) available in recently harvested stands.



All these findings point to a strong preference by Canada Warblers for old aspen forest.

But that's not all the researchers found. They went one step further and found that Canada Warblers' social behaviour also affected where they were found within the Al-Pac landbase.

Canada Warblers stick together on the Al-Pac tenure

Whether a forest stand was harvested or not, **Canada Warblers were more likely to be found near other Canada Warblers.**

This behaviour—known as “conspecific attraction”—means that males looking to establish territories settle near others of the same species. This can be beneficial if the presence of other male warblers is a reliable indicator of high quality food, nesting areas, and mates. However, conspecific attraction can also result in overcrowding, potentially forcing some birds into the edges of high-quality neighbourhoods even if there is high quality habitat elsewhere.

This can happen as a result of male Canada Warblers arriving at different times in the spring. They come to the boreal forests of Alberta to breed, but some arrive earlier than others, and early arrivals have their first pick of potential territories. On a diverse boreal landscape with different ages of forests, they are more likely to establish territories in the older deciduous forests.

There are two choices, then, for the later arrivals. They can fly elsewhere to locate old deciduous forest and establish territories there, or they can stick close to the other Canada Warblers, even if this means

settling in the harvested areas next-door. The results of this study suggest that the drive to have neighbours of the same species may be important to consider when managing for this species.



Options for forest managers

This tendency of Canada Warblers to cluster their territories may have unfortunate consequences if it leads them to congregate in less suitable areas, but it also gives managers a potential tool to improve conservation outcomes.

The results of this study suggest that leaving old deciduous forest in areas already occupied by Canada Warblers may provide greater benefits because of their clustering habits. Canada Warbler males have a strong tendency to return to the same area they occupied the summer before. This means that Canada Warblers are likely to keep coming back to forests where they were found in high numbers, and we suspect this draws in even more Canada Warblers to be their neighbors.

On landscapes managed using large harvests with shapes and sizes inspired by wildfire, it is possible to maintain large areas of old forest while harvesting elsewhere. As these large harvest areas regrow and age, they in turn can provide large continuous habitats. Such areas are anticipated to provide greater habitat value to Canada Warbler than small forest fragments. As researchers learn more about how long these “clusters” of Canada Warblers last, they may be able to recommend ways for managers to time harvesting to occur after the birds have moved elsewhere.

This study joins others in providing forest managers with tools to plan, harvest, and monitor managed landscapes to maintain Canada Warbler populations. By identifying the tendency of Canada Warblers to breed near one another, this research gives managers something important to look out for and some potential tools for improving the conservation of Canada Warblers on managed landscapes.

Alberta-Pacific Forest Industries Inc. (Al-Pac) is located near Boyle, Alberta, where they manage one of the largest Forest Management Agreement (FMA) areas in the province. Al-Pac has a long history of collaborating with researchers and using their results to improve environmental outcomes on their FMA. This series looks at recent research conducted by Dr. Erin Bayne and his students, based at the University of Alberta.