



CANADIAN FOREST SERVICE

Science HIGHLIGHTS

BOREAL BIRD RESEARCH

Is logging riparian areas sustainable?

Studying bird populations along streams gives new insight into sustainable logging practices

Riparian zones help to protect water quality by regulating the flow of water and nutrients between terrestrial and aquatic ecosystems. These zones—where the forest meets the water—are also critical habitat for a variety of terrestrial species. Forest harvesting along streams and rivers, and around lakes is regulated as these areas are crucial for maintaining water quality, providing habitat for organisms in the water and on land, and providing travel corridors for many species. However, a large part of the scientific literature that supports these regulations is several decades old.

The application of regulations in most jurisdictions is to systematically apply no-harvest setbacks, which can lead to unnatural, linear patterns of older-growth forest—a pattern that is inconsistent with the emerging forest management goal of mimicking natural disturbances like fire. Research scientists with the Great Lakes Forestry Centre of the Canadian Forest Service–Natural Resources Canada in Sault Ste. Marie wanted to find out if there is a more natural way to protect these riparian zones than relying on no-harvest areas.

Can protected riparian zones accommodate harvesting?

“We looked at whether it’s possible to log within riparian zones but still keep the protection these buffers offer,” says Stephen Holmes, a research scientist at the forestry centre who specializes in forest birds.

Holmes is using his expertise in bird populations to provide important insight into forest management practices in riparian zones. How bird communities respond to disruptions associated with logging is an important measure of how sustainable certain approaches to harvesting may be. Holmes and his fellow researchers at the Canadian Forest Service–Natural Resources Canada started from the premise that sustainable harvesting in riparian zones should mimic natural disturbances.

To mimic a natural disturbance like fire or insect infestation, Holmes and a Canadian Forest Service team worked with loggers and foresters from Domtar to remove half the wood from a riparian test zone. He describes it as a “patchy” approach to logging, which leaves the natural characteristics of the forest intact.

“The project called for the removal of trees to be as evenly distributed across species and size classes as possible to see whether this has any effect on bird

Overview

“Patchy” harvesting may be a more natural way to protect riparian zones because it mimics natural disturbances like fire.

Initial results show that a patchy approach to harvesting may lead to a better habitat for birds because it produces a more diverse habitat.



Riparian zone harvest

populations,” notes Holmes. The test site is close to White River, Ontario—about 75 kilometres inland from Lake Superior’s northeastern shore.

Does harvesting in riparian zones decrease or expand habitat?

“The initial results show that a patchy approach to harvesting leads to more heterogeneity, a more diverse habitat,” says Holmes. “So far, the research shows no significant negative impacts on bird populations.” Holmes’s colleagues are using the project to study a range of ecological values, including aquatic habitat and invertebrates.

This research is also playing an important role in the development of forest management policy. Ontario, for example, uses the presence of specific birds and their preferred habitat as a benchmark for sustainable forest management.

Holmes is analyzing the data and planning to publish two or three scientific papers. The first paper appeared in the *Forestry Chronicle*. It focuses on the operational and economic feasibility of logging in riparian zones. The early results are encouraging.

If Holmes’ research is accepted, a patchy approach to riparian logging could lead to more diverse habitats that attract more birds.



Blackburnian warbler

