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Riparian Forests and Autumn Cyanobacteria



Riparian Forests: Where the Forest Meets the Water

By Phil Riley

What is a riparian forest?



Walk along a healthy stream, river, lake or wetland and you will often notice a strip of trees and vegetation bordering the water. This is the riparian zone—the transition between aquatic and terrestrial ecosystems. When trees and shrubs dominate that zone, we can call it a riparian forest. Riparian forests are much more than a line of trees beside the water. They form a living interface between land and water, influencing everything from fish habitat and water temperature to birds, mammals, insects, soil, nutrients and the movement of water across the landscape.

A Natural Filter for the Water

Rainfall and snowmelt moving across a forest floor encounter roots, leaf litter, fallen branches and other vegetation. This slows runoff and helps trap sediment and nutrients before they reach the water. Roots also help hold streambanks and lakeshores together, reducing erosion.



Keeping the Water Cool

Trees along streams and rivers provide shade that can substantially reduce solar heating. For cold-water fish such as brook trout, cooler water is critical. Temperature influences dissolved oxygen, metabolism, growth, feeding and survival. Ontario guidance specifically recognizes riparian forest as important to fish habitat because of its influence on sedimentation, temperature and cover.

The Forest Feeds the Stream

Leaves, needles, twigs and other organic materials enter the water and become resources for fungi, microorganisms and aquatic insects. Those insects in turn feed fish, amphibians, birds and bats. Some of the energy supporting a trout can therefore begin with a leaf falling from a tree beside the stream.



Trees Become Fish Habitat

Eventually, some riparian trees fall into the water. Logs, branches and root wads can create pools, cover and slower-water areas, while trapping organic material and providing habitat for aquatic invertebrates. What may look like debris to us can be valuable aquatic structure.

A Highway for Wildlife

Riparian forests can provide food, shelter, nesting habitat and travel corridors. Deer, beaver, mink, otter, raccoon and many smaller mammals use these areas, while birds benefit from the combination of water, insects, shrubs, mature trees and dense cover. Ontario identifies riparian zones and forested stream valleys as important wildlife movement corridors.

The Small Streams Matter Too

Tiny headwater streams can be easy to overlook, yet they feed larger streams, rivers and lakes. Protecting the forest around these waterways helps maintain the connected functions of an entire

watershed. Springs, seeps and intermittent streams can also provide important hydrological links even when they are not obvious on a map.

A Forest That Works in Two Worlds

Riparian forests occupy a remarkable position in nature. Their roots are in the soil, their branches reach into the air, and their leaves influence the water below. They filter runoff, moderate temperatures, stabilize banks, recycle nutrients, provide habitat and connect aquatic and terrestrial ecosystems.

Six Riparian Forest Factoids

1. **Trees can be air conditioners for a stream.** Shade reduces solar heating and helps maintain the cooler conditions required by cold-water fish such as brook trout.

2. **Fish can, in a sense, grow on trees.** Leaves and other plant material entering streams support aquatic food webs. Aquatic insects process that material and become food for fish and other wildlife.

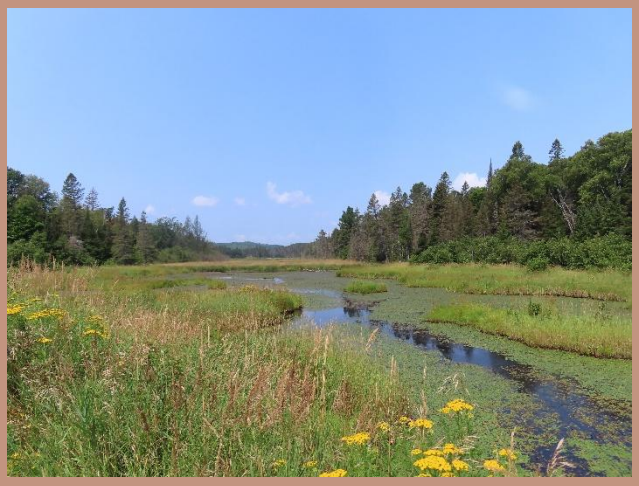
3. **A fallen tree may be a fish habitat structure.** Logs, branches and root wads create cover, pools and feeding areas and increase habitat complexity.

4. **Riparian forests are wildlife highways.** Forested shorelines and stream valleys can connect habitat patches and provide cover for mammals, amphibians, reptiles and birds moving through the landscape.

5. **The smallest streams can have a big downstream influence.** Headwater streams and small hydrological features contribute water, organic matter and ecological connectivity to larger waterways.

6. **A riparian forest is much more than a 'buffer.'** It can filter sediment and nutrients, moderate temperature, stabilize soil, provide food and habitat, store carbon and connect two major ecosystems.

An Algoma Shoreline Perspective



Here in Algoma, a walk beside a cold creek or Great Lakes shoreline can reveal this connection at almost every step. Cedar, balsam, spruce, alder, willow, poplar and hardwoods contribute shade, roots, leaf litter and woody material. Brook trout seek cold water and cover; beaver reshape channels and wetlands; kingfishers, wood ducks, warblers and other birds exploit the rich interface between forest and water. These are not separate pieces of the landscape; they are parts of one functioning system.

The next time you walk beside a stream or lake, look closely at the forest along the shore. Those trees aren't simply growing beside the water. They are part of the water system.

Selected Ontario sources Ontario Ministry of Natural Resources and Forestry: Ontario Tree Marking Guide; Forest Management Guide for Conserving Biodiversity at the Stand and Site Scales; Timber Management Guidelines for the Protection of Fish Habitat; Significant Wildlife Habitat Technical Guide; Ontario guidance on trees, farms and riparian buffers.

Understanding Cyanobacteria: Causes and Solutions

Early fall is an important times to watch Algoma District lakes. Water can remain warm after air temperatures cool, while calm, sunny weather may support cyanobacterial growth. Autumn storms can wash nutrients and leaves into lakes and fall turnover may redistribute phosphorus from deep water and bottom sediments. Visible scum can disappear without proving that cyanotoxins are gone, so suspicious water should still be avoided.

Cyanobacteria Model: Why Overgrowth Develops

Cyanobacteria are photosynthetic bacteria that occur naturally in lakes. They are often called blue-green algae, and dense growth is commonly described as algae overgrowth. Some species can produce cyanotoxins harmful to people, pets and wildlife. A simple model links nutrient inputs from the watershed, nutrient recycling within the lake, temperature and mixing, cyanobacterial growth, and effects on water quality.

External nutrient loading occurs when phosphorus and nitrogen enter from the surrounding land. Natural sources include soil and decaying vegetation. Human sources include leaking or overloaded septic systems, fertilizer, manure, pet waste, eroded soil and stormwater. Heavy rain and snowmelt can carry these materials through ditches and streams. Shoreline clearing increases the risk because native plants no longer slow runoff, hold soil or take up nutrients.

Internal phosphorus loading occurs when phosphorus stored in lake-bottom sediments returns to the water. Large, shallow lakes can be vulnerable because wind and waves resuspend fine, nutrient-rich sediments. Low oxygen near the bottom can also release phosphorus. Warm water, sunlight, calm conditions and slow flushing favour cyanobacteria. Some species regulate their buoyancy and move toward light or nutrients, while wind concentrates cells along shorelines. As cells die, decomposition uses oxygen and may promote further phosphorus release.

How Folks Can Reduce Nutrient Loading

People can reduce loading by inspecting and pumping septic systems, fixing leaks and avoiding excess water or harsh chemicals in drains. Use phosphorus-free fertilizer or avoid fertilizer near shore. Never apply it before heavy rain. Keep grass clippings, leaves and pet waste out of the water, and store manure where runoff cannot reach ditches or lakes.

Maintain a wide strip of native trees, shrubs and grass beside the water. Their roots stabilize soil, and the plants filter runoff. Redirect roof water onto planted ground, limit hard surfaces and cover bare soil during construction.

Farmers and larger landowners can test soil, match fertilizer and manure to crop needs, plant cover crops and maintain vegetation beside waterways.

Residents can support lake monitoring and report green, turquoise or paint-like water.

If suspected cyanobacterial overgrowth is visible, keep people and animals away, do not drink or cook with the water, and follow Algoma Public Health guidance. Appearance alone cannot show whether cyanotoxins are present. Preventing external nutrient loading is the most practical community action, although lakes with strong internal loading may improve slowly because sediment can continue supplying phosphorus.

Sources: Algoma Public Health: Blue-green algae; Ontario: Blue-green algae; and Agriculture and Agri-Food Canada: Water contamination by phosphorus.

You May Not Know

Desbarats, Bright, Basswood and Caribou Lakes in Algoma District have been research by experts since 2009 and the reports are available on our website at: https://www.centralalgomafreshwatercoalition.ca/reports-1

Sault Ste. Marie / Algoma Climate & El Niño Outlook



Sault Ste. Marie and the Algoma region are facing a warmer-than-normal, relatively low-snow, and high-variability winter for 2026–27 due to a very strong El Niño acting on a warming long-term climate baseline. This combination increases the likelihood of mild periods, rain, freezing rain, and freeze–thaw cycles, which may negatively impact forestry operations and snowpack persistence. However, major Lake Superior lake-effect snowstorms remain entirely plausible whenever Arctic outbreaks cross the relatively ice-free lake.

Become a Member

Your annual membership fee will provide a base budget for work of CAFC and demonstrate the commitment of local partners working towards a common goal. A strong diverse group is an essential component in meeting the goals of the Central Algoma Region.

Support us at https://www.centralalgomafreshwatercoalition.ca

