

# Coarse Woody Debris and Forest Health

## What makes a forest healthy? **biodiversity.**

From the soil to the canopy and everywhere in between, natural forests are made up of a variety of ecosystems. Shrubs, lichens, mosses, ferns, flowers, fungi, insects, birds, reptiles, mammals, and what most people don't think of – coarse woody debris (CWD), are a part of these ecosystems.

## What is **Coarse Woody Debris?**

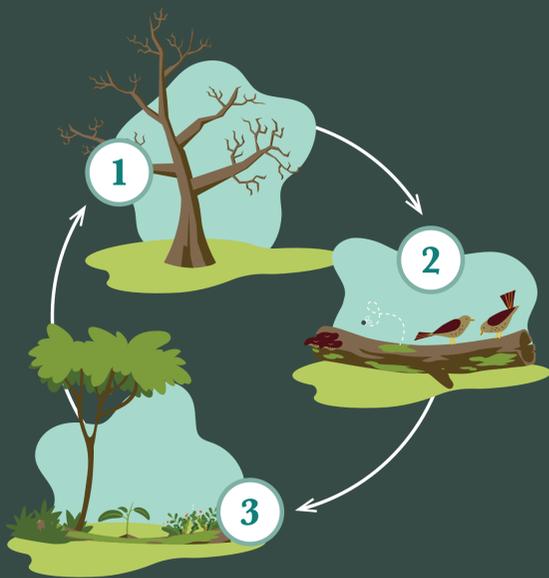
CWD is the result of a dead tree falling to the ground, either independently or due to an extreme weather event. CWD is defined as logs, uprooted stumps, large branches, and coarse roots in all stages of decomposition larger than 7.5 centimeters.

## Why is CWD important in a healthy forest?

Dead wood serves as the foundation to many ecological cycles and biodiversity in forests.

When dead wood inevitably reaches the ground, the carbon and nutrient rich wood begins to be destroyed by fungus, moss, and insects.

The nutrients and carbon that are released back into the soil during this process form the rich organic layer of the forest floor and creates the seed bed for new plant life.



## What would happen if coarse woody debris did not exist in forests?

Forest life would have a much harder time existing due to nutrients not being recycled back into the soil, and atmospheric CO<sup>2</sup> levels would noticeably increase.

When mature forests are destroyed by clearcutting and transformed into young forests the release of CO<sup>2</sup> increases. Young forests do not have as much CWD, so although young forests can uptake carbon more quickly, the carbon storage capacity is no match for a mature forest with nutrient rich soil and CWD.

A tree's ability to absorb carbon from the atmosphere improves with age. In fact, approximately 70 percent of all the carbon stored in trees will accumulate in the last half of its life. When the tree dies, most of the carbon filled biomass will be returned to the soil for storage.

The decline in carbon storage due to clearcutting, and the consequent loss of CWD in our forests is the most significant contributor to the rise in atmospheric CO<sup>2</sup> levels after the burning of fossil fuels.

Since 1985, more than 3 million hectares of the Acadian forest have been clearcut, leaving most forests to be dominated by early-successional species that cannot absorb and store as much carbon as their historic late-successional counterparts.