

Coarse Woody Debris:

At one time, people saw forests as simply places to manage and harvest high value wood products. In most cases, they felt that simply retaining tree cover with emphasis on desirable species, meant that the site continued to provide all of the ecological goods and services provided by natural forests.

Many wooded areas in Europe and elsewhere illustrate this point. Over the last few centuries, people planted and tended trees to conserve soil and water, create wildlife habitat and produce different forest products. Trees were usually harvested before they died and people removed and utilized virtually every part - sometimes even the root system. The clean, debris-free appearance of the post-harvest site was seen as a good thing because it looked neat and orderly and it was easy to plant the site with a new generation of trees.

People felt they were good stewards who cared for the dark green forests which blanketed much of the landscape. However, as the years progressed, society's understanding of how forest ecosystems function grew. It became apparent that a wooded but manicured forest, devoid of dead trees and woody debris, was not a truly healthy ecosystem because managing in this way did not account natural disturbances or other natural processes which occur in natural woodlands.

The natural processes which build an ecosystem have two basic phases. During the "building phase" organic and inorganic elements are assembled into complex living organisms such as plants and animals. This is followed by a "deconstruction phase" as dead organisms are recycled into materials and components which can be used by other organisms to rebuild the system. This process of birth, assembly, death and decay is crucial to each and every ecosystem on the planet.

While small organisms and soft tissues decompose relatively rapidly, a large woody organism such as a tree can take years, decades or even centuries to finally return all of its elements back into the ecosystem. For example, a large Eastern White Pine can live for 300 years or more but once it dies, it can take another 300 years before all of its elements are finally recycled back into the ecosystem.

This large material is called Coarse Woody Debris. Because it usually decays quite slowly, it offers a steady supply of energy, nutrients, and structure for hundreds of other living organisms over a long period of time.

As a standing tree breaks down, the branches and trunk provide habitats for countless bacteria, fungi, insects, mosses and plants through all stages of the decomposition cycle. The old bark on a dead stand tree often separates from the trunk providing a ready shelter from summer rains for bats and insects. Other animals come to feed on the organisms that live in the dead wood and as the interior breaks down, the hollow core can provide food storage and shelter for the cold winter months. Eventually the trunk falls to the forest floor where it continues the decomposition process. Fungi break down the wood causing it to become spongy and capable of holding

moisture during summer droughts. Some trees and shrubs prefer to take root in old decaying wood and as time passes, the old wood washes away exposing the stilted root system of the new tree.

In the 1980s, PEI was a leader in woodchip heat technologies. Often the chips came from old field white spruce stands which were reaching the end of their productive life span. A mechanical harvester would chip the entire tree leaving a clean site ready for planting. While people liked the look of these sites, as illustrated, many of these sites could have received more long term benefits if more coarse woody debris had been left on-site. Today, interest in biomass fuel is growing rapidly due to high oil prices and concerns about climate change. While forest biomass can provide many different economic, environmental and social benefits, attention should be paid to managing forests by respecting them as a living system rather than as simply a source of fuel.

Coarse woody debris serves many roles in the forest ecosystem so forest owners should factor in the need for coarse woody debris in their harvest and management decisions. By ensuring that natural processes are supported, the forest as a whole should be healthier and more resilient.

The Forest Enhancement Program www.gov.pe.ca/forestry/fep offers advice and assistance to land owners who are interested in developing the potential of their forest lands to meet any number of goals and objectives.