

Natural Cycles of Change in British Columbia's Protected Areas

COASTAL RAINFORESTS



Macmillan Provincial Park: Temperate Rainforest

The rainforest of Macmillan Provincial Park, on Vancouver Island, experienced a dramatic natural event in the form of a large blow-down from high winds.

Large trees left lying on the ground can appear wasteful to some, but with close inspection of these downed logs, it becomes apparent that they hold the future of the forest. Ecologists have discovered that a dead tree can potentially hold more species than a live tree. Insects, fungus, lichens,

mosses, young tree seedlings, amphibians, reptiles, mammals and birds all depend on a constant supply of downed rotting trees for habitat.

In many cases, maintaining ecological integrity simply means leaving ecosystems to carry on their natural cycles of change as they always have – for example, when trees fall from blowdown and flood they are left to continue recycling nutrients into the forest floor.

What is the role of BC Parks?

As stewards of protected areas, BC Parks protects and/or maintains:

- ▶ examples of different ecosystems and their different stages through time
- ▶ biological diversity
- ▶ essential ecological processes

This means that protected areas are managed to allow ecosystems to continue to function as they have for thousands of years. One approach to ecosystem management concentrates on maintaining **ecological integrity**. Ecological integrity is the ability of the ecosystem to respond to changes through natural cycles and processes that evolved through the ages in that ecosystem. In order to maintain ecological integrity, managers avoid activities that might lead to changes that the ecosystem is not adapted for through its own natural cycles.

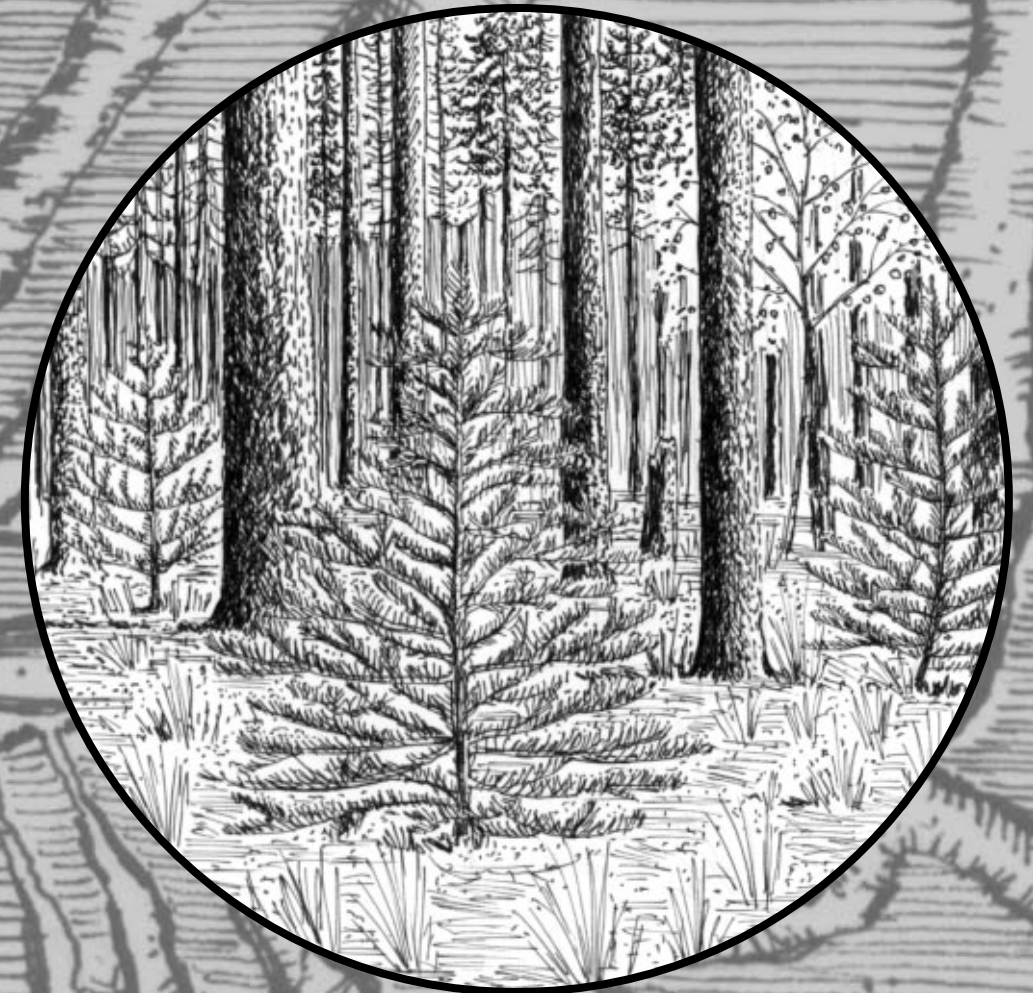
Tools for Ecosystem Management

Over the last 100 years, natural processes, such as fire or insect attacks, have often been suppressed or controlled by land managers. This was usually done to maintain resource or community values. In many cases, stopping fires has had serious effects on the health of dry landscapes. Dead wood can accumulate beyond naturally occurring levels and, if ignited, can cause intense, harmful fires. The landscape loses its diverse patchwork effect and insects lose their natural checks. In these cases, a more active job is required to try and restore or mimic natural processes. For example, when the spread of insect attacks is not checked by natural boundaries, various tools might be used to bring some balance back into the system, including:

- ▶ controlled fire (controlled-burning tries to match the intensity and scale of natural fires; see *BC Parks Prescribed Fire* brochure for more information) <http://wlapwww.gov.bc.ca/bcparks>
- ▶ insect traps
- ▶ individual tree fall and burn

Along protected area boundaries or in small protected areas in urban settings, BC Parks takes into account the values of adjacent landowners and tries to accommodate concerns about fire or insect attacks using the same tools as described above. It is BC Parks policy not to carry out salvage logging or to spray for insects.

COASTAL AND INTERIOR DRY FOREST AND GRASSLANDS



Tweedsmuir Provincial Park: Fire-dependent Ecosystem

In Tweedsmuir Provincial Park, you can observe a rapid cycle of change – the mountain pine beetle attacking large stands of mature lodgepole pines. This native beetle is always present in small numbers, but when a series of warm winters favours survival of its young, the beetle population can become epidemic.

The sight of large areas of dying pines is dramatic, but when one walks through the stand, a different picture emerges. Beneath the dying pines, a complete replacement

forest is growing. The dying pines become important wildlife trees – habitat for many species, including insect-eating birds that will help protect the new forest from future beetle attacks.

In recognition of forestry concerns outside of the provincial park, managers on both sides are collaborating to use fire and other techniques to reestablish the natural forest mosaic, creating less risk of the beetles moving out into the managed forests.

