



SAVING
O L D E R F O R E S T
SENSITIVE
E C O S Y S T E M S
ECOSYSTEMS

E A S T V A N C O U V E R I S L A N D A N D G U L F I S L A N D S



WHAT ARE OLDER FOREST ECOSYSTEMS?

AN AVERAGE TREE AGE OF 100 YEARS OR GREATER



Older forest ecosystems are conifer-dominated forests with an average tree age of more than 100 years. Two main types of older forest ecosystems occur on the east coast of Vancouver Island and adjacent Gulf Islands. Drier lowland sites in the south are dominated by Douglas-fir, often with western redcedar and grand fir. At higher elevations and further north, cooler and wetter conditions support western hemlock with Douglas-fir and western redcedar.

OLDER FORESTS ARE NOT NECESSARILY OLD-GROWTH FORESTS. "OLD GROWTH" REQUIRES CENTURIES TO DEVELOP ITS STRUCTURAL AND HABITAT DIVERSITY.

Older forests feature large trees, sometimes more than 1.5 m in diameter and over 55 m tall. These mature forests are biologically rich and quite distinct from younger second-growth forests. Live trees of varying ages and species are interspersed with snags, some reaching high into the forest canopy. Fallen trees crumble on the forest floor. On cooler, wetter sites, shade-tolerant western hemlock seedlings sprout from a thick mat of mosses and lichens that blanket fallen nurse logs. Openings in the forest canopy allow sunlight to reach the forest floor, encouraging the growth of shrubs and saplings. Most of these older forest features develop through natural disturbances such as fire, disease and blowdown, and can take more than a century to form.

TYPICAL ANIMALS

Pileated Woodpeckers
Bald Eagles
Northern Goshawk
Western Screech-Owl
Hammond's and Pacific-Slope flycatchers
cavity-nesting bats
clouded salamander and other amphibians
Roosevelt Elk

OLDER SECOND GROWTH FOREST

OLDER SECOND GROWTH FOREST ECOSYSTEMS HAVE AN AVERAGE TREE AGE OF BETWEEN 60 AND 100 YEARS. ALL HAVE BEEN DISTURBED BY LOGGING OR OTHER HUMAN ACTIVITIES SINCE THE EARLY 20TH CENTURY. WHILE NOT AS BIOLOGICALLY RICH AS THE OLDER FORESTS, MANY SERVE AS IMPORTANT BUFFERS AROUND SENSITIVE ECOSYSTEMS. THEY OFTEN PROVIDE CRITICAL HABITAT FOR SPECIES THAT REQUIRE BOTH OPEN AND FORESTED AREAS DURING THEIR LIFECYCLE, AND PROVIDE VITAL LINKS THAT ENABLE WILDLIFE TO TRAVEL BETWEEN HABITAT PATCHES.

THE BIOLOGICAL DIVERSITY OF FORESTS GENERALLY INCREASES WITH AGE. IF THEY ARE ALLOWED TO MATURE, THESE SECOND GROWTH FORESTS WILL BECOME OLDER FOREST ECOSYSTEMS.

TYPICAL UNDERSTOREY PLANTS

salal
dull Oregon grape
sword fern
foamflower
red huckleberry
vanilla leaf
step moss



HOW MUCH OLDER FOREST IS LEFT?

ONLY 2.6% OF THE LANDSCAPE

Older forest ecosystems occupy only 2.6% (10,605 hectares) of the landscape of east Vancouver Island and adjacent Gulf Islands. This is less than four percent of the area they occupied 150 years ago when they covered south coastal British Columbia. Now, most have been converted for urban or agricultural use, or have been modified by logging, fire or road-building.

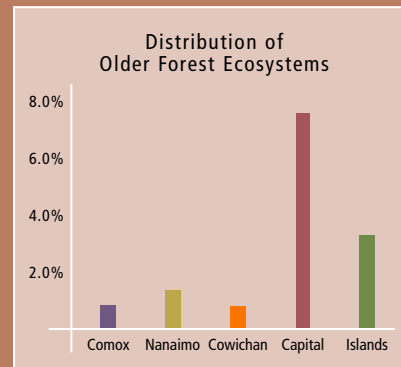
There are still a few remnant older forests with an average tree age of more than 250 years. Less than 1,100 ha remain of these very old forests – and only 150 ha is protected in designated parks.

Today, older forest ecosystems are scattered across the landscape in small patches, measuring less than 7 ha on average. Only 15 sites are larger

than 100 ha, most of them in the Capital Region water supply area. North of this area, gentle topography afforded good access for logging and as a consequence few older forest sites remain.

Older forests are now highly fragmented by roads, logging and urban development, and have become too small to support wide-ranging species such as black bear and cougar. Many have been affected by introduced species such as Daphne-laurel, English ivy and holly, which displace the natural understorey vegetation.

If the remaining older forests disappear, we will have lost a critical part of the natural and cultural heritage of this region. Without this habitat, many forest-dependent species will disappear.



WHAT CAN I DO?

- LEARN ABOUT THE NATURAL ENVIRONMENT AND BE A GOOD STEWARD OF YOUR OWN LAND
- JOIN A STEWARDSHIP ORGANIZATION, LAND TRUST OR ADVOCACY GROUP
- PARTICIPATE IN LOCAL GOVERNMENT DECISION-MAKING
- CONSIDER CONSERVATION COVENANTS AND OTHER LEGAL AGREEMENTS
- CONSIDER THE TAX ADVANTAGES OF DONATING LAND



WHY ARE OLDER FOREST ECOSYSTEMS IMPORTANT?

OLDER FORESTS ARE THE "LUNGS" OF THE WORLD, ABSORBING CARBON DIOXIDE, RELEASING OXYGEN AND CLEANING THE AIR

The diverse habitats found in older forests support an incredibly rich community of plant and animal species. High levels of biodiversity result from the extraordinary abundance and variety of fungi, canopy insects, soil invertebrates and lichens (many still unknown to science), all critically important parts of the forest ecosystem. Many species of plants and animals depend on specific habitat features found in older forests. Wildlife such as black bears, bats, salamanders, Marbled Murrelets, owls and woodpeckers need the food, cover and resting places found in the snags, rotting logs, thick bark and large trees.

"...THE PROFOUND SENSE OF INNER PEACE AS WE WALK THE FLOOR OF NATURE'S CATHEDRALS..."

CAMERON YOUNG, 1987

Older forests are places of solitude and inspiration. They feature in many of the parks and protected areas of east Vancouver Island, such as Goldstream Provincial Park near Victoria and Miracle Beach near Campbell River. As well as their value for recreation and ecotourism, older forests provide substantial economic benefits through commercial harvesting of understorey species such as salal and wild mushrooms.

A RICH COMMUNITY OF PLANTS AND ANIMALS

Research on the ecology and genetics of older forests has been used to enhance and manage commercial tree production and wood quality in British Columbia. Taxol – a substance derived from the Pacific yew – has been used to treat human cancers.

ALL SENSITIVE ECOSYSTEMS ARE IMPORTANT BECAUSE OF THEIR CONTRIBUTIONS TO:

- BIODIVERSITY
- CLEAN AIR, CLEAN WATER, NUTRIENT RECYCLING, POLLINATION
- RECREATION AND SCENIC VALUES
- EDUCATION AND RESEARCH
- ECOTOURISM AND OTHER ECONOMIC BENEFITS



HOW CAN WE PROTECT OLDER FOREST ECOSYSTEMS?

AVOID DIRECT AND INDIRECT IMPACTS

Maintain the largest possible patches of older forest to minimize further fragmentation by roads, utilities and other openings. Create and maintain connections between natural areas.

Create a vegetated buffer around the older forest. Buffers need to be large enough to protect the forest from edge effects such as increased light, temperature, noise, wind and decreased moisture.

Allow succession, natural disturbance and decay to occur. The structural features that contribute to the ecological value of older forests originate during natural blowdown of trees, tree death and disease.

Control invasive species. Fragmentation of older forests enables pests and invasive species to move in. Livestock grazing also introduces non-native species.

If necessary, use active control methods such as hand clearing, pruning, mowing, fencing, excavation and planting of native species, remembering that these activities can also cause disturbance.

Restrict access by vehicles, livestock and excessive numbers of people to prevent vegetation damage and soil compaction. Use barriers such as fences. If trail or road construction is considered, see *Develop Carefully* below.

Prevent disturbance of nesting or denning sites. Avoid habitat features such as black bear dens, eagle nest or perch trees, owl roost sites and woodpecker cavities. The nesting and breeding season for most coastal wildlife occurs in spring, but can extend into early August for some birds. Check with staff from the BC Ministry of Environment, Lands and Parks or the Canadian Wildlife Service.

IF DEVELOPMENT IS THE ONLY OPTION – DEVELOP CAREFULLY!

Conduct an ecological inventory before any development takes place, ideally through the seasons over a period of a year. Identify the existing flora and fauna, and in particular, distinguish any threatened or endangered species or plant communities and habitat features needing protection. This includes nodes of high biological diversity such as rock outcrops, vernal pools, seepage areas, standing dead or dying trees and rotting fallen logs.

Plan and implement all development activities (including trails, access roads and vegetation management) in a manner that will not adversely affect or disturb the older forest ecosystem.

A qualified professional can interpret the ecological inventory data and work to incorporate designs that are sensitive to the natural ecosystem. Locate trails only where they do not affect the root systems of trees, understorey vegetation and soils. Discourage high-impact uses such as horseback riding, motorized vehicles and mountain bikes. Locate corridors such as roads and powerlines away from the core forest.

A VARIETY OF CONSERVATION TOOLS

ARE AVAILABLE TO PROTECT OLDER FOREST ECOSYSTEMS, SUCH AS OFFICIAL COMMUNITY PLANS, OTHER BYLAWS, CONSERVATION COVENANTS AND STEWARDSHIP AGREEMENTS.

CHECK THE CONSERVATION MANUAL FOR MORE INFORMATION (SEE BACK PAGE).





The federal/provincial Sensitive Ecosystems Inventory has identified and mapped seven types of "sensitive" ecosystems on east Vancouver Island and adjacent Gulf Islands: Older Forest, Woodland, Sparsely Vegetated, Terrestrial Herbaceous, Coastal Bluff, Riparian and Wetland. Two other ecosystem types – Older Second Growth Forest and Seasonally Flooded Agricultural Field – were also mapped because they are important to the biodiversity of this area. This brochure is one in a series that describes these ecosystems.

For detailed information on sensitive ecosystems, refer to the Sensitive Ecosystems Inventory manuals, available in libraries, your local government planning department and on the SEI website.

TECHNICAL REPORT: *Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands 1993-1997. Volume 1: Methodology, Ecological Descriptions and Results.* P. Ward et al. 1998. Technical Report Series No. 320, Canadian Wildlife Service, Pacific and Yukon Region, British Columbia.

CONSERVATION MANUAL: *Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands 1993-1997. Volume 2: Conservation Manual.* M. McPhee et al. 2000. Technical Report Series No. 345, Canadian Wildlife Service, Pacific and Yukon Region, British Columbia. This manual provides recommendations for the management of sensitive ecosystems, and discusses conservation tools available to governments and others.

PHOTO CREDITS: Mark Kaarremaa, Trudy Chatwin, Neil K. Dawe

MORE INFORMATION ON THE SENSITIVE ECOSYSTEMS INVENTORY CAN BE OBTAINED FROM:

**SEI WEBSITE:
WWW.ELP.GOV.BC.CA/RIB/CBS/SEI
OR WWW.PYR.EC.GC.CA/WILDLIFE/SEI**

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**HABITAT
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**WORKING TOGETHER
FOR THE
GEORGIA BASIN
—
AU TRAVAIL
POUR LE
BASSIN DE GEORGIA**