



SAVING

S P A R S E L Y V E G E T A T E D

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 SPARSELY VEGETATED ECOSYSTEMS?

SPITS, DUNES, INLAND CLIFFS AND BLUFFS



Coastal sand dunes, coastal sand and gravel spits and inland cliffs and bluffs are all sparsely vegetated ecosystems.

They are characterized by patches of vegetation interspersed with bare sand, gravel or exposed bedrock.

Spits and dunes typically form through the accumulation of sand and gravel, and are highly unstable and fragile. Vegetation establishes slowly because of wave action, shifting sands, winds, salt spray, shortage of nutrients and fresh water and exposure to summer heat.

It may take hundreds of years for these plant communities to develop and stabilize. Left untouched, herbaceous or forest communities may eventually take over spits and dunes through the process of natural succession.

Steep **inland cliffs and bluffs** typically form as a result of erosion or collapse of rock faces and river banks. The plants and animals that can survive there are influenced by the steepness of the slope, the direction that it faces, its exposure to the weather (sun or shade) and the presence or absence of moisture. Soils may form only in the bedrock fissures and on ledges, where they support stunted trees and shrubs in addition to grasses, mosses and lichens.

TYPICAL SPECIES OF DUNES AND SPITS

silver burweed
beach pea
coastal strawberry
dunegrass
butterflies and moths (some rare)
tiger beetles
garter snakes
Black Turnstones
Dunlin
Killdeer
Sandhill Crane (rare)
Hudsonian Godwit (rare)

FAMILIAR LOCATIONS

Sidney Spit (Sidney Island)
Shingle Spit (Hornby Island)
Island View Beach dunes (Central Saanich)
Cowichan River claybanks
Mount Benson cliffs (Nanaimo)

TYPICAL SPECIES OF CLIFFS AND BLUFFS

stunted Garry oak
broad-leaved stonecrop
saxifrage
hoary rock moss
Townsend's big-eared bats
northern alligator lizards
Turkey Vultures
Peregrine Falcons
swifts

A VARIETY OF CONSERVATION TOOLS

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

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



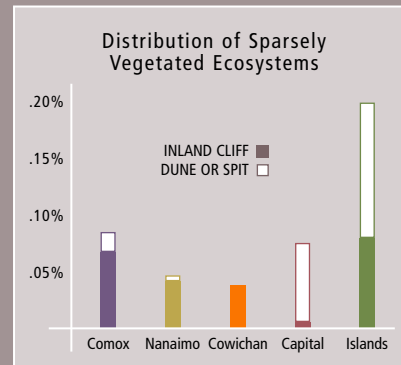
HOW MUCH IS LEFT?

LESS THAN 0.1% OF THE LANDSCAPE

Sparsely vegetated ecosystems cover less than 0.1% (335 ha) of the east coast of Vancouver Island and adjacent Gulf Islands. Most of the ecosystem units are small, measuring less than five hectares. Of the eight dune ecosystems identified, the largest two occur in the Capital region; the others occur in the Comox-Strathcona region. Spits are found in 26 locations, predominantly on the Gulf Islands, due to the

extensive coastlines and presence of sandstone bedrock. Inland cliffs and bluffs are located on 52 sites throughout the area.

Sparsely vegetated ecosystems are the rarest of the sensitive ecosystem types. Many of them are highly disturbed by trails, introduced species and other human impacts. Unmodified examples of this ecosystem are extremely rare.



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 SPARSELY VEGETATED ECOSYSTEMS IMPORTANT?

HIGHLY SPECIALIZED HABITATS

Sparsely vegetated ecosystems offer a variety of highly specialized habitats, supporting several plants, animals and plant communities that are unique to these ecosystems. Overall biodiversity is low, however, as relatively few plants and animals are able to adapt to the harsh and specialized conditions.

Between March and August, shorebirds such as Killdeer nest on dunes and spits. During annual migrations, large numbers of shorebirds and waterfowl use these areas as a stopover. For example, the Brant is a sea goose that depends on spits and the adjacent intertidal habitats for loafing and feeding during their

spring migration. Watching these geese has become so popular that the Brant Festival in Parksville-Qualicum now attracts thousands of visitors each year.

BIRDS, BATS, SNAKES AND LIZARDS

Turkey Vultures nest in caves and crevices on cliffs and bluffs and Peregrine Falcons nest on the open ledges. The rare Townsend's big-eared bat uses cliff crevices for roosting, and the deep crevices provide shelter and hibernation for garter snakes and alligator lizards. Bees and other insects travel to sun-warmed rocky outcrops as a meeting place in preparation for reproduction.

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 SPARSELY VEGETATED ECOSYSTEMS?

AVOID DIRECT AND INDIRECT IMPACTS

Create a vegetated buffer around the sparsely vegetated ecosystem to reduce outside disturbances. Dune, spit and cliff ecosystems are exceptionally vulnerable to human disturbance, and are best protected by limiting human influences. Dunes and spits are also unsuitable for development because of tidal action, and many inland cliffs are designated hazard areas because of steep slopes.

Control access. Even foot traffic can seriously damage these ecosystems. Rock climbing on inland cliffs and bluffs should be restricted to stable areas and sites where there are no rare species or breeding wildlife. If trail construction is considered, see *Develop Carefully* below.

Prevent disturbance of nesting or breeding areas, especially between early March and early August, which is prime nesting season for many birds. Shorebirds such as Spotted Sandpipers lay their eggs in small scrapes on the ground on spits and dunes and rely on camouflage

and small clumps of vegetation to protect their eggs and young. It is easy to step on them without even knowing.

Control invasive species. Non-native plants such as Scotch broom and introduced grasses are a serious threat to the ecology of sparsely vegetated ecosystems. Invasive species often spread from adjacent residential areas, roadsides, or clear-cuts. Homeowners and developers could buffer adjacent sensitive ecosystems by planting native tree and herb species. Pets, livestock and feral animals can also have significant impacts, especially on wildflowers and ground-nesting birds.

Allow natural disturbances to occur. Docks, jetties and other structures can disrupt processes such as wave action and sediment accretion/erosion, leaving too much or too little material to form and maintain the spit and dune ecosystems. Allow natural erosion processes to continue on inland cliffs and banks.

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.

Plan and implement all development activities (including trails) in a manner that minimizes adverse effects on the sparsely vegetated ecosystem.

A qualified professional can interpret the ecological inventory data and work to incorporate designs that are sensitive to the natural ecosystem. Any public use should be controlled by well-marked trails and fencing or other techniques. Elevated boardwalks, fences, railings, seasonal trail closures and signs may all be used to reduce impacts.



CREATE AND MAINTAIN CONNECTIONS

BETWEEN NATURAL AREAS TO PRESERVE
WILDLIFE MIGRATION AND DISPERSAL





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