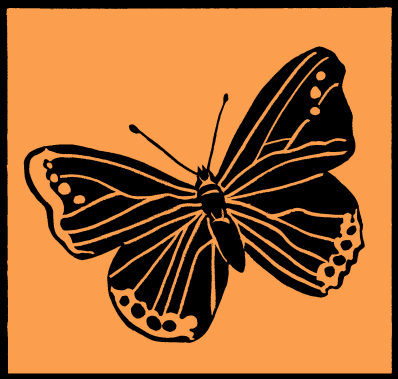
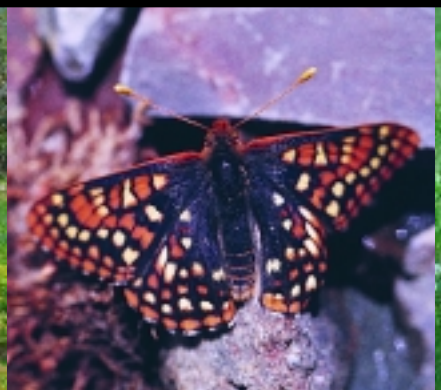


SAVING TERRESTRIAL SENSITIVE HERBACEOUS ECOSYSTEMS

EAST VANCOUVER ISLAND AND GULF ISLANDS



WHAT ARE TERRESTRIAL HERBACEOUS ECOSYSTEMS?

OPEN WILDFLOWER MEADOWS AND GRASSY HILLTOPS

Terrestrial herbaceous ecosystems are natural grasslands, open wildflower meadows and grassy hilltops.

The vegetation is mostly low-growing, dominated by grasses and forbs (low, broad-leaved plants). Open grassy areas are frequently interspersed with rocky outcrops, which may seem bare but in reality are covered with mosses and lichens that may have taken centuries to develop. Few trees and shrubs can survive on these sites because the shallow soils dry rapidly in the summer heat. On deeper soils, terrestrial herbaceous ecosystems feature more grass and shrub species such as Idaho fescue, California oat-grass and Nootka rose.

In spring, terrestrial herbaceous ecosystems may form a rich tapestry of colour, with a profusion of delicate wildflowers such as blue-eyed Mary, satinflower and broad-leaved shooting star.

The frequent mosaics of terrestrial herbaceous ecosystems with woodlands and forests increases the species richness of these sites.

FAMILIAR LOCATIONS

Nanoose Hill
Quinsam Lake
Helliwell Park (Hornby Island)
Mount Benson (Nanaimo)
Mount Douglas (Victoria)
Mount Tzuhalem (Duncan)

TYPICAL SPECIES

kinnikinnick
junegrass
yarrow
harvest lily
Hooker's onion
hoary rock moss
hawks
snakes and lizards

RARE BUTTERFLIES

Edith's checkerspot
Bremner's silverspot
Propertius duskywing

A VARIETY OF CONSERVATION TOOLS

ARE AVAILABLE TO PROTECT TERRESTRIAL HERBACEOUS 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?

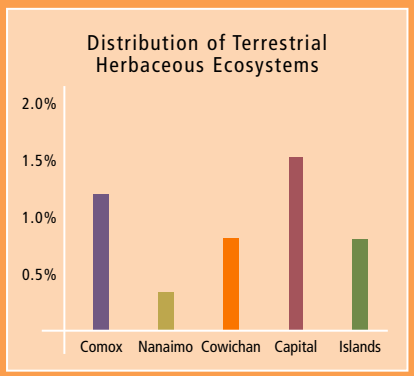
1% of the landscape

Terrestrial herbaceous ecosystems are found in small patches throughout the east coast of Vancouver Island and adjacent Gulf Islands, totalling only 1% of the land base (4,243 ha). Most include rocky outcrops covered with lichens and mosses.

More than half of these ecosystems occur in the Capital and Comox-Strathcona regions where the terrain is hilly and the bedrock is older and harder. On the Gulf Islands and in the Nanaimo area, the bedrock is made up of sedimentary rocks that are more easily eroded, allowing the development of deeper soils that can support forested ecosystems.

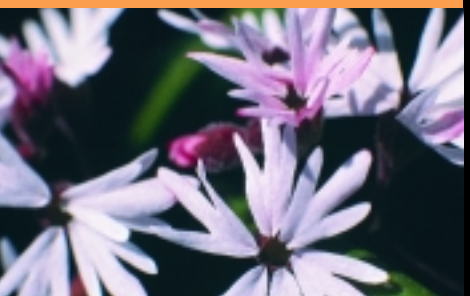
These ecosystems are rare – and getting rarer. While the bedrock beneath is generally robust and stable, the thin soils are easily disturbed, and hikers' boots can compact the soils and knock off the mosses and lichens that cover the rocks. Mountain bikes, horses and ATVs have found their way into many of these ecosystems, stripping mosses and the thin soil cover. Many former terrestrial herbaceous areas have been taken over by development, as rocky hilltops often afford wonderful views, and – erroneously – are sometimes considered less environmentally sensitive than other areas.

Many of these ecosystems have been altered significantly. Non-native species such as Scotch broom and silver hairgrass have replaced native plants, and fire suppression has allowed the growth of shrubs and small trees.



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 TERRESTRIAL HERBACEOUS ECOSYSTEMS IMPORTANT?

A WILDFLOWER DISPLAY THAT IS SECOND TO NONE

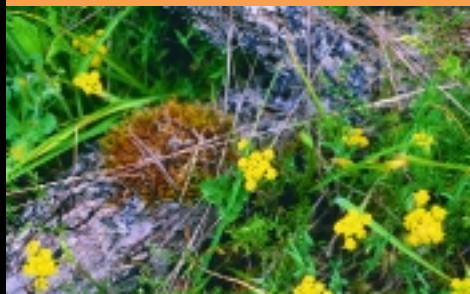
Terrestrial herbaceous ecosystems provide specialized habitats for several rare or endangered species. Some species, such as butterflies, have very restricted or patchy habitats, perhaps using only one plant species in an area. An example is the rare Edith's checkerspot butterfly, known only from terrestrial herbaceous ecosystems on Hornby Island where its larvae feed on plantain species. Another rare butterfly, the Bremner's silverspot fritillary, is found in open meadows interspersed among old-growth Douglas-fir forests on Salt Spring Island. Violets, such as the early blue violet, are the larval hosts for this butterfly.

These ecosystems contain some very specialized micro-habitats that may be only a few centimetres wide. Seepage areas, where underground water comes to the surface, often support plants of conservation concern. Vernal pools – the puddles that form in winter and spring rain and dry up during the summer – are rare even in this ecosystem. Species such as the winged water-starwort and creeping spearwort are dependent on these vernal pools for all or part of their lifecycle.

Visitors to these meadows in spring or early summer will encounter a wildflower display that is second to none. Because these sites are frequently found on hilltops, many offer spectacular viewpoints as well. However, visitors should stay on the trails when visiting these sites, to minimize disturbance to the ecosystem.

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 terrestrial herbaceous ecosystems?

Avoid direct and indirect impacts

Create a vegetated buffer around sensitive ecosystems. These open meadows are particularly vulnerable to adjacent land uses. Adequate buffers of woodland or other native vegetation may help to slow the invasion of non-native species, which crowd out native plants and plant communities.

Restrict recreational, livestock, pet and feral animal access. These ecosystems are fragile and exceptionally vulnerable to all types of human disturbance, and human influences should be minimized. Plants and soils are fragile and can be easily trampled or dislodged onto bare rock where they cannot re-establish. ATVs, horseback riding and mountain biking are inappropriate in these ecosystems. The use of elevated boardwalks, fences, railings, and signs could reduce impacts from some activities.

Control invasive species such as Scotch broom and non-native grasses. Nearby homeowners and developers could help protect sensitive ecosystems by landscaping their properties with native species. This would reduce water consumption as well as pesticide and chemical fertiliser use in or near these fragile areas.

Prevent disturbance of nesting or breeding areas, especially between early March and early August, which is prime nesting season for many birds.

Allow natural disturbances to occur. Natural ecological processes such as the seasonal variation of soil moisture and nutrient regimes are critical to the creation and maintenance of these ecosystems. Alterations such as septic discharge and garden watering can significantly change the balance.

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 will not adversely affect the terrestrial herbaceous ecosystem. A qualified professional can interpret the ecological inventory data and work to incorporate designs that are sensitive to the natural ecosystem. Hiking trails should avoid disturbing seepage areas and water flows as well as other sensitive areas, and be designed to keep people on the trails.

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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