

Sensitive Ecosystems Inventory Bowen/Gambier Trust Areas

Sensitive Ecosystems

- CB Coastal bluff**
Vegetated rocky islet, rocky shoreline/grassland, rocky shoreline/moss; coastal cliff (c)
- HT Terrestrial herbaceous**
Natural grasslands or bryophyte-dominated vegetation, including rock outcrop/grassland and rock outcrop/moss types (ro); >20% shrub cover (sh).
- OF Older forest**
Forest ecosystem with dominant age class > 100 years; coniferous (co), mixed with broadleaf component > 15% (m).
- RI Riparian**
All stages of floodplain vegetation including riparian vegetation associated with gullies (g). Structural stages: 1, 1a, 1b, non-vegetated/parae; 2, herb; 3, shrub/herb; 3a, low shrub; 3b, tall shrub; 4, pole/sapling; 5, young forest; 6, mature forest; 7, old forest.
- SV Sparsely vegetated**
Ecosystem with sparse vegetation; cliff (cl), sand dune (d), split (sp).
- WN Wetland**
Ecosystem with wet soil and moisture-dependent plants; bog (bg), fen (fn), marsh (ms), swamp (sp), shallow water (sw), wet meadow (wm).
- WD Woodland**
Open woodlands (stands of Garry oak and mixed stands of Garry oak/Arbutus, Garry oak/Douglas-fir, Arbutus/Douglas-fir).

Areas with general biodiversity values

- FS Seasonally flooded agricultural field**
- SG Second growth forest**
Forested ecosystem with dominant age class 60 - 100 years; coniferous (co), mixed with broadleaf component > 15% (m).

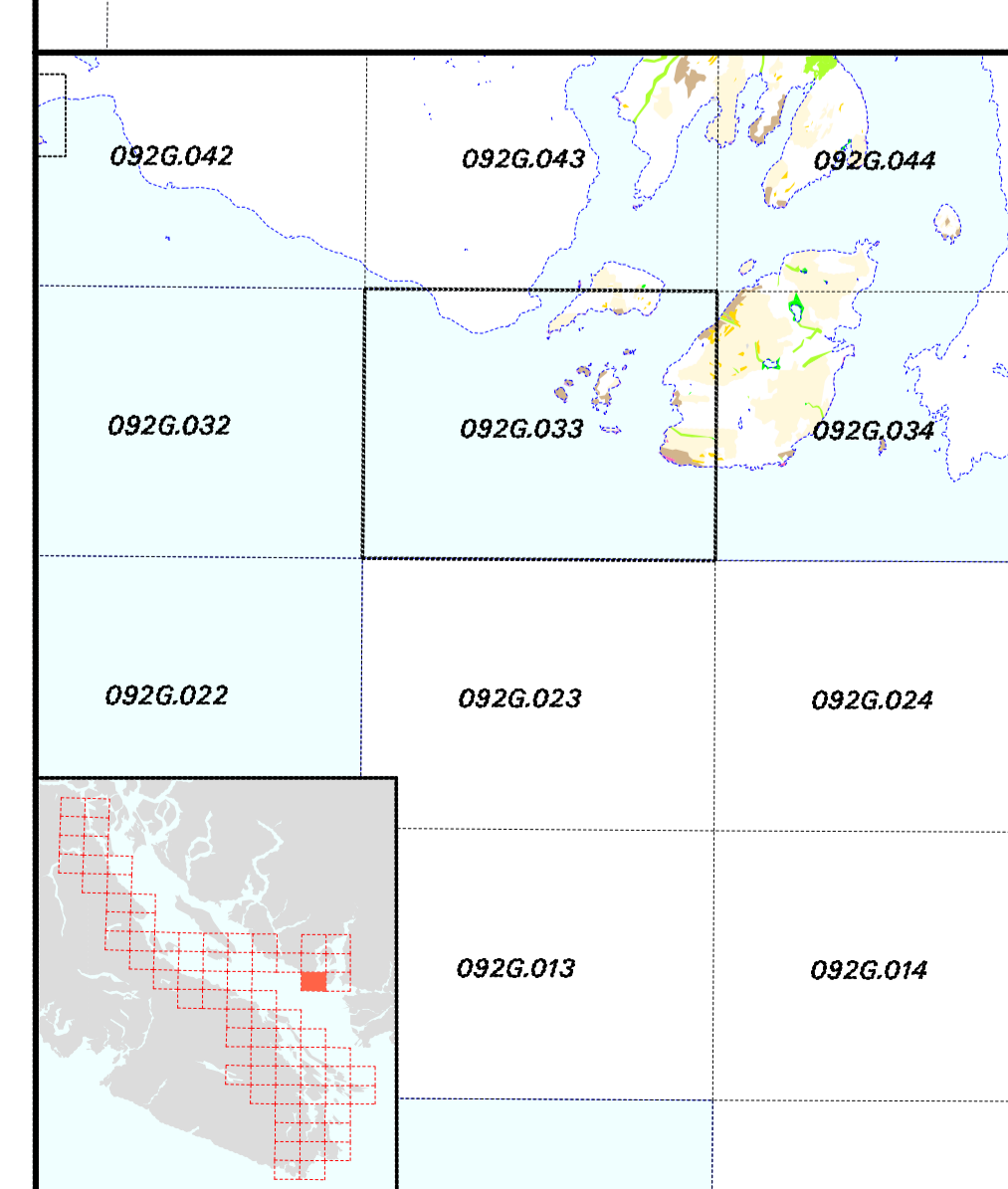
Other Symbols

- Secondary ecosystem**
Indicates the presence of a secondary ecosystem; see table below for further details.
- 125**
Air photo identification number
- BCB92141**
Air photo flight line identification
- Municipal boundary**
- Regional District boundary**
- Sensitive Ecosystems Inventory study area boundary**
- Road**

Ecosystem Classifications for Sites in the Bowen/Gambier Trust Areas

See legend above for the description of the ecosystem codes
 * Site visited, classification verified, additional information available
 + Site visited, classification verified only

Site No.	Primary Ecosystem	Secondary Ecosystem	Site No.	Primary Ecosystem	Secondary Ecosystem	Site No.	Primary Ecosystem	Secondary Ecosystem
H1870A	CB		H1870B	CB		H1870C	CB	
H1871	CB		H1872	CB		H1873	CB	
H1872A	CB		H1872B	CB		H1872C	CB	
H1873	CB		H1874	CB		H1875	CB	
H1876	CB		H1877	CB		H1878	CB	
H1879	CB		H1879A	CB		H1879B	CB	
H1879C	CB		H1879D	CB		H1879E	CB	
H1880	CB		H1881	CB		H1882	CB	
H1883	CB		H1884	CB		H1885	CB	
H1886	CB		H1887	CB		H1888	CB	
H1889	CB		H1890	CB		H1891	CB	
H1892	CB		H1892A	CB		H1892B	CB	
H1893	CB		H1894	CB		H1895	CB	
H1896	CB		H1896A	CB		H1896B	CB	
H1897	CB		H1898	CB		H1899	CB	
H1899A	CB		H1899B	CB		H1899C	CB	
H1900	CB		H1901	CB		H1902	CB	
H1903	CB		H1904	CB		H1905	CB	
H1905A	CB		H1905B	CB		H1905C	CB	
H1905D	CB		H1905E	CB		H1905F	CB	
H1905G	CB		H1905H	CB		H1905I	CB	
H1905J	CB		H1905K	CB		H1905L	CB	
H1905M	CB		H1905N	CB		H1905O	CB	
H1905P	CB		H1905Q	CB		H1905R	CB	
H1905S	CB		H1905T	CB		H1905U	CB	
H1905V	CB		H1905W	CB		H1905X	CB	
H1905Y	CB		H1905Z	CB		H1906	CB	
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H1910B	CB		H1910C	CB		H1910D	CB	
H1910E	CB		H1910F	CB		H1910G	CB	
H1910H	CB		H1910I	CB		H1910J	CB	
H1910K	CB		H1910L	CB		H1910M	CB	
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H1910Q	CB		H1910R	CB		H1910S	CB	
H1910T	CB		H1910U	CB		H1910V	CB	
H1910W	CB		H1910X	CB		H1910Y	CB	
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H1983C	CB		H1983D	CB		H1984	CB	
H1984	CB		H1984A	CB		H1984B	CB	
H1984C	CB		H1984D	CB		H1984E	CB	
H1984F	CB		H1984G	CB		H1984H	CB	
H1984I	CB		H1984J	CB		H1984K	CB	
H1984L	CB		H1984M	CB		H1984N	CB	
H1984O	CB		H1984P	CB		H1984Q	CB	
H1984R	CB		H1984S	CB		H1984T	CB	
H1984U	CB		H1984V	CB		H1984W	CB	
H1984X	CB		H1984Y	CB		H1984Z	CB	
H1985	CB		H1986	CB		H1987	CB	
H1988	CB		H1989	CB		H1990	CB	
H1990A	CB		H1990B	CB		H1990C	CB	
H1990D	CB		H1990E	CB		H1990F	CB	
H1990G	CB		H1990H	CB		H1990I	CB	
H1990J	CB		H1990K	CB		H1990L	CB	
H1990M	CB		H1990N	CB		H1990O	CB	
H1990P	CB		H1990Q	CB		H1990R	CB	
H1990S	CB		H1990T	CB		H1990U	CB	
H1990V	CB		H1990W	CB		H1990X	CB	
H1990Y	CB		H1990Z	CB		H1991	CB	
H1992	CB		H1993	CB		H1994	CB	
H1995	CB		H1996	CB		H1997	CB	
H1998	CB		H1999	CB		H2000	CB	



Environment Canada / Environnement Canada

BRITISH COLUMBIA
Ministry of Environment, Lands and Parks

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92G.033

Scale: 1:20,000
LTM Projection, NAD83, Contour Interval 20 metres
August 1999

Sensitive Ecosystems Inventory Project

Sensitive Ecosystems
For this project, ecosystem is defined as a portion of landscape with a relatively uniform dominant vegetation; sensitive ecosystems are those which are fragile and/or rare.

Rationale
Vancouver Island's eastern coastal lowland and adjacent Gulf Islands comprise an ecological region unique in Canada. The Mediterranean-type climate and long growing season support many rare species of plants and animals as well as a variety of productive ecosystems. It is also one of two areas in British Columbia where the greatest loss of natural systems has occurred and continues to occur. Intense development pressures throughout this region have resulted in the fragmentation and loss of most of these natural areas.

The Sensitive Ecosystems Inventory (SEI) project identifies the remnants of these rare and fragile terrestrial ecosystems to encourage land-use decisions which will ensure their continued ecological integrity.

Ecological Significance
The ecological significance of these sensitive **terrestrial ecosystems** is primarily based on their fragility and rarity, but also on the variety and number of species they support. **Older forests** - Forests older than 100 years are rare in this region. Structural features of these forests are important to many species including birds of prey, small mammals and amphibians. **Woodlands** - These ecosystems include open stands of Garry oak (the only native oak species in western Canada) and mixed stands of Garry oak/Arbutus, Garry oak/Douglas-fir and Arbutus/Douglas-fir. Urbanization has destroyed most of these woodlands and the few remaining sites are under constant threat of development.

Woodlands support several rare plant and invertebrate species. **Coastal bluffs** - The ephemeral pools which occur in these areas provide critical habitat for several rare plant species. Coastal cliffs also provide valuable seabird nesting sites. **Terrestrial herbaceous ecosystems** - These areas are mosaics of rare coastal grassland and moss-covered rock outcrops. More typically occurring as openings in forested areas, these sites provide excellent habitat for butterflies, Black-tailed deer and the rare Sharp-tailed Snake. **Sparsely vegetated ecosystems** - These include rare sand dunes, spits and inland cliffs.

In this dry region, wet habitats take on added significance, supporting a rich diversity of plants and animals; they also play a role in maintaining hydrological regimes, filtering out pollutants, controlling peak flows and maintaining water quality and temperatures. Since many of them are known to have been destroyed or altered, the remaining sites require urgent conservation or management to avoid losing the rich biodiversity of this region. **Riparian ecosystems** - These floodplains, lake shores and gullies provide an abundance of food, shelter and breeding sites for bird, mammal, amphibian and invertebrate species. **Wetlands** - These are essential resting, feeding and breeding sites for ducks, songbirds, fish, amphibians and rare invertebrates. Wetlands also support a variety of rare plants.

Two additional ecosystems were mapped for general biodiversity values. **Seasonally flooded agricultural fields** - These fields provide valuable habitat for overwintering waterfowl. **Older second growth forests** - Due to the paucity of older forests in this region, larger stands of 60-100 year old forest were identified as potential areas of future older forests. They also provide connecting corridors between other natural areas.

Although not included in this particular inventory, streams and lakes are equally important. They are vital to the survival of fish, waterfowl and amphibian populations as well as the associated aquatic organisms and vegetation upon which these populations depend. For further information on aquatic ecosystems and their protection, please contact the Department of Fisheries and Oceans (DFO) or the B.C. Ministry of Environment, Lands and Parks.

Methodology
The SEI systematically identified, classified, mapped and evaluated these sensitive ecosystems throughout the coastal lowland, from north of Campbell River south to Sooke, and including the adjacent Gulf Islands. The study area is located in the Capital, Cowichan Valley, Nanaimo and Comox-Strathcona regional districts and the Islands Trust area.

Approximately 7000 sites were identified in an area of roughly 4000 sq. km. The minimum mapping size for non-forested areas was one-half hectare. The minimum mapping size for forested areas varied based on age class and structural stage.

The initial phase of the SEI project (1993/94) involved the interpretation of approximately 3000 air photos (mostly at scales of 1:10 000 to 1:15 000) and the compilation of existing knowledge. The second phase (1994/95) consisted of field checking approximately 30% of all sites identified in Phase 1, to verify boundaries, classify, photograph and evaluate present conditions. The final phase (1995/97) involved compiling and editing all data, digitizing sites outlined on the air photos using the Mono Restitution method and producing digital and hardcopy maps. A technical report has been produced which provides a summary and analysis of the data.

A simplified version of this SEI data has been combined with aquatic ecosystem information, cadastral data and orthophoto maps by the recent **Sensitive Habitat Atlas** project coordinated by the Habitat and Enhancement Branch, DFO, Vancouver.

Data Limitations
The SEI data is intended to be used for a wide variety of land-use planning processes. For site-specific evaluations, more detailed assessments are recommended. The accuracy of the boundaries of the mapped SEI data is limited by the scale of the air photos on which the sites are delineated. **Enlargement of the data** beyond the source scale may result in unacceptable distortion and faulty registration with other data sets. The scales and dates

of air photos used for each map sheet are listed below; the air photo flight line numbers and photo centres are located on each map.

Due to the rapid changes occurring in this region, it is important to refer to the dates of the information sources. For those sites which were not visited, the accuracy of the data depends heavily upon professional judgement and available source material.

Participating Agencies
Environment Canada (Canadian Wildlife Service), the Habitat Conservation Trust Fund and B.C. Ministry of Environment, Lands and Parks (Vancouver Island Regional Office, Nanaimo and Conservation Data Centre, Victoria) combined resources to conduct this project. Additional funds were contributed by B.C.'s Corporate Resources Inventory Initiative, B.C. Ministry of Forests, Capital and Comox-Strathcona Regional Districts, Provincial Capital Commission, Islands Trust and the municipalities of Nanaimo and Campbell River. Fisheries and Oceans Canada provided additional stream data to supplement the TRIM base maps.

Digitizing: Integrated Mapping Technologies, Vancouver.
Cartography: Clover Point Cartographics Ltd., Victoria.
Base Mapping Data: Selected digital layers are from the Terrain Resources Information Management (TRIM) Program, Geographic Data BC, Ministry of Environment, Lands and Parks, Victoria, 1993.

For further information please contact:
B.C. Conservation Data Centre (250) 387-0732
<http://www.eip.gov.bc.ca/nbi/wis/cdc>
Environment Canada, Canadian Wildlife Service
(250) 732-9611
<http://www.cwvsc.ec.gc.ca>

Data Sources for Bowen/Gambier Trust Areas

Field visits
Initial groundtruthing was conducted during the summer of 1994. Additional field checking was performed in 1999, and an updated map set and database were produced.

Aerial photographs

Flight Number	Scale	Date flown
BC79052	1:20,000	June 26, 1979
BC86061	1:15,000	July 21, 1986
BC890014	1:15,000	June 21, 1990
BC890017	1:15,000	July 10, 1990
BC890019	1:15,000	July 10, 1990
BC890045	1:15,000	July 9, 1990