

Evaluation

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/open; 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).

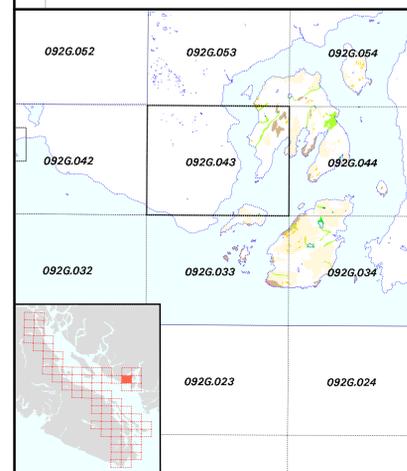
Other Symbols

- Secondary ecosystem**
Indicates the presence of a secondary ecosystem; see table below for further details.
- 125**
Air photo identification number
- BCB92141**
Location of photo center
- 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 only
 + Site visited, classification verified only

Site No.	Primary Ecosystem	Secondary Ecosystem	Site No.	Primary Ecosystem	Secondary Ecosystem	Site No.	Primary Ecosystem	Secondary Ecosystem
H1706	MD	CB	H1712	CB	CB	H1721	MD	MD
H1707	MD	CB	H1713	MD	MD	H1722	MD	MD
H1708	MD	MD	H1714	MD	MD	H1723	MD	MD
H1709	MD	MD	H1714A	MD	MD	H1724	MD	MD
H1710	MD	MD	H1715	MD	MD	H1725	MD	MD
H1711	MD	MD	H1716	MD	MD	H1726	MD	MD
H1712	MD	MD	H1717	MD	MD	H1727	MD	MD
H1713	MD	MD	H1718	MD	MD	H1728	MD	MD
H1714	MD	MD	H1719	MD	MD	H1729	MD	MD
H1714A	MD	MD	H1720	MD	MD	H1730	MD	MD
H1715	MD	MD	H1721	MD	MD	H1731	MD	MD
H1716	MD	MD	H1722	MD	MD	H1732	MD	MD
H1717	MD	MD	H1723	MD	MD	H1733	MD	MD
H1718	MD	MD	H1724	MD	MD	H1734	MD	MD
H1719	MD	MD	H1725	MD	MD	H1735	MD	MD
H1720	MD	MD	H1726	MD	MD	H1736	MD	MD
H1721	MD	MD	H1727	MD	MD	H1737	MD	MD
H1722	MD	MD	H1728	MD	MD	H1738	MD	MD
H1723	MD	MD	H1729	MD	MD	H1739	MD	MD
H1724	MD	MD	H1730	MD	MD	H1740	MD	MD
H1725	MD	MD	H1731	MD	MD	H1741	MD	MD
H1726	MD	MD	H1732	MD	MD	H1742	MD	MD
H1727	MD	MD	H1733	MD	MD	H1743	MD	MD
H1728	MD	MD	H1734	MD	MD	H1744	MD	MD
H1729	MD	MD	H1735	MD	MD			
H1730	MD	MD	H1736	MD	MD			
H1731	MD	MD	H1737	MD	MD			
H1732	MD	MD	H1738	MD	MD			
H1733	MD	MD	H1739	MD	MD			
H1734	MD	MD	H1740	MD	MD			
H1735	MD	MD						
H1736	MD	MD						
H1737	MD	MD						
H1738	MD	MD						
H1739	MD	MD						
H1740	MD	MD						
H1741	MD	MD						
H1742	MD	MD						
H1743	MD	MD						
H1744	MD	MD						
H1870	MD	MD						
H1870A	MD	MD						
H1877A	MD	MD						
H1877B	MD	MD						
H1879C	MD	MD						
H1879D	MD	MD						
H1887	MD	MD						
H1887A	MD	MD						



Environment Canada / Environnement Canada

BRITISH COLUMBIA
Ministry of Environment, Lands and Parks

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092G.043

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 upon 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.cws.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