

### 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% (fm).
- 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% (fm).

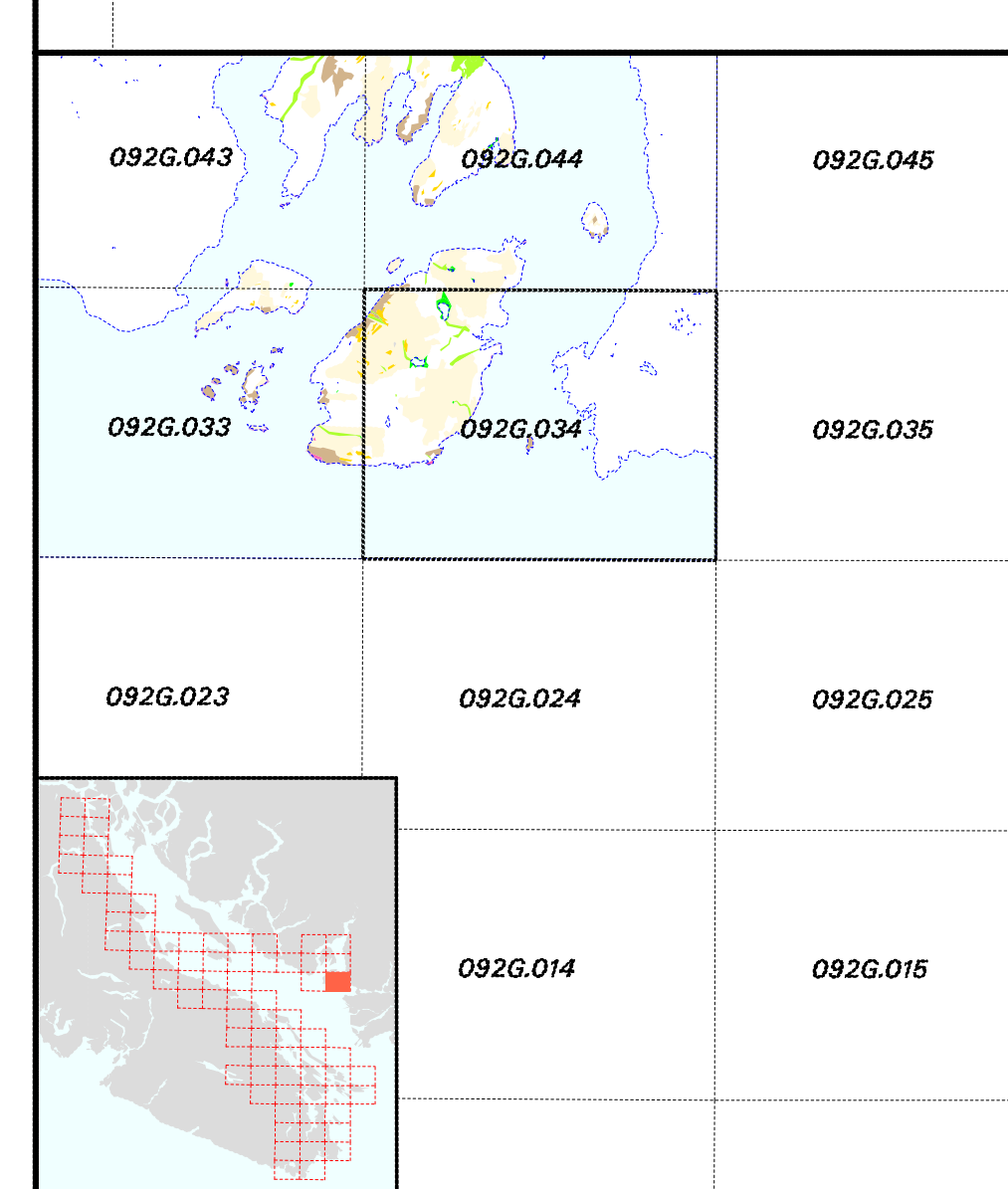
**Other Symbols**

- 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
H1970B	CB		H1970B	CB		H1970B	CB	
H1969B	CB		H1969B	CB		H1969B	CB	
H1969A	CB		H1969A	CB		H1969A	CB	
H1970C	CB		H1970C	CB		H1970C	CB	
H1970	CB		H1970	CB		H1970	CB	
H1975A	CB		H1975A	CB		H1975A	CB	
H1975	CB		H1975	CB		H1975	CB	
H1971	CB		H1971	CB		H1971	CB	
H1972	CB		H1972	CB		H1972	CB	
H1973	CB		H1973	CB		H1973	CB	
H1974	CB		H1974	CB		H1974	CB	
H1977	CB		H1977	CB		H1977	CB	
H1977A	CB		H1977A	CB		H1977A	CB	
H1977B	CB		H1977B	CB		H1977B	CB	
H1976B	CB		H1976B	CB		H1976B	CB	
H1976A	CB		H1976A	CB		H1976A	CB	
H1990A	CB		H1990A	CB		H1990A	CB	
H1984C	CB		H1984C	CB		H1984C	CB	
H1984B	CB		H1984B	CB		H1984B	CB	
H1984A	CB		H1984A	CB		H1984A	CB	
H1984	CB		H1984	CB		H1984	CB	
H1999	CB		H1999	CB		H1999	CB	
H2000	CB		H2000	CB		H2000	CB	
H2017	CB		H2017	CB		H2017	CB	
H2013A	CB		H2013A	CB		H2013A	CB	
H2013	CB		H2013	CB		H2013	CB	
H2014	CB		H2014	CB		H2014	CB	
H2015	CB		H2015	CB		H2015	CB	
H2011A	CB		H2011A	CB		H2011A	CB	
H2011	CB		H2011	CB		H2011	CB	
H2010A	CB		H2010A	CB		H2010A	CB	
H2010	CB		H2010	CB		H2010	CB	
H2009	CB		H2009	CB		H2009	CB	
H2008	CB		H2008	CB		H2008	CB	
H2006	CB		H2006	CB		H2006	CB	
H2006A	CB		H2006A	CB		H2006A	CB	
H2007	CB		H2007	CB		H2007	CB	
H2003A	CB		H2003A	CB		H2003A	CB	
H2003	CB		H2003	CB		H2003	CB	
H2004	CB		H2004	CB		H2004	CB	
H2004A	CB		H2004A	CB		H2004A	CB	
H2005	CB		H2005	CB		H2005	CB	
H1850	CB		H1850	CB		H1850	CB	
H1850A	CB		H1850A	CB		H1850A	CB	
H1851	CB		H1851	CB		H1851	CB	
H1852	CB		H1852	CB		H1852	CB	
H1853	CB		H1853	CB		H1853	CB	



Environment Canada / Environnement Canada

BRITISH COLUMBIA  
Ministry of Environment, Lands and Parks

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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.

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**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.

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