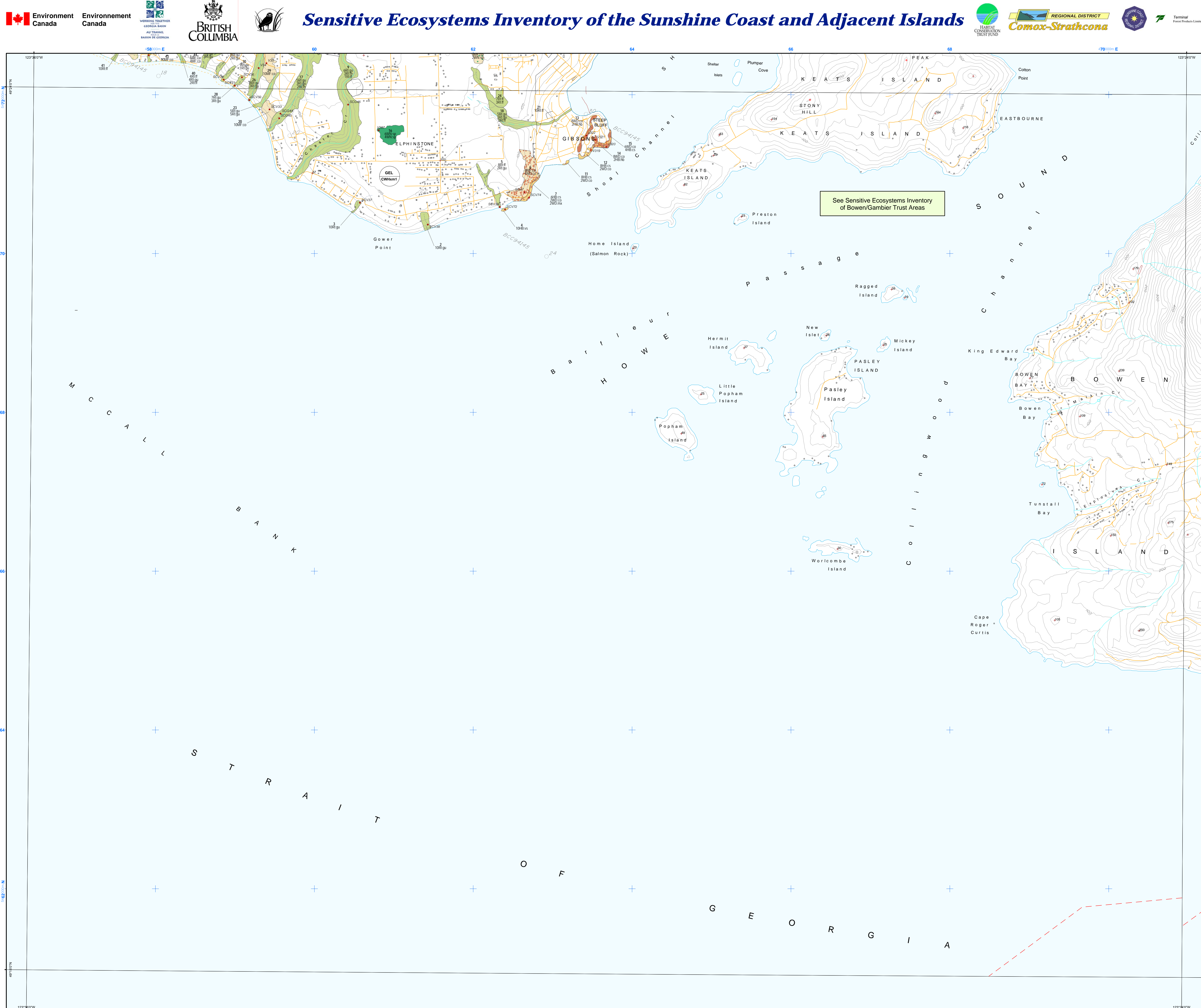


Sensitive and Terrestrial Ecosystems Labels



Sensitive Ecosystems

Sensitive ecosystems are fragile and/or rare, or are ecologically important because of the diversity of species they support.

Old Forest (OF):

Conifer-dominated dry to moist forest types, structural stage 7 (see table), generally >250yrs. Subclasses: of (conifer dominated) - greater than 75% coniferous species

Woodland (WD):

Dry open forests, generally between 10 and 30% tree cover, can be conifer dominated or mixed conifer and herbaceous, because of open canopy, will include non-terrestrial openings, often with shallow soils and bedrock outcroppings. Subclasses: wa (conifer dominated) - greater than 75% coniferous species

Herbaceous (HB):

Non-forested ecosystems less than 10% tree cover, generally with shallow soils and often with bedrock outcroppings. Includes large openings with scattered areas: coastal heathlands, shrublands vegetated with grasses and herbs, sometimes low shrubs, and moss and lichen communities on rock outcrops. Subclasses: nb (non-herbaceous) - central concept of the category, non-forested, less than 10% tree cover, generally shallow soils, often with exposed bedrock, predominantly a mix of grasses and forbs, also lichens and mosses

Riparian (RI):

Areas adjacent to water bodies (rivers, lakes, ocean, wetlands) which are influenced by factors such as erosion, sedimentation, flooding and/or subterranean intrusion due to proximity to the water body. Structural stages 1-7. Subclasses: r1 (low bench floodplain) - flooded at least every other year for moderate periods of growing season, plant species adapted to extended flooding and abrasion, low or all species most common

Wetland (WN):

Areas that are saturated or inundated with water for long enough periods of time to develop vegetation and biological activity adapted to wet environments. This may result from flooding, fluctuating water tables, tidal influence or poor drainage conditions. Subclasses: wg (high) - nutrient poor wetland on organic soils (sphagnum peat), water source predominantly from precipitation, may be tree or shrub dominated

Cliffs (CL):

Very steep slopes, often exposed bedrock, may include steep sided sand bluffs, habitat for rare species. Subclasses: ec (coastal cliffs) ic (inland cliffs)

Other Important Ecosystems

Other important ecosystems have high biodiversity values.

Mature Forests (MF):

Usually conifer-dominated, occasionally deciduous, dry to moist forest types, structural stage 6, generally >250yrs, >25% of buffering sensitive ecosystems. Subclasses: co (conifer dominated) - greater than 75% coniferous species

Seasonally Flooded Agricultural Fields (FS):

Annually flooded cultivated fields or hay fields; important migrating and wintering waterfowl habitat.

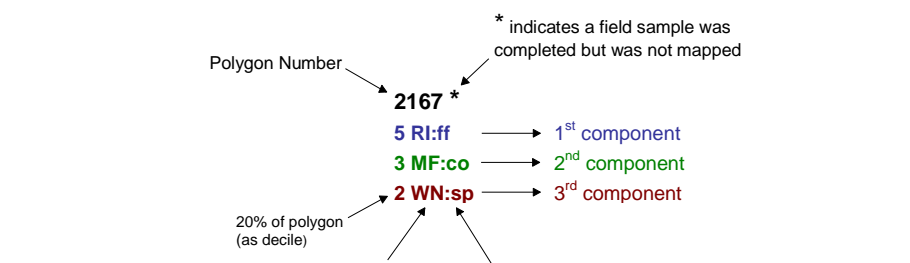
Other Mapped Ecosystems

Other mapped ecosystems occur in mosaic with sensitive ecosystems and are not possible to delineate separately at the mapping scale.

Young Forests (YF):

Limited to areas of young forest dispersed among sensitive and other important ecosystems.

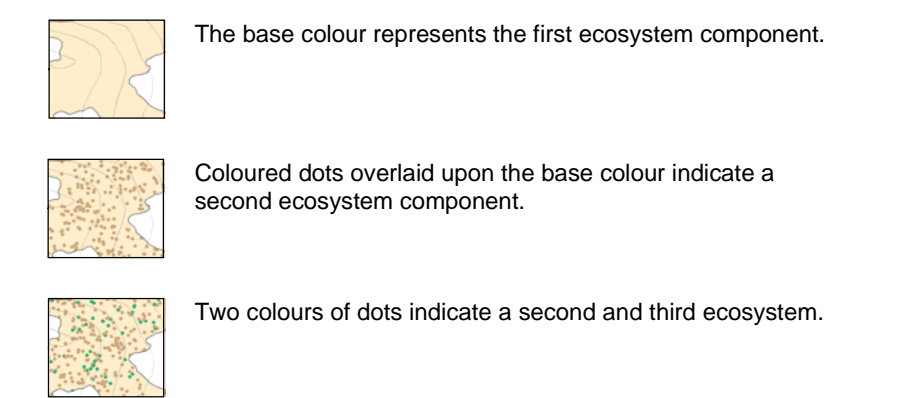
Polygon Label



Some polygon labels will have class and subclass repeated up to three times. This is not an error; it reflects the variability in site units and structural stages occurring within a polygon. More than one site unit can be correlated to a SE class and subclass. Polygon labels on the map do not include the site units. The Sensitive and Terrestrial Ecosystem Labels on the left side of the map provide details about site units mapped in each polygon.

Ecosystem Components

This cartographic product uses Dot Density to indicate where more than one ecosystem class is mapped in a polygon. The number of dots indicates the proportion of the polygon represented by the 2nd and 3rd ecosystem; the colour of the dots indicates the 2nd and 3rd ecosystem class.



Biogeoclimatic Units

- CD1Fm Coastal Douglas-fir Moist Maritime Subzone
- CVH1m Coastal Western Hemlock Eastern Very Dry Maritime Variant
- CVH2m Coastal Western Hemlock Dry Maritime Subzone
- CVH3m Coastal Western Hemlock Submontane Very Wet Maritime Variant

Ecosystems

- GEL Georgia Lowlands Ecosystem
- SOG Strait of Georgia Ecosystem
- QUF Outer Fjordland Ecosystem
- SPR Southern Pacific Ranges Ecosystem

Map Symbols

- Polygon Boundary
- Biogeoclimatic Boundary
- Ecosystem Boundary
- Other Area Boundary
- Route
- 20m contours
- TRM streams
- Additional streams
- Intermittent/Intermittent Stream
- Drainage Route

**Structural Stages<sup>1</sup>**

Stage	Description
1. Spruce/Wet	1a. Spruce/Wet
2. Herb	2a. Herb
3. Shrubland	3a. Shrubland
4. Young Forest	4a. Young Forest
5. Mature Forest	5a. Mature Forest
6. Old Forest	6a. Old Forest

**What is a Sensitive Ecosystem?**  
For the purpose of this study, an ecosystem is considered to be a portion of the landscape with relatively uniform dominant vegetation. Sensitive ecosystems are those which are fragile and/or rare, or those ecosystems which are ecologically important because of the diversity of species they support.

**Rationale**  
Ecologically significant lands and important wildlife habitats are fast disappearing throughout the lowlands surrounding the Strait of Georgia. Intense development pressures fuelled by population and economic growth have fragmented and degraded many terrestrial ecosystems. A high proportion of these ecosystems are now designated as "at risk". Sensitive ecosystems typically have high biological diversity and are a vital part of the landscape. They provide ecosystem services for a healthy economy and for social well-being. They regulate climate, clean water, generate and clean soils, recycle nutrients and pollinate our crops. To protect these areas, sensitive ecosystems must be located, identified and mapped. Along the Sunshine Coast the wave-beaten shorelines, coastal plains, rugged mountain slopes, fjords and estuaries contribute to a high biodiversity values. Here one finds coastal temperate rainforests, dry shoreline woodlands, herbaceous meadows and rocky coastal bluffs, wetlands and riparian ecosystems.

**Purpose**  
The purpose of the Sensitive Ecosystems Inventory (SEI) of the Sunshine Coast is to identify, classify and map sensitive terrestrial ecosystems along the coastal lowlands (including the adjacent islands) from Howe Sound to Desolation Sound. The goal of the SEI is to encourage informed land-use decisions that will conserve sensitive ecosystems. The SEI on Vancouver Island and Gulf Islands (1992 - 1997) shows that this information can be used in a variety of land-use planning processes and can contribute to the conservation of many sites. Decision makers, consultants, non-government organizations have found the SEI to be an effective planning and management tool. SEI data provides site-specific ecological information that can be used to flag sites of conservation concern, to prompt detailed field studies prior to development projects, and to provide input to Forest Stewardship Plans.

**Methodology**  
The mapping methods are based on the Vancouver Island SEI project and the Resources Information Standards Committee (RISC) Standard for Terrestrial Ecosystem Mapping (TEM) in BC. Ecosystem categories include six Sensitive Ecosystem (SE) classes, two Important Ecosystem classes, and one Other Ecosystem class. The legend to the right of the map provides definitions. Ecosystem classes, subclasses, the corresponding Terrestrial Ecosystem site units and structural stages, and stream and drainage corridors not included in TRM are mapped. Field survey protocols followed Discerning Terrestrial Ecosystems in the Field (RISC 1998) with the addition of a conservation evaluation form to document ecosystem condition and viability. Approximately 20% of the polygons were field checked.

**Data Limitations**  
The SEI is a tool to alert decision makers to the existence of sensitive ecosystems, however when land-use changes are proposed detailed site-level assessments are necessary. For sites not field checked, the accuracy of the data depends heavily on the professional judgement of the mapper and the availability of source data. Because the area is changing rapidly, reference to the date of the information source is advised.

**What can be done to protect sensitive ecosystems?**  
Direct and indirect impacts to these ecosystems can be avoided by:  

- Retaining or creating vegetated buffers around sensitive ecosystems to isolate them from outside disturbance;
- Controlling land and water access to fragile ecosystems;
- Controlling invasive species;
- Allowing natural disturbances to occur;
- Maintaining water quality.

 If development must occur, develop carefull!

**Plan and implement all development activities in a manner that will not adversely affect or disturb the sensitive ecosystem.**  
Consult a qualified professional to interpret the ecological inventory data and work to incorporate designs that maintain the functions and values of the natural ecosystem.

**A property owner:** learn more about the natural values of your land, including the location of any sensitive ecosystems. Find out how to protect, maintain, and enhance those values. Consider using conservation covenants and other measures to ensure that the natural features you value are protected in perpetuity.  
**A developer:** consider a design for your project that is creative and flexible enough to protect and enhance sensitive ecosystems. Tree loss and neighbourhood greenspaces can increase market values.  
**A planner:** ensure that conservation is given as high a priority as other community programs such as housing, transportation, recreation, employment, public works, and community services. Encourage use of the many legal and planning tools available, such as development permit areas, tree protection by-laws, and conservation covenants to protect sensitive ecosystems.

**A decision-maker (such as a politician or resource manager):** ensure that protection of remaining sensitive ecosystems is a priority at all levels, and support programs, plans and operational activity that will help protect sensitive ecosystems. Encourage and facilitate the development and implementation of biodiversity conservation strategies.  
**A member of an advocacy group:** contribute your time and expertise to help locate and protect sensitive ecosystems. For example, rangers/groups, service organizations, naturalist clubs, land trusts, and conservationists often provide a link between local landowners and voluntary stewardship programs. As a member of one of these groups, you can work cooperatively with local governments to promote land use decisions that protect sensitive ecosystems.  
**A volunteer:** participate in educational programs, conservation fundraising, or in programs to remove invasive species.  
**A scientist:** use your expertise to help identify sensitive ecosystems, define issues that need to be addressed, formulate conservation plans, contribute to the development of conservation and management strategies and explain to other professionals and decision makers the importance of sensitive ecosystems.

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Environment Canada (Canadian Wildlife Service) and the B.C. Ministry of Sustainable Resource Management (MSRM) jointly managed this project. Major funding came from Environment Canada and MSRM as part of the Georgia Basin Ecosystem Initiative, BC Habitat Conservation Trust Fund, and the Sunshine Coast Regional District. The multi-agency steering committee included the above agencies as well as B.C. Ministry of Water, Land and Air Protection (WLAAP), Sechart Indian Band, Starmen First Nation, Powell River Regional District, Comox-Strathcona Regional District, Fisheries and Oceans Canada (DFO), and Terminal Forest Products Ltd.  
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