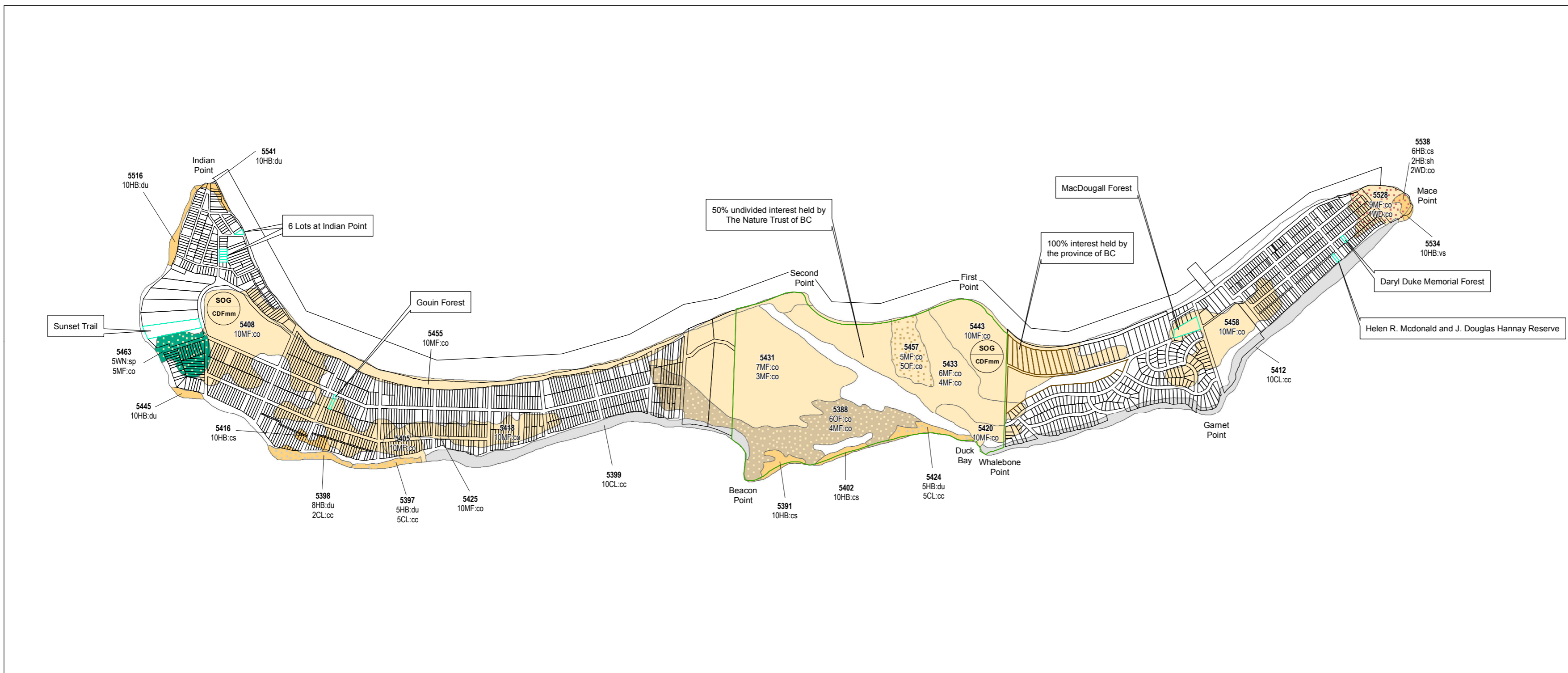




Sensitive Ecosystems Inventory and Properties of Savary Island



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 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 (1993-1997) 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 and 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 and subclasses are mapped Field survey protocols followed Describing 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, references to the date of the information source is advised.

Aerial photographs used were flown between 1994 and 1999, most are at 1:10,000, some at 1:16,000 scale. Due to the mapping scale, minimum polygon size is usually 1/2 hectare. Minimum riparian polygon width is 20 meters regardless of the stream channel width. Enlargement of the data beyond the source scale may result in unacceptable distortion and faulty registration with other data sets.

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 carefully!

Conduct an ecological inventory to identify the existing flora and fauna and to locate any threatened or endangered plant and animal species, plant communities, and habitat features needing protection;

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.

If you are:

- 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 or 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 lots 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 protected 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, rateplayers' groups, service organizations, naturalists clubs, land trusts, and conservancies 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.

Sensitive Ecosystem Inventory Acknowledgements

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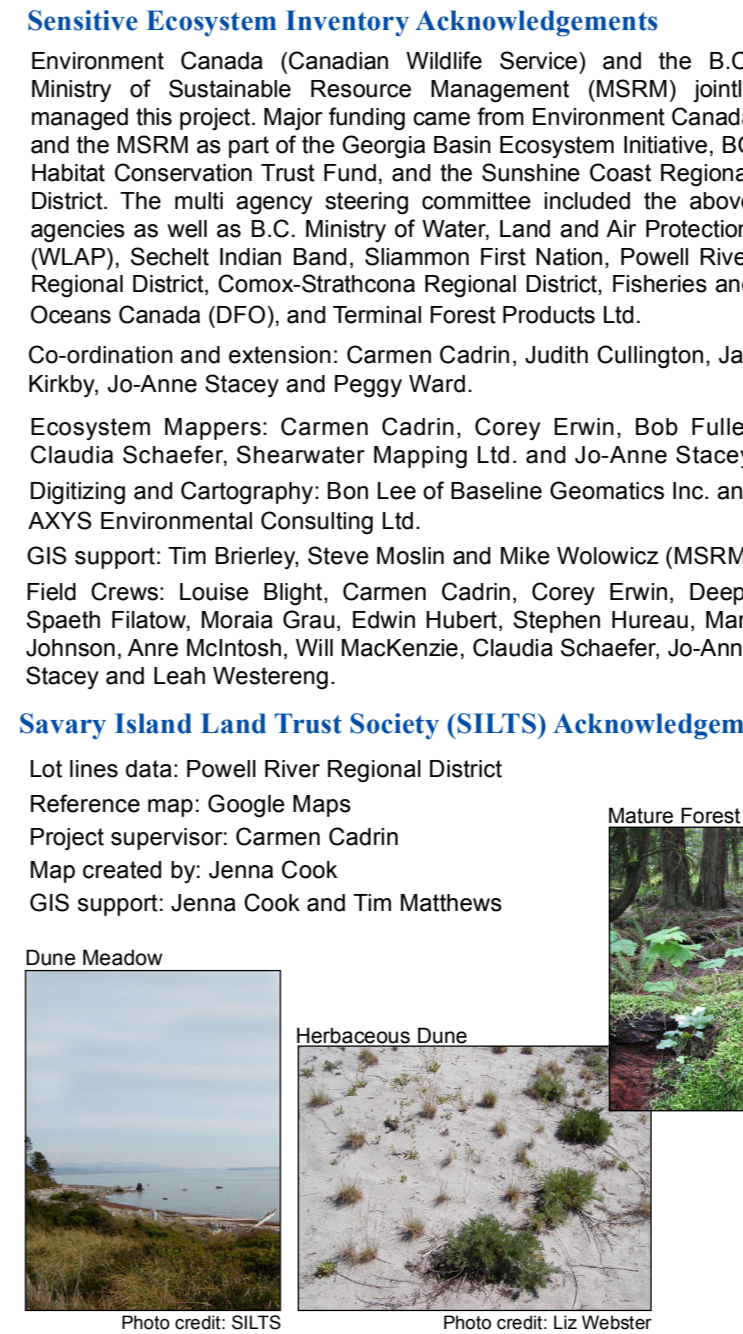
Co-ordination and extension: Carmen Cadrin, Judith Cullington, Jan Kirkby, Jo-Anne Stacey and Peggy Ward.

Ecosystem Mappers: Carmen Cadrin, Corey Erwin, Bob Fuller, Claudia Schaefer, Shearwater Mapping Ltd. and Jo-Anne Stacey. Digitizing and Cartography: Bon Lee of Baseline Geomatics Inc. and AXYS Environmental Consulting Ltd.

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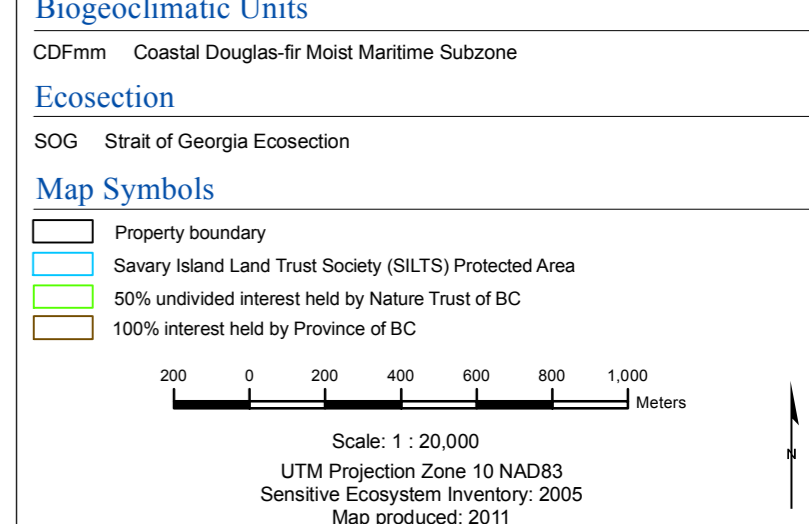


Some polygon labels will have class and subclass repeated up to three times. This is not an error; it reflects the variability in site units and structural stages occurring within a polygon. More than one site unit can be correlated to a SE class and subclass.

Ecosystem Components

This cartographic product uses Dot Density to indicate where more than one ecosystem 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.

- The base colour represents the first ecosystem component.
- Coloured dots overlaid upon the base colour indicate a second ecosystem component.
- Two colours of dots indicate a second and third ecosystem.



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, generally >250yrs.

Subclasses:
 co (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 arbutus stands; because of open canopy, will include non-forested openings, often with shallow soils and bedrock outcroppings.

Subclasses:
 co (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 within forested areas, coastal headlands, shorelines vegetated with grasses and herbs, sometimes low shrubs, and moss and lichen communities on rock outcrops.

Subclasses:
 cs (coastal herbaceous) - influenced by proximity to ocean, windswept shoreline and slopes; > 20% vegetation, grasses and herbs, some rock outcrops, moss and lichen communities
 vs (vegetated shoreline) - low-lying rocky shoreline, soil pockets in rock cracks and crevices; salt-tolerant vegetation, generally with <20% vegetation cover
 sp (split) - finger-like extension of beach, comprised of sand or gravel deposited by longshore drifting; low to moderate cover of salt-tolerant grasses and herbs
 du (dunes) - ridge or hill, or beach area created by windblown sand; may be more or less vegetated depending on depositional activity, beach dunes will have low cover of salt-tolerant grasses and herbs
 sh (shrub component) - > 20% of total vegetation cover is shrub cover, with grasses and herbs

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 influences or poor drainage conditions.

Subclasses:
 sp (swamp) - poor to very rich wetland on mineral soils or with an organic layer over mineral soil, with gently flowing or seasonally flooding water table; woody vegetation

Cliffs (CL):

Very steep slope, often exposed bedrock, may include steep sided sand bluffs; habitat for rare species.

Subclasses:
 cc (coastal 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 >80yrs; > 25 ha. or buffering sensitive ecosystems.

Subclasses:
 co (conifer dominated) - greater than 75% coniferous species.