

Sensitive Ecosystems Inventory Bowen/Gambier Trust Areas

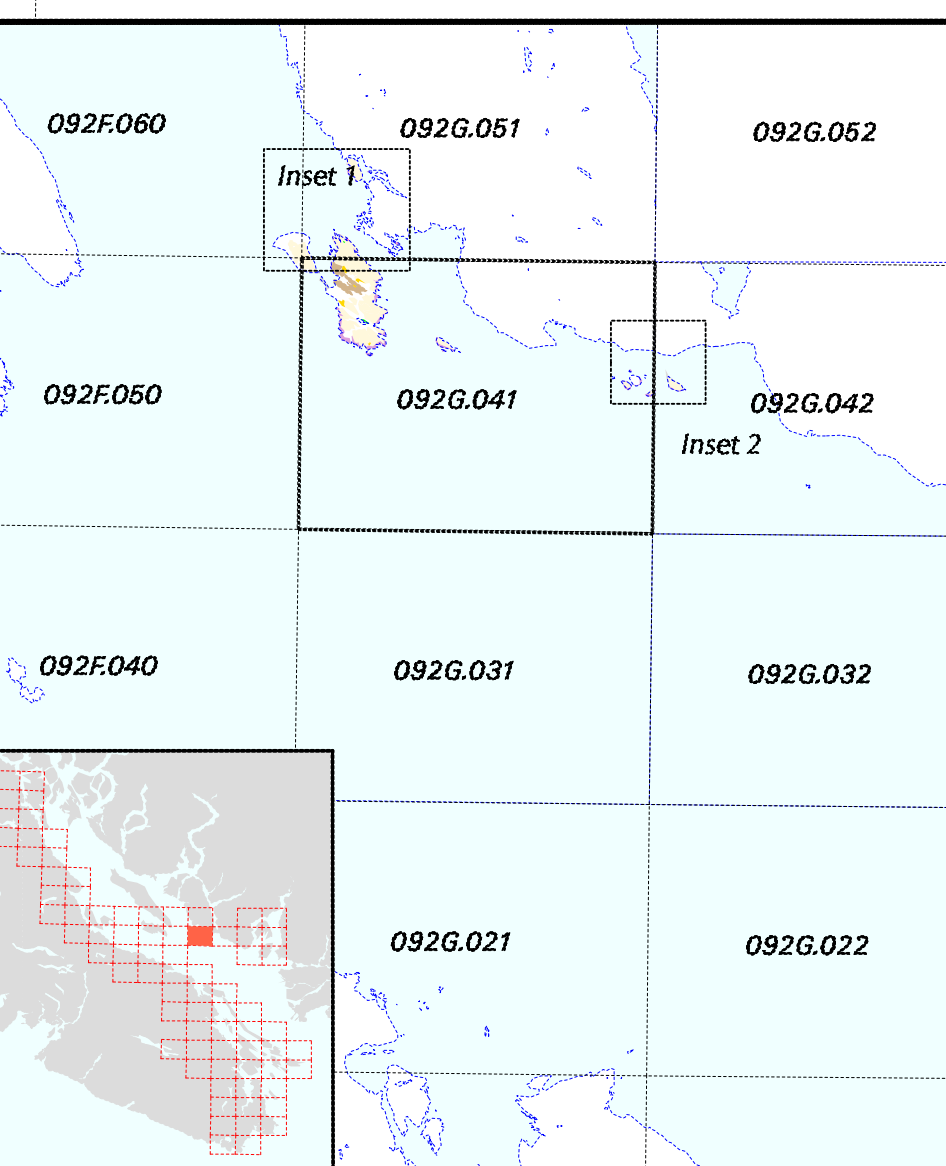
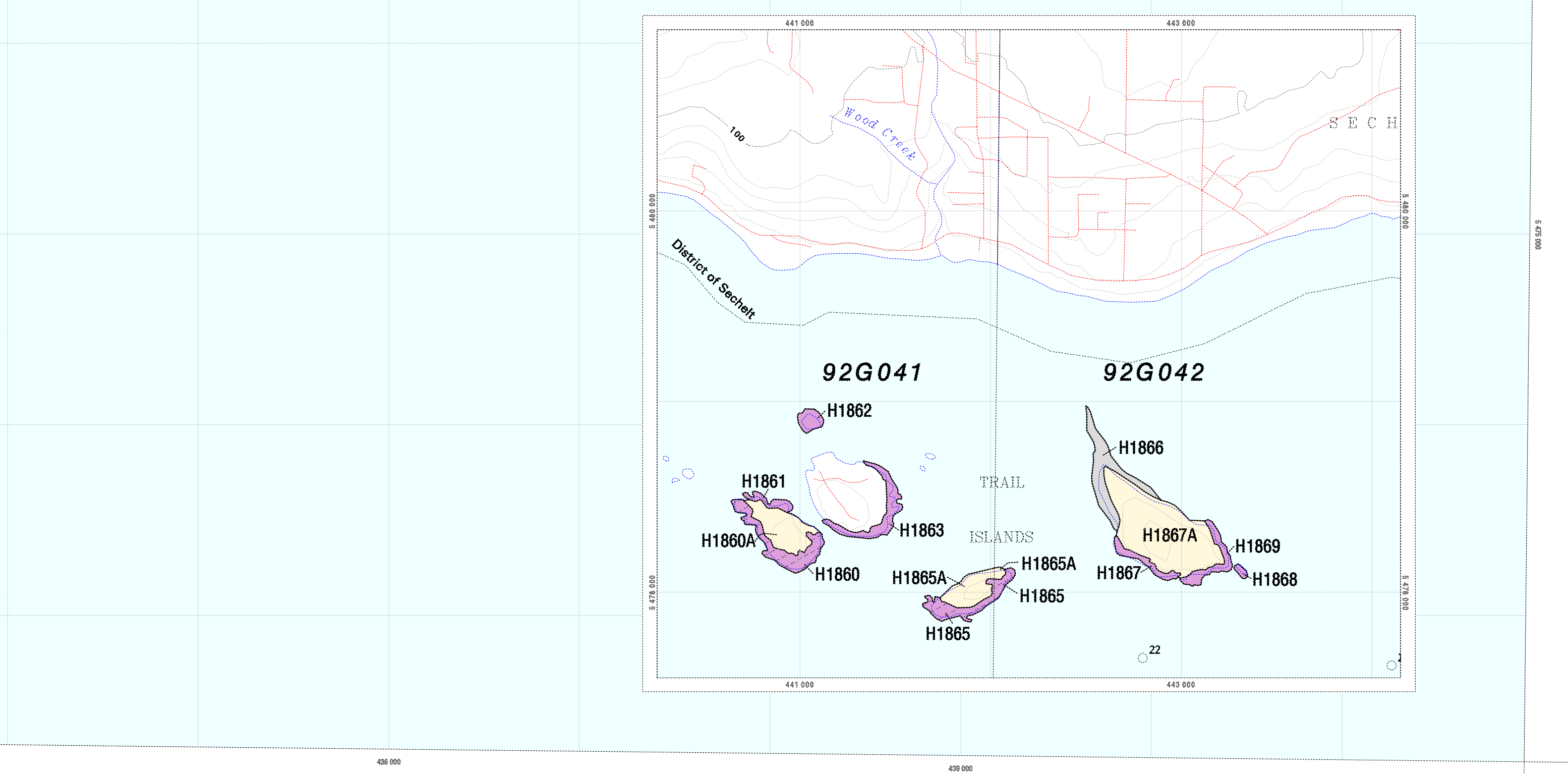
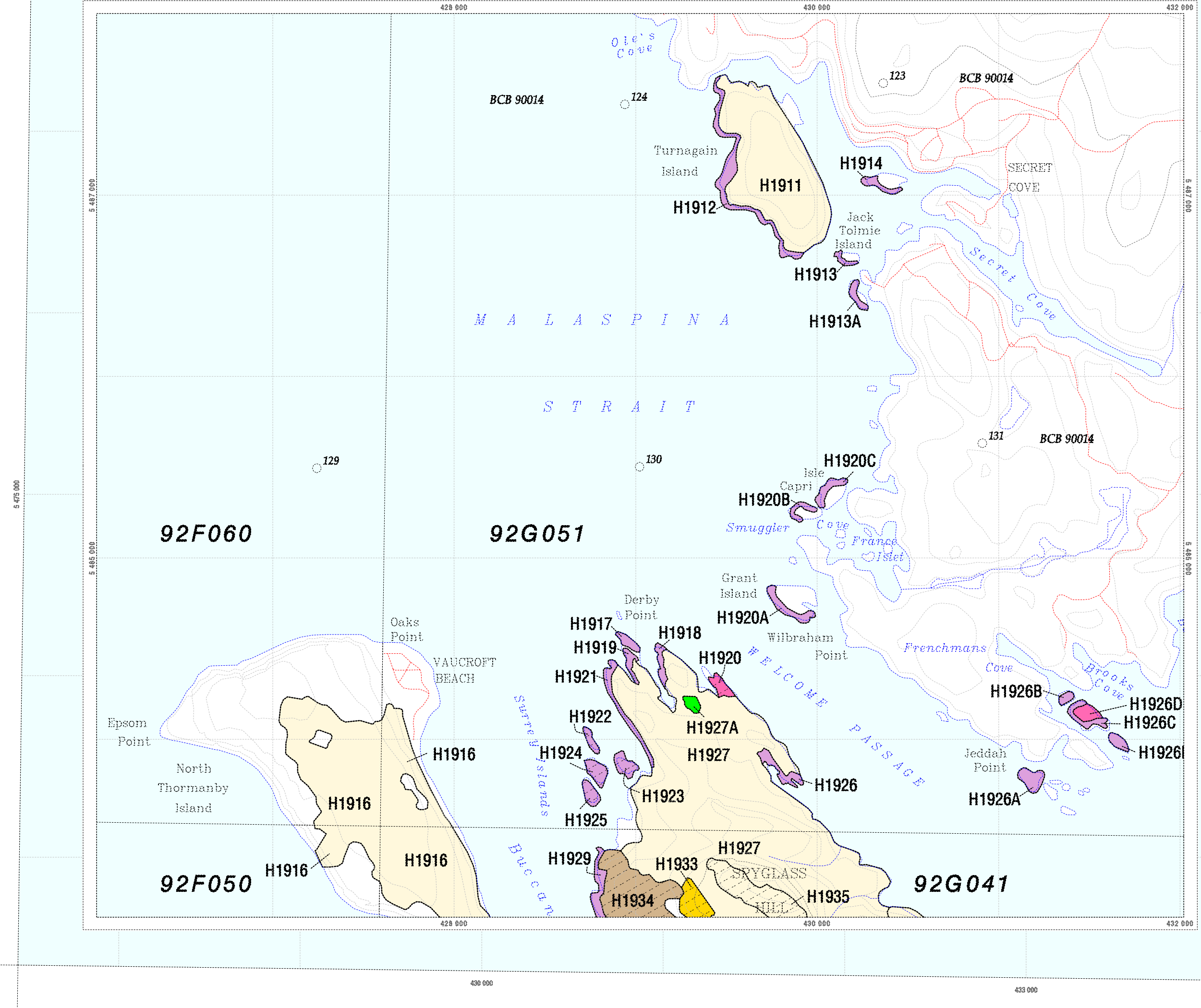
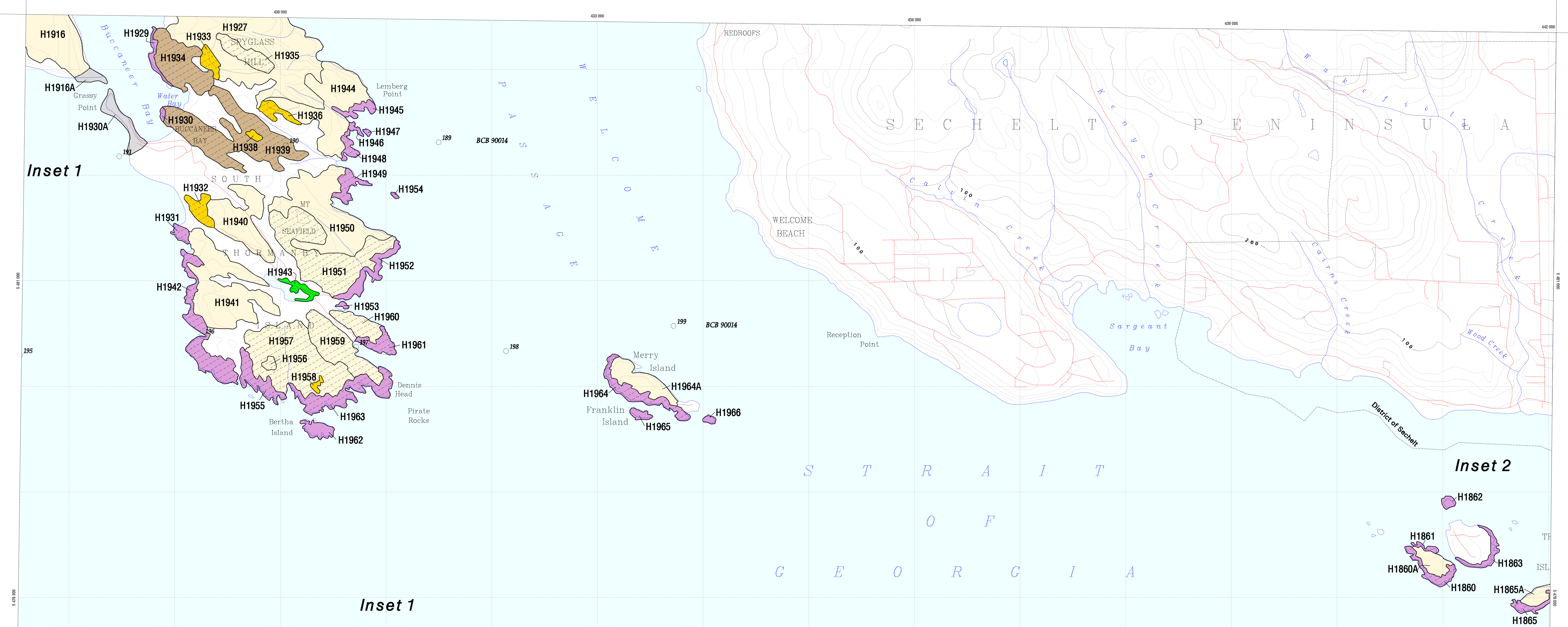
- Sensitive Ecosystems**
- CB Coastal bluff**
Vegetated rocky islet, rocky shoreline/grassland, rocky shoreline/moss; coastal cliff (c)
 - HT Terrestrial herbaceous**
Natural grasslands or bryophyte-dominated vegetation, including rock outcrop/grassland and rock outcrop/moss types (ro); >20% shrub cover (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/sparse; 2; herb; 3; shrub/shrub; 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), and dune (d), spit (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
 - 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
H1916	MD		H1912	MD		H1922	SD	
H1915	RI		H1911	MD		H1923	CB	
H1914	MD		H1910	MD		H1924	MD	
H1913	MD		H1909	MD		H1925	MD	
H1912	MD		H1908	MD		H1926	MD	
H1911	MD		H1907	MD		H1927	MD	
H1910	MD		H1906	MD		H1928	MD	
H1909	MD		H1905	MD		H1929	MD	
H1908	MD		H1904	MD		H1930	MD	
H1907	MD		H1903	MD		H1931	MD	
H1906	MD		H1902	MD		H1932	MD	
H1905	MD		H1901	MD		H1933	MD	
H1904	MD		H1900	MD		H1934	MD	
H1903	MD		H1899	MD		H1935	MD	
H1902	MD		H1898	MD				
H1901	MD		H1897	MD				
H1900	MD		H1896	MD				
H1899	MD		H1895	MD				
H1898	MD		H1894	MD				
H1897	MD		H1893	MD				
H1896	MD		H1892	MD				
H1895	MD		H1891	MD				
H1894	MD		H1890	MD				
H1893	MD		H1889	MD				
H1892	MD		H1888	MD				
H1891	MD		H1887	MD				
H1890	MD		H1886	MD				
H1889	MD		H1885	MD				
H1888	MD		H1884	MD				
H1887	MD		H1883	MD				
H1886	MD		H1882	MD				
H1885	MD		H1881	MD				
H1884	MD		H1880	MD				
H1883	MD		H1879	MD				
H1882	MD		H1878	MD				
H1881	MD		H1877	MD				
H1880	MD		H1876	MD				
H1879	MD		H1875	MD				
H1878	MD		H1874	MD				
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H1876	MD		H1872	MD				
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H1873	MD		H1869	MD				
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H1871	MD		H1867	MD				
H1870	MD		H1866	MD				
H1869	MD		H1865	MD				
H1868	MD		H1864	MD				
H1867	MD		H1863	MD				
H1866	MD		H1862	MD				
H1865	MD							



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Scale: 1:20,000
 UTM 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 areas.

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 centers 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
 1250/73-29611
 or
 Environment Canada, Canadian Wildlife Service
 (250) 373-29611
 http://www.cws-scf.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