# SENSITIVE ECOSYSTEMS INVENTORY OF COLDSTREAM – VERNON

**For portions of map sheets**
**082L014, 082L015, 082L024, 082L025, 082L034, 082L035**
**Scale 1:20,000**

**2007**

## Introduction

Sensitive Ecosystems are ecosystems that are ecologically sensitive and or rare in the landscape. These areas also have significant biodiversity values and provide many habitat features required by threatened and endangered plant and animal species.

## Rationale

The Okanagan basin of British Columbia is an area of great ecological significance within both the province of B.C. and Canada as a whole. It is an area with high biodiversity values, and many rare and endangered ecosystems, plant and animal species. The warm dry climate of this valley has long attracted humans to live here. The City of Vernon and surrounding area was initially subject to extensive agricultural conversion of natural ecosystems and now has a rapidly growing population creating intense rural and urban development pressures. Additionally, remaining natural ecosystems have significant changed in structure and function through fire exclusion, selection and clearcut forest harvesting and the spread of invasive alien plants. Many ecosystems have been lost, and many remaining natural areas have fragmented and degraded.

This Sensitive Ecosystems Inventory (SEI) was initiated by the Allan Brocks Nature Centre to provide an inventory of the remaining rare and fragile ecosystems to support sustainable landscape level land-use decisions and to encourage private land stewardship. This project provides Sensitive Ecosystems Inventory (SEI) coverage of the low elevations of the north Okanagan Valley not presently covered by the Bella Vista – Goose Lake Range SEI (2003) and Vernon Commonage SEI (2005).

## Ecological Significance

These sensitive terrestrial ecosystems are ecologically significant because of their rarity and fragility and as a result of the great diversity of species they support, including habitat for many rare and endangered species.

**Wetlands** are extremely important because of their natural rarity in this area with few collecting sites and because many of them have been lost to urban and agricultural development. They support a wide diversity of organisms including food, shelter, and brooding sites for ducks, songbirds, fish, amphibian, and invertebrate species. They have important hydrologic functions including filtering out pollutants, and safely storing and releasing water.

**Riparian ecosystems** include benches along streams, gullies, some with intermittent or permanent creeks, and fringes of lakes and ponds. They support a rich diversity of species and have important hydrologic functions including filtering out pollutants, safely storing and releasing water (especially during peak flows), preventing stream bank erosion, and maintaining water quality and lower water temperatures.

**Old forest ecosystems** are ecosystems that are dominated by large, old trees. Most of these forests have been lost to historical and recent selection logging of larger trees and urban development. Only small remnants of these forests remain today, generally within protected areas and on steep inaccessible slopes. Old forests and the old trees in them provide important habitat for many species including many woodpeckers, owls, and mule deer.

**Grassland ecosystems** are dominated by bunchgrasses but also have a wide diversity of herbaceous plants. About one-third of the Province's threatened and endangered species are dependant on grasslands. Large areas of grasslands have been lost to agricultural and urban development and have been degraded by the spread of invasive plants.

**Broadleaf woodland ecosystems** are dominated by trembling aspen trees and typically occur in moist basins in grassland areas. They are usually very shrubby and provide important habitat for many birds, reptiles and mammals. These ecosystems are quite rare and their moist nature makes their soils sensitive to disturbance.

**Coniferous woodland ecosystems** are like forests, but have very open canopies of ponderosa pine or Douglas-fir trees. They most commonly occur on low elevation sites and warm slops and sites where soils are shallow. Many sites have been lost to urban development and many areas have been altered by ingrowth of trees associated with fire exclusion, invasive plants, and other human disturbances.

**Sparsely vegetated ecosystems** occur on sites where exposed bedrock or rocks limit the places where vegetation can grow. They include cliffs, rock outcrops and talus slopes with sparse tree, shrub, grass, or herbaceous plant cover. Many of these ecosystems are rare and their often shallow soils make them sensitive to disturbance. They provide important habitat for bats, snakes, and raptor nests.

***Other important ecosystems*** are not sensitive ecosystems but have many important values associated with them. They include mature forest and. **Mature forest ecosystems** provide important buffer sites, provide some of the values associated with old forest ecosystems and are recruitment sites for old forests. **Seasonally flooded agricultural fields** are lands that have been converted to agricultural use but have seasonally important wildlife habitat values. They are located along low lying areas in floodplains or former floodplains that have been isolated by channelization of creeks and rivers. They are areas that could be restored to riparian habitats if natural flood regimes and vegetation are re-established.

## Methods

The study area was ecosystem mapped following provincial Resources Inventory Committee standards. Bioterrain and ecosystem polygons were delineated on 1:15,000 scale colour stereo aerial photographs from Geographic Data BC taken in 1994. Field sampling (survey intensity level 4) was used and a total of 13% of polygons were inspected in the field during the summer of 2007. Up to three ecosystems were mapped in each polygon and were assigned proportions of the polygon that they occupy (to the nearest 10%). Linework on photographs was digitized using the monorestitution method, databases were compiled, reviewed, and verified, and digital (ArcInfo) and hardcopy maps were produced.

All ecosystems mapped were evaluated for rarity and sensitivity and an algorithm was developed to create this Sensitive Ecosystem and Other Important Ecosystem theme. Each Sensitive Ecosystem and Other Important Ecosystem has been assigned a colour. The first component of each polygon has been colour-themed. Polygons with Sensitive or Other Important Ecosystems as a second or third component have cross-hatching.

## Data Limitations

The map is intended to be used as a flagging tool to accompany planning processes and management of land resources in the study area. For site-specific evaluations, more detailed field assessments are needed. The accuracy of the boundaries of the mapping is limited by the scale of the aerial photographs used (1:15,000). *Enlargement of the data beyond the source scale may result in unacceptable distortion and faulty registration with other data sets.* Rapid changes are ongoing within the study area making it important to refer to the dates of information sources.

## Credits

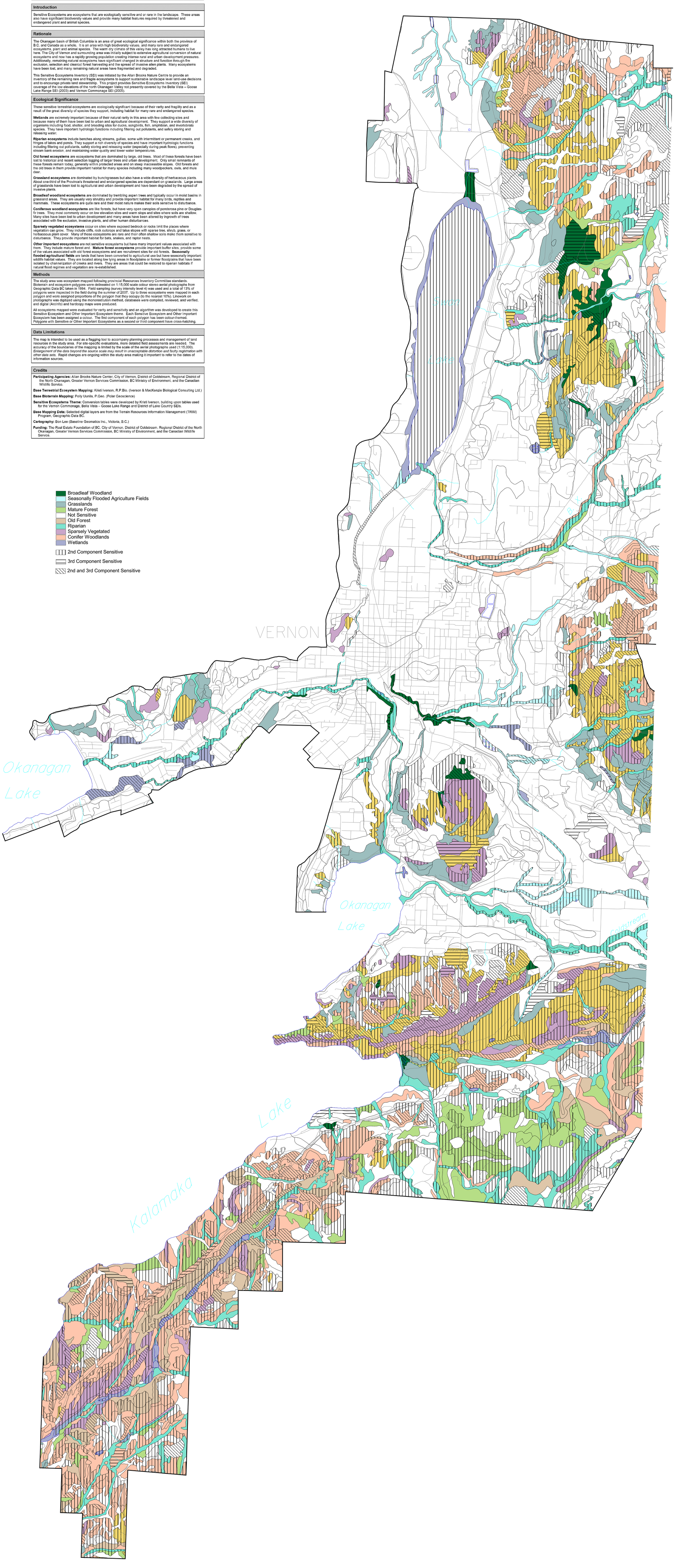

**Participating Agencies:** Allan Brooks Nature Center, City of Vernon, District of Coldstream, Regional District of the North Okanagan, Greater Vernon Services Commission, BC Ministry of Environment, and the Canadian Wildlife Service.

**Base Terrestrial Ecosystem Mapping:** Kristi Iverson, R.P.Bio. (Iverson & MacKenzie Biological Consulting Ltd.)

**Base Bioterrain Mapping:** Polly Uunila, P.Geo. (Polar Geoscience)

**Sensitive Ecosystems Theme:** Conversion tables were developed by Kristi Iverson, building upon tables used for the Vernon Commonage, Bella Vista – Goose Lake Range and District of Lake Country SEIs.

**Base Mapping Data:** Selected digital layers are from the Terrain Resources Information Management (TRIM) Program, Geographic Data BC.

**Cartography:** Bon Lee (Baseline Geomatics Inc., Victoria, B.C.)

**Funding:** The Real Estate Foundation of BC, City of Vernon, District of Coldstream, Regional District of the North Okanagan, Greater Vernon Services Commission, BC Ministry of Environment, and the Canadian Wildlife Service.