

# SENSITIVE ECOSYSTEMS INVENTORY OF THE BELLA VISTA – GOOSE LAKE RANGE

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082L.023, 082L.024, 082L.034  
Scale 1:20,000

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THE REAL ESTATE  
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## 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 Okanagan Valley is also the area with the highest population densities in the interior of British Columbia and has a rapidly growing population. This area has been subject to extensive agricultural conversion, significant changes to ecosystem structure and function through fire exclusion, and intense urban and rural development pressure. These pressures have resulted in the loss, fragmentation, and degradation of many of these natural areas.

This Sensitive Ecosystems Inventory (SEI) was initiated by the Okanagan Indian Band and the Allan Brooks Nature Centre to provide an inventory of the remaining rare and fragile ecosystems and habitats for many wildlife species to support sustainable landscape level land-use decisions and to encourage private land stewardship.

## 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.

Moist and wet ecosystems are key ecosystems in a climate that primarily supported dry, open forests and grasslands historically. 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 water temperatures.

**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 development. They support a wide diversity of organisms including food, shelter, and breeding sites for ducks, songbirds, fish, amphibian, and invertebrate species. **Riparian ecosystems** include benches along streams, gullies with intermittent or permanent creeks, and fringes of lakes and ponds and sites with significant seepage. Riparian ecosystems have been impacted by cattle and altered hydrology associated with development sites.

**Old forest ecosystems** are ecosystems that are dominated by large, old trees. Most of these forests have been lost to selection logging of larger trees, ingrowth of dense trees resulting from fire exclusion, and development. Only small remnants of these forests remain today. 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 forbs. Large areas of grasslands have been lost to agricultural and urban development and noxious weed invasion. Most of the remaining grasslands have been converted to *disturbed grasslands* (see Other Important Ecosystems) through partial invasion by noxious weeds.

**Deciduous woodland ecosystems** are dominated by trembling aspen trees and include broad, moist basins in grassland areas. They are typically 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 or only scattered ponderosa pine or Douglas-fir trees. They most commonly occur on very dry sites where soils are shallow or very shallow. Many sites have been lost to development and many areas have been altered by ingrowth of trees associated with fire exclusion, weed invasion, 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 shrub or grass/herb cover. Many of these ecosystems are rare and their coarse or 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 disturbed grassland ecosystems. **Mature forest ecosystems** provide important buffer sites, provide some of the values associated with old forest ecosystems and are recruitment sites for old forests. Similarly, **disturbed grassland ecosystems** still provide many of the important habitat values associated with grasslands, but they have some weeds (10 to 50% noxious weeds) or have lost many climax grassland species. Given the very limited extent of remaining grasslands, these are important sites for grassland restoration and maintenance of many grassland values including habitat for many rare and endangered species.

## Methods

The study area was systematically 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 18% of polygons were inspected in the field during the summer of 2002. 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:** Okanagan Indian Band (OKIB), Allan Brooks Nature Center (ABNC), the City of Vernon, the Ministry of Water, Land and Air Protection (WLAP) and the Ministry of Sustainable Resource Management (MSRM).

**Project Steering Committee:** Debbie Clarke (Project Coordinator), Robert Hutton and Keith Louis (OKIB), Susan Latimer (WLAP), Dale Rintoul (City of Vernon), Al McNiven (Greater Vernon Services Commission), Ken Barton and Carmen Wong (ABNC), and Dale Donovan (Okanagan University College).

**Base Terrestrial Ecosystem Mapping:** Kristi Iverson, R.P.Bio.

**Base Bioterrain Mapping:** Jen Shypitka, P.Geo.

**Sensitive Ecosystems Theme:** conversion tables were developed by Kristi Iverson, building upon tables used for the Central Okanagan that were developed by Kristi Iverson, Carmen Cadrin and Corey Erwin (Ministry of Sustainable Resource Management, Victoria, B.C.).

**Base Mapping Data:** selected digital layers are from the Terrain Resources Information Management (TRIM) Program, Geographic Data BC, Ministry of Sustainable Resource Management.

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

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