

WHAT IS A SENSITIVE ECOSYSTEM?

For the purpose of this report, an ecosystem is considered to be a portion of the landscape with relatively uniform natural vegetation.

Not all ecosystems are ecosystems that are ecologically sensitive and/or at risk in the landscape.

Rationale

The Okanagan Valley region covers one of the most rapidly growing regions in western North America, and development pressure is escalating. The area is under intense pressure due to urban and rural human settlement as well as agriculture, and has experienced significant changes in the structure and function of its ecosystem structure and function through the spread of invasive alien species and fire extinction. Very high ecological values, combined with the development pressures, have resulted in the need to identify and protect the most ecologically sensitive and land use decision making throughout the Okanagan Valley.

Regional and municipal governments of the Okanagan Valley and conservation organizations, assisted by Environment Canada's Canadian Wildlife Service, have developed a Sensitive Ecosystems Inventory mapping project as a means to identify the remaining sensitive ecosystems in the Okanagan Valley. The SEI is intended to include the people, land and resources that are most vulnerable to ecological change, sensitive to its introduction, and spread of invasive plants, and sensitivity to recreational activity and human disturbance. Within the report, the authors develop a list of species and ecological communities determined by the B.C. Conservation Data Centre (CDC), a member program of the International NatureServe network. The CDC list of Ecosystems at Risk (EaR) provides a list of species and ecological communities that are at risk of ecological community.

Ecological Significance

The Okanagan Valley is characterized by a complex landscape of rugged, rocky terrain and highly sloping terraces. These formations result from erosion of the volcanic ash and lava flows that were deposited in the valley during the last glacial period. The complex terrain, combined with a moderated semi-arid climate, supports diverse ecosystems and organisms. Open ponderosa pine forests, grasslands, shrub and lake shore, and a diversity of riparian and wetland ecosystems often occur in close proximity to one another. The wetland and riparian ecosystems are a focal point in the landscape for many species.

The Valley is a region of rapidly expanding ecological and biological diversity

species and ecological communities, including some ecosystems unique to the Okanagan Valley. The Okanagan Valley is home to some of the world's wetlands and old forest ecosystems, each well-represented in the Okanagan Valley. However, historical ecosystem mapping (1860s to present) has been of greater than 90% of some ecosystem types in the Okanagan Valley.

Healthy, functioning natural ecosystems play an important role in adapting to and mitigating the impacts of climate change. Climate change adaptations such as riparian revegetation, riparian habitat restoration, and riparian connectivity contribute to ecosystem resilience and adaptive capacity in the Okanagan Valley. The riparian ecosystems in this project are ecologically significant because of their rarity and fragility. They are ecologically significant because they provide, such as climate regulation, water filtration, productive habitat for native and non-native species, and riparian habitat for native and non-native. Sensitive ecosystems must be considered in the context of the overall landscape, which includes other ecosystems that also contribute to ecosystem resilience.

Study Area

The Okanagan Valley Ecosystem Project is comprised of a number of individual projects: Bella Vista – Goose Lake Range; Central Okanagan; City of Kelowna; Vernon Community; District of Lake Country; Joe Rich; Telford 15; Nanaimo; and the Okanagan Valley Ecosystem Project. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection.

The purpose of the Okanagan Valley Ecosystem Project is to combine all of the data from the individual projects into a single, comprehensive map of the Okanagan Valley. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection.





Sensitive Ecosystems Inventory Methods

Sensitive Ecosystems Inventory was developed as a conservation tool. It is flexible and can be completed in a short time with limited funding when the project is completed. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection. The project is a collaborative effort between the Ministry of Environment and Climate Change Canada, the Ministry of Forests, Lands, and Natural Resource Operations, and the Ministry of Water, Land and Air Protection.

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	<p>Alpine (AP):</p> <p>Alpine ecosystems are high-elevation alpine and parkland ecosystems including herbaceous ecosystems dominated by forb clumps (AP-F), and shrub ecosystems dominated by dwarf shrubs such as heather (AP-S). Alpine ecosystems are found at snow cover for large parts of the year. Alpine ecosystems are sensitive to disturbance, as the alpine soils are cold temperate.</p> <p>Alpine Ecosystems provide the following services:</p> <ul style="list-style-type: none"> • Erosion control • Fresh water • Climate regulation • Nutrient cycling and maintenance of productive soils • Pollination • Food production • Soil formation <p>Some species are:</p> <ul style="list-style-type: none"> • American Badger • Peregrine Falcon • Wolverine
	<p>Seasonally Flooded Agricultural Fields (FS):</p> <p>Seasonally Flooded Agricultural Fields ecosystems are cultivated fields that flood annually, providing important migration and nesting habitat for waterfowl and other bird species, small mammals, and many types of predators. They are located along low-lying areas or flood plains. In some cases, these areas could be restored to Wetland or Riparian ecosystems if natural flood regimes and vegetation are restored.</p> <p>Seasonally Flooded Agricultural Fields ecosystems provide the following services:</p> <ul style="list-style-type: none"> • Flood control • Drought recovery • Storm protection • Drainage and natural mitigation • Fresh water • Carbon sequestration • Maintenance of productive soils • Pollination • Pest regulation • Food production <p>Some species are:</p> <ul style="list-style-type: none"> • Great Basin Spokesage • Long-billed Curlew • Peregrine Falcon • American Badger • Great Basin Dipper • Western Rattlesnake
	<p>Mature Forest (MF):</p> <p>Mature Forest ecosystems are dominated by mature trees, including broadleaf (MF-B) forests, coniferous (MF-C) forests, and mature riparian forests, and mature coniferous and broadleaf woodlands. Mature Forests are an important buffer to sensitive ecosystems and can also be important recruitment sites for Old Forests. Mature forest ecosystems have many important subtypes.</p> <p>Mature Forest Ecosystems provide the following services:</p> <ul style="list-style-type: none"> • Climate regulation • Carbon sequestration • Air quality • Erosion control • Sediment retention • Nutrient cycling and maintenance of productive soils • Flood control • Pest regulation • Pollination • Food production <p>Some species are:</p> <ul style="list-style-type: none"> • Lygia Marjorie Lake • Wolverine • Williamson's Sapsucker • Olive-sided Flycatcher • Snowy Plover • Western Rattlesnake
	<p>Non-sensitive Landscapes (NS): (Areas not mapped as sensitive or other important ecosystems)</p> <p>Non-sensitive Landscapes are modified areas not subjected to sensitive ecosystems, and include urban areas, disturbed rural or disturbances that are disturbed across the landscape. Disturbed rural areas can be interspersed with farms, farmland and stands with an age range between 10 and 80 years. Non-sensitive landscapes are shown in white in the aerial view. Non-sensitive polygons close to urban or disturbed areas may have a modified landscape interspersed with the sensitive ecosystems (S). In all</p>

or graminoid vegetation (AP III), **parkland forests** where trees occur in distinct higher elevations in the South Okanagan (TP1, 15) where there are significant areas close vegetation recovery.

associated with Alpine Ecosystems are:



American Badger
Taxidea taxus affinis
(Badger)
Photo by Parks Canada © W. Lynch



Wolverine
Gulo gulo luscus
(Wolverine, Skunk Country)
Photo by Parks Canada © W. Lynch

are

habiting habitat for birds. They provide important habitat for amphibians, and their ecosystems that have been impacted by fragmentation of creeks and rivers, have been established.

associated with Seasonally Flooded Agricultural Fields are:



Great Blue Swallowtail
Papilio glaucus
(Swallowtail, "Swamptail")
Photo by Parks Canada © W. Lynch



Pomarine Falcon
Falco pomarine pomarine
(Belted Sparrow Hawk)
Photo by The Nature

and mixed (AP IV-VI) deciduous and coniferous forests, however it excludes ecosystems. They provide some of the same values associated with Old Forest natural attributes, including some remaining large, old trees.

associated with Mature Forest Ecosystems are:

- Western Scorch Owl
- Flammulated Owl



Pileated Woodpecker
Oostryx pileatus
(Belted Sparrow Hawk)
Photo by Parks Canada © W. Lynch

are depicted in white)

landscapes, and young forests. Urban areas have human-influenced features like active vegetation, or cultivated crops. Young forests are often dominated or grazed by a sensitive ecosystem. In addition, many sensitive ecosystems in the sensitive ecosystems are too small to map individually. They modified