

Sensitive ecosystems are fragile and/or rare, or are ecologically important because of the diversity of species they support and the ecosystem services they provide. Some at-risk wildlife and plant species are associated with Sensitive Ecosystems, and are listed below. Species At Risk are those species which are considered Endangered, Threatened or of Special Concern. Please note that many of the species listed in this map can be found in other sensitive ecosystems as well as non-sensitive ecosystems found throughout the Chuganay Valley.

Note: Information on Species at Risk is included in the map legend to highlight the species habitat values of the sensitive ecosystems. This map series does not include the actual mapping of species locations. For information on species location mapping see the B.C. Conservation Data Centre release below.

Antelope-brush communities in dryland ecosystems characterized by abundant shrub cover dominated by antelope-brush. These communities occur in the southern portion of the Okavango Valley, on sandy soils in the warm, dry valley bottoms. They commonly occur on sites that are very amenable to development – primarily for vineyards and housing. Overdue by domestic livestock and the introduction and spread of invasive plants these systems are disappearing. Antelope-brush ecotypes are recognized as one of the four most endangered ecosystems in Canada.

Antelope-brush Stepped Ecotypes provide the following services:

- Carbon storage
- Nutrient cycling and maintenance of productive soils
- Sediment retention
- Pollination
- Pest regulation
- Food production

Some species associated with Antelope-brush Stepped Ecotypes are:

- Western House Mouse
- Night Squirrel
- Bear's Hantavirus
- Bear's Brain Copherosella
- Pallid Bat
- Peregrine Falcon
- Nutter's Cottontail
- Common Nighthawk

Bear's Hantavirus (Antelope, Threshers)
(Pred to the Left)

Bear's Brain Copherosella
(Pred to the Left)

Common Nighthawk

Sagebrush Steppe Ecosystems are myriad ecosystems characterized by abundant big sagebrush. These communities occur on similar sites to grassland ecosystems, where conditions are too warm and dry for trees to establish. This ecosystem is mostly found in the southern reaches of the study area, but they are also dominated by bunchgrasses with scattered forbs and a soil composed of mosses and lichens. These ecosystems commonly occur on sites that are amenable to urban or agricultural development, where livestock transiting through the area can destroy the vegetation and the ecosystems. Sagebrush Steppe Ecosystems are gently sloping ecosystems dominated by big sagebrush and bunchgrasses (SS-1), steep slope sagebrush steppe (SS-2), steep, shallow soil sagebrush steppe (SS-3), and disturbed sagebrush steppe dominated by big sagebrush and invasive plants (SS-4).

Sagebrush Steppe Ecosystems provide the following services:

- Carbon storage
- Erosion control
- Seed retention
- Nutrient cycling and maintenance of productive soils

Sagebrush Steppe Ecosystems provide the following services:

- Great Basin Sagebrush Steppe
- Western Rattlesnake
- Pallid Bat
- Penicillate Falcon
- Nuttall's Cottontail
- Argentine Badger
- Hesperomammal

Sagebrush Steppe Ecosystems are associated with Sagebrush Steppe Ecosystems:

- Great Basin Sagebrush Steppe
- Western Sink
- Common Nighthawk
- Spice Thrasher
- Wedge-tailed
- Spotted Owl
- Spotted Owl
- Pied-billed Grebe

Steppe Ecosystems:

- Great Basin Sagebrush Steppe
- Western Sink
- Common Nighthawk
- Spice Thrasher
- Wedge-tailed
- Spotted Owl
- Pied-billed Grebe

<p>Grassland ecosystems occupy areas that are generally not too dry for forests to develop, and are dominated by bunchgrasses (grassland). GR, steep slope grasslands (GR.st), steep shallow grasslands (GR.sts), and disturbed grasslands composed by invasive alien plants (GR.oi or GR.dg). Large areas of grasslands have been lost to agriculture and urban development and degraded by invasive alien plants. Most of the remaining grasslands have become what are considered to be degraded. Grasslands through partial invasion by trees, very little remains of the original grasslands, these are important sites for grassland restoration, soil conservation, and maintenance of many other grassland values, including habitat for many at-risk and endangered species.</p>		
<p>Grassland Ecosystems provide the following services:</p>		
<ul style="list-style-type: none"> Carbon storage Erosion control Nutrient cycling and maintenance of productive soils Pollination Pest regulation Food production 	<p>Sediment Retention</p>	<p>Some species associated with Grassland Ecosystems are:</p> <ul style="list-style-type: none"> • Night Scaup • Pallid Bat • Peregrine Falcon • Nutcrack Cuckoo • Tree Salamander • Columbian Carpet Moos
		<p>Other Plant</p> <p>Phoradendron villosum Yucca elata Yucca brevifolia Yucca filamentosa Yucca torreyana Yucca viridifolia</p> <p>Long-billed Curlew Northern oriole Great Crested Newt Sharp-shinned Hawk</p>

[illegible]

Old Forest Ecosystems are dominated by large, old trees, usually greater than 100 years of age. Most of these forests have been lost to selective logging of large trees, growth of dense trees resulting from the logging, and development. Only small remnants of these forests remain today. These old forests contribute to climate regulation and biodiversity maintenance and are the most important habitat for many species including many woodpeckers, owls, and mule deer. Old Forest ecosystems include old **Coniferous Woodlands (OF-C)** and old **Broadleaf Woodlands**. Old riparian forests are included in the Old Forest Ecosystems.

Old Forest Ecosystems provide the following services:

- Climate regulation
- Carbon storage
- Air quality
- Erosion control
- Sediment retention
- Nutrient cycling and maintenance of productive soils

Some species associated with Old Forest Ecosystems are:

- Willamette Sparrowhawk
- Western Toad
- Western Yellowthroat
- Lewis's Woodpecker
- Pharmaceutical Owl
- Common Nighthawk
- White-headed Woodpecker
- Oliver's Woodpecker
- Western Tanager
- American Badger
- Lyle's Marsh Wren
- Starry Plover



Western Tanager
Old Forest Ecosystems
Photo by David Greenlee

Broadleaf Woodland ecosystems are often dominated by treebark species which occur in depressions and moist areas (**Aspen Coppice**, **BW.ac**) in grassland areas, and **aspen sedge** (**BW.s**) on slopes, however it varies a lot of forests. Broadleaf Woodlands are susceptible to changes in the water table. They are unusual in a dry landscape and their most soils are sensitive to disturbance. Old Broadleaf Woodlands are included in the Old Forest category.

<p>Coniferous Woodland Ecosystems provide the following services:</p> <ul style="list-style-type: none"> Climate regulation Air quality Erosion control Sediment retention Carbon storage Pest regulation Natural cycling and maintenance of productive soils 	<p>Some species associated with Coniferous Woodland Ecosystems are:</p> <ul style="list-style-type: none"> Western Redstart Racer Rubber Tree White-headed Woodpecker Lewis's Woodpecker Mariposa Lily Flammulated Owl Snowy Plover Great Basin Gophersnake Western Screech Owl Common Horned Lark
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Wetland Ecosystems provide the following services:

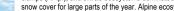
• Flood recovery	• Silts/trash
• Flood control	• Climate regulation
• Storm protection	• Pollination
• Drainage and natural irrigation	• Pest regulation
• Fresh water	• Food production
• Filtration and pollution control	
• Nutrient cycling and maintenance of productive soils	

Some species associated with Wetland Ecosystems are:

• Western Tadpole	• Northern Leopard Frog
• Tiger Salamander	• Western Rattlesnake
• Western Painted Turtle	
• Great Basin Spadefoot	
• Mexican Mosquito Fern	
• Giant Hellbore	

Tiger Salamander
Anaxyrus tigris
Shawhan, El Segundo
Photo by: Jane Molloy

Western Painted Turtle
Clemmys insculpta
Pinto, Salsburg, El Segundo
Photo by: Jane Molloy

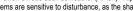


Alpine Ecosystems provide the following services:

- Erosion control
- Pollination
- Fresh water
- Food production
- Climate regulation
- Peregrine Falcon
- Nutrient cycling and maintenance of productive soils
- Soil formation

Some species associated with Alpine Ecosystems are:

- Arctic Skua
- Arctic Hare
- Arctic Fox
- Wolverine



Arctic Skua
Larus hyperboreus
 Northern Skua
 Photo by Patia Canada W. Lynch



Arctic Hare
Lepus arcticus
 Northern Hare
 Photo by Patia Canada W. Lynch



Arctic Fox
Alopex lagopus
 Red Fox
 Photo by Patia Canada W. Lynch



Wolverine
Eleutherodactylus
 Northern Spotted Newt
 Photo by Patia Canada W. Lynch

Seasonally Flooded Agricultural Fields (FS):

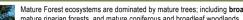
Seasonally Flooded Agricultural Fields ecosystems are cultivated fields that flood annually, providing important migration and wintering habitat for birds. They provide important habitat for amphibians, waterfowl and other birds species, mammals, and many types of producers. They are treated along "leaky areas" or former floodplains that have been isolated by channelization of creeks and rivers. In some cases, these areas could be restored to Wetland or Riparian ecosystems if natural flood regimes and vegetation are re-established.

Seasonally Flooded Agricultural Fields Ecosystems provide the following services:

- Flood control
- Drought recovery
- Storm protection
- Drainage and natural irrigation
- Fresh water
- Carbon storage
- Maintenance of productive soils
- Pollination
- Pest regulation
- Food production

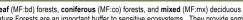
Some species associated with Seasonally Flooded Agricultural Fields are:

- Great Basin Sparrowbird
- Long-billed Curlew
- Peregrine Falcon
- American Bitter
- Great Basin Gophersnake
- Western Rattlesnake



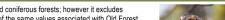
Mature Forest (MF)

Mature forest ecosystems are defined by mature trees, including **broadleaf (BF)** forests, **coniferous (CF)** forests, and **mixed (MF-m)** deciduous and coniferous forests; however it excludes mature riparian forests, and mature deciduous and broadleaf woodlands. Mature Forests are an important buffer to sensitive ecosystems. They provide some of the same values associated with Old Forest ecosystems and can also be important recruitment sites for Old Forests. Mature forest ecosystems have many important structural attributes, including some remaining large, old trees.



Mature Forest Ecosystems provide the following services:

- Climate regulation
- Carbon storage
- Air quality
- Erosion control
- Soil retention
- Natural cycling and maintenance of productive soils
- Flood regulation
- Pest regulation
- Pollination
- Pollution control
- Flood protection



Some species associated with Mature Forest Ecosystems are:

- Lyall's Merganser
- Western Screech Owl
- Wolverine
- Willowson's Sapsucker
- Chow-chow Flycatcher
- Shore Plover
- Western Tattler

Partnerships:
Osoya Resources
Bent Creek
Parks by Parks Canada W. Lynx

Stewardship Partners:
Stewardship Partners
Bent Creek

Non-sensitive Landscapes (NS): (Areas not mapped as sensitive or other important ecosystems are depicted in white)

Non-sensitive Landscapes are modified areas not occupied by sensitive ecosystems, and include urban areas, disturbed rural landscapes, and young forests. Urban areas have human-influenced features or disturbances that are dominant across the landscape. Disturbed rural areas can be interpreted with age, farmed and native vegetation, or cultivated crops. Young forests are conifer-dominated stands with an age range between 0 and 80 years. Non-sensitive landscapes are shown in white in the areas that are not designated by any sensitive ecosystem. In addition, many sensitive ecosystem polygons occur in urban or disturbed areas while having a modified landscape interspersed with the sensitive ecosystem(s), in which the sensitive ecosystems are too small to map individually. These modified areas are depicted as NS (non-sensitive) on the map.