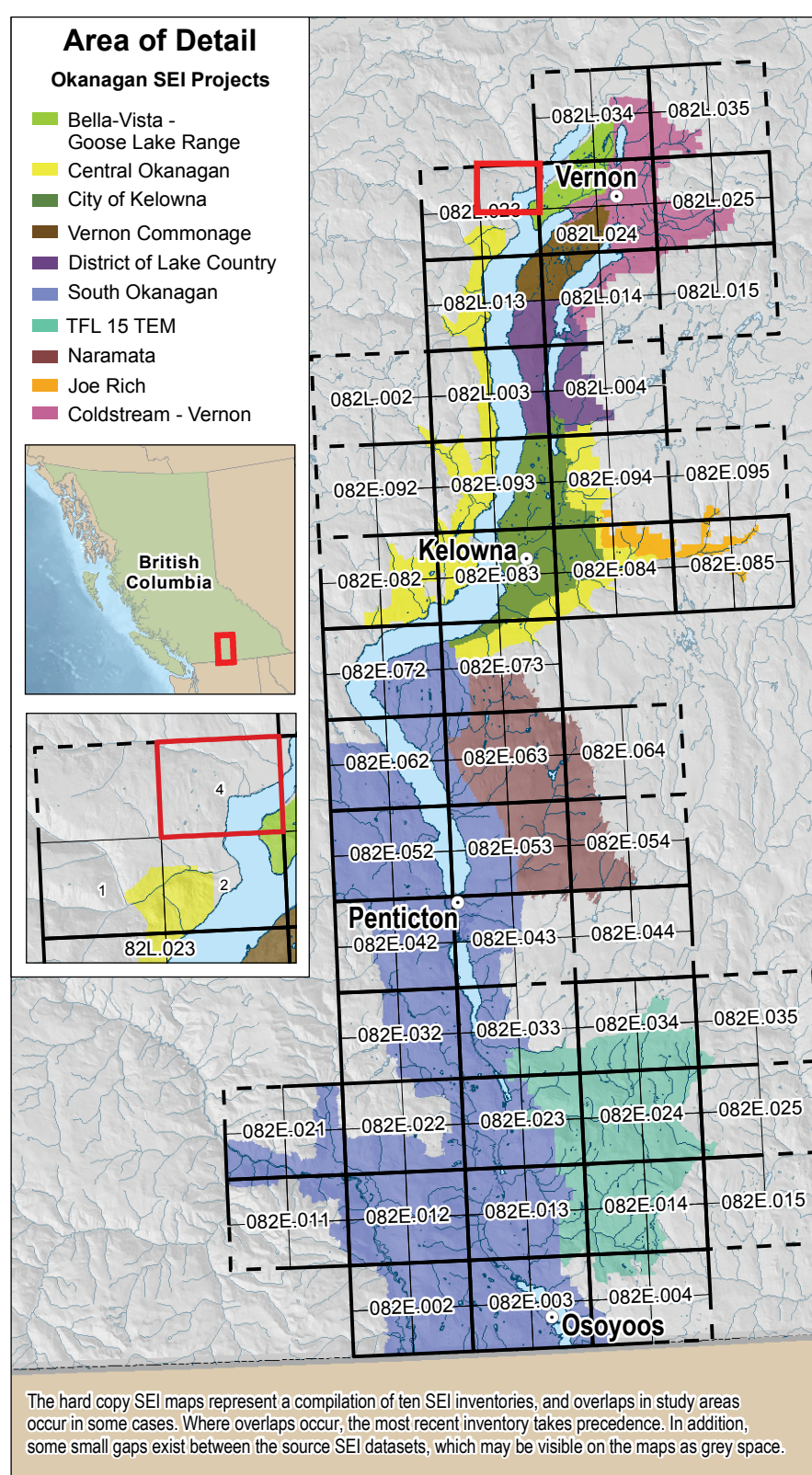


## 82L.023.4



## Sensitive Ecosystems Legend

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 the map of the species listed in this map can be found in other sensitive ecosystems as well as non-sensitive ecosystems found throughout the Okanagan 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 reference below.

## Antelope-brush Steppe (AS):

Antelope-brush communities are dryland ecosystems characterized by abundant shrub dominated by antelope-brush. These communities occur in the southern portion of the Okanagan 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. Overuse by domestic livestock and the introduction and spread of invasive plants threaten this ecosystem. Antelope-brush steppe ecosystems are dominated by antelope-brush and bunchgrasses (AS-ab), and disturbed antelope-brush steppe dominated by antelope-brush and invasive alien plants (AS-b).

**Antelope Brush Steppe Ecosystems 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 Steppe Ecosystems are:**

- Great Basin Spadefoot
- Night Snake
- Belted Gopher Snake
- Roadrunner
- Common Nighthawk
- Nuttall's Cottontail
- Western Skink
- Common Nighthawk
- Sage Thrasher
- Nugget Moss
- American Badger

## Sagebrush Steppe (SS):

Sagebrush Steppe ecosystems are dryland 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, where they are dominated by bunchgrasses with scattered forbs and a soil crust dominated by mosses and lichens. These ecosystems commonly occur on sites that are amenable to urban or agricultural development, where livestock trampling and invasive plants threaten remaining Sagebrush Steppe ecosystems. Sagebrush Steppe are generally steppe ecosystems dominated by big sagebrush and bunchgrasses (SS-ab), steep, shallow soil sagebrush steppe (SS-sh), and disturbed sagebrush steppe dominated by big sagebrush and invasive alien plants (SS-b).

**Sagebrush Steppe Ecosystems provide the following services:**

- Carbon storage
- Erosion control
- Sediment retention
- Nutrient cycling and maintenance of productive soils
- Pollination
- Pest regulation

**Some species associated with Sagebrush Steppe Ecosystems are:**

- Great Basin Spadefoot
- Western Skink
- Common Nighthawk
- Sage Thrasher
- Nugget Moss
- American Badger

## Grasslands (GR):

Grassland ecosystems occupy areas that are generally too hot and dry for forests to establish, and are dominated by bunchgrasses (grassland, GR-gr), steep slope grasslands (GR-st), step, shallow grasslands (GR-sh), and disturbed grasslands dominated by invasive alien plants (GR-b). Large areas of grasslands have been lost to agricultural and urban development and degraded by invasive alien plants. Most of the remaining grasslands have become wild and are considered to be Disturbed Grasslands through partial invasion by noxious weeds. Given the very limited extent of remaining 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.

**Grassland Ecosystems provide the following services:**

- Carbon storage
- Erosion control
- Nutrient cycling and maintenance of productive soils
- Pollination
- Pest regulation
- Food production

**Some species associated with Grassland Ecosystems are:**

- Great Basin Spadefoot
- Western Skink
- Common Nighthawk
- Sage Thrasher
- Nugget Moss
- American Badger

## Sparsely Vegetated (SV):

Sparsely vegetated ecosystems are sites where rock or talus (angular rock fragments) limits vegetation establishment; vegetation cover is discontinuous and interspersed with bedrock or blocks of rock. Sparsely vegetated ecosystems are subdivided into four sub-categories: shrub, talus, cliff, and rock outcrop ecosystems. Cliff (SV-cl), grassy or un-vegetated Rock Outcrop (SV-ro), Shrubby Rock Outcrop (SV-sh), and Talus Slope (SV-t). Many of these ecosystems are at risk, and their coarse or shallow soils make them sensitive to disturbance and soil erosion.

**Sparsely Vegetated Ecosystems provide the following services:**

- Erosion control
- Nutrient cycling and maintenance of productive soils
- Pollination
- Soil formation

**Some species associated with Sparsely Vegetated Ecosystems are:**

- Great Basin Spadefoot
- Western Skink
- Common Nighthawk
- Sage Thrasher
- Nugget Moss
- American Badger

## Old Forest (OF):

Old Forest Ecosystems are dominated by large, old trees, usually greater than 150 years of age. Most of these forests have been lost to selective logging of larger trees, in-growth of dense trees resulting from the exclusion, and development. Only small remnants of these forests remain today. These old forests contribute to climate regulation, soil stability, moisture retention and the old trees in them provide important habitat for many species including many woodpeckers, owls, and mule deer. Old Forest ecosystems include Old Coniferous Woodlands (OF-co) and Old Broadleaf Woodlands (OF-bl). Old riparian forests are included in the Riparian category.

**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:**

- Williamson's Sapsucker
- White-headed Woodpecker
- Western Skink
- Western Screech Owl
- American Badger
- Flammulated Owl
- Shorebird

## Broadleaf Woodlands (BW):

Broadleaf Woodland ecosystems are often dominated by trembling aspen which occur in depressions and moist areas (Aspen Copse, BW-ac) in grassland areas, and aspen steppe (BW-as) slopes, however it excludes old forests. Broadleaf Woodlands are susceptible to changes in the water table. They are unusual in a dry landscape and their moist soils are sensitive to disturbance. Old Broadleaf Woodlands are included in the Old Forest category.

**Broadleaf Woodland Ecosystems provide the following services:**

- Climate regulation
- Drought recovery
- Fresh water
- Flood control
- Storm protection
- Nutrient cycling and maintenance of productive soils

**Some species associated with Broadleaf Woodland Ecosystems are:**

- Yellow-breasted Chat
- Western Skink
- Western Screech Owl
- Great Basin Spadefoot
- Lewis's Woodpecker
- Rubber Bo

## Coniferous Woodlands (WD):

Coniferous Woodlands are open stands of Douglas-fir or ponderosa pine (WD-co) on shallow soils, with grassy understorey; old Coniferous Woodlands are part of the Old Forest category. They most commonly occur in the drier climates of the Okanagan Valley, on sites with limited moisture, on rocky knolls and on warm south-facing slopes. Numerous sites have been lost to development and altered by ingrowth of new trees associated with the exclusion, and other human disturbances.

**Coniferous Woodland Ecosystems provide the following services:**

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

**Some species associated with Coniferous Woodland Ecosystems are:**

- Williamson's Sapsucker
- White-headed Woodpecker
- Western Skink
- Western Screech Owl
- American Badger
- Flammulated Owl
- Shorebird

## Riparian (RI):

Riparian ecosystems are streamside and lakeside ecosystems or sites with significant seepage, includes ecosystems on floodplains and benches along creeks and rivers (bench, RI-b), shrub-dominated floodplains and lakeshore (RI-sh), riparian ecosystems on gulches, often with seepage (gulch, RI-g), riparian ecosystems on alluvial fans and alluvial terraces (alluvial fan, RI-f), the river bed of large systems (river, RI-r), and beaches on lakes (beach, RI-b). These sites frequently form natural corridors through the landscape, connecting other ecosystems and providing passageways for animals. Damming, diversions, channelization, draining, and pollution have seriously affected many riparian ecosystems.

**Riparian Ecosystems provide the following services:**

- Fresh water
- Flood control
- Drought recovery
- Storm protection
- Damage and natural irrigation
- Nutrient cycling and maintenance of productive soils

**Some species associated with Riparian Ecosystems are:**

- Yellow-breasted Chat
- Western Skink
- Western Screech Owl
- Great Basin Spadefoot
- Purple Spinefin
- Scarlet Annularia
- Toucan
- Small Flowered Locust
- Western Rattlesnake

## Wetlands (WN):

Wetland ecosystems occur on sites where the water table is at, near, or above the soil surface for a sufficient period of time to influence soil and vegetation development; includes marshes (WN-m), swamps (WN-s), wet meadows (WN-wm) or fen (WN-f), and shallow open water (WN-a). They are extremely important because of their natural rarity in the area and the critically important ecosystem services they provide. Many Wetlands have been lost to development. It is estimated that 85% of the original wetland habitat in the Southern Okanagan has disappeared.

**Wetland Ecosystems provide the following services:**

- Drought recovery
- Storm protection
- Damage and natural irrigation
- Fresh water
- Filtration and pollution control
- Nutrient cycling and maintenance of productive soils

**Some species associated with Wetland Ecosystems are:**

- Western Toad
- Northern Leopard Frog
- Western Rattlesnake

## Alpine (AP):

Alpine ecosystems are high-elevation alpine and parkland ecosystems including herbaceous ecosystems dominated by forbs or graminoid vegetation (AP-g), parkland forests where trees occur in distinct clumps (AP-f), and shrub ecosystems dominated by dwarf shrubs such as heather (AP-h). Alpine ecosystems are found at higher elevations in the South Okanagan (TFL 15) where there is significant snow cover for large parts of the year. Alpine ecosystems are sensitive to disturbance, as the shallow soils and cold temperatures slow vegetation recovery.

**Alpine Ecosystems provide the following services:**

- Erosion control
- Fresh water
- Climate regulation
- Nutrient cycling and maintenance of productive soils

**Some species associated with Alpine Ecosystems are:**

- American Badger
- Peregrine Falcon
- Western Skink
- Western Screech Owl
- Great Basin Spadefoot
- Flammulated Owl
- Shorebird

## Other Important Ecosystems

**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 bird species, small mammals, and many types of producers. They are located along low-lying areas or former floodplains that have been settled 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
- Fresh water
- Storm protection
- Damage and natural irrigation
- Fresh water

**Some species associated with Seasonally Flooded Agricultural Fields are:**

- Great Basin Spadefoot
- Western Skink
- Western Screech Owl
- Great Basin Spadefoot
- Flammulated Owl
- Shorebird

## Mature Forest (MF):

Mature Forest ecosystems are dominated by mature trees, including broadleaf (MF-bl) forests, coniferous (MF-co) forests, and mixed (MF-m) deciduous and coniferous forests; however it excludes mature riparian forests, and mature coniferous 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 Forests 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
- Sediment retention
- Nutrient cycling and maintenance of productive soils

**Some species associated with Mature Forest Ecosystems are:**

- Williamson's Sapsucker
- White-headed Woodpecker
- Western Skink
- Western Screech Owl
- Great Basin Spadefoot
- Flammulated Owl
- Shorebird

## 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 interspersed with significant and native vegetation, or cultivated crops. Young forests are coniferous-dominated stands with an age range between 1 and 80 years. Non-sensitive Landscapes are shown in white in the areas that are not designated by a sensitive ecosystem. In addition, many sensitive ecosystem polygons close to urban or disturbed areas may have a modified landscape interspersed with the sensitive ecosystem(s), in which the sensitive ecosystems are also used to map individually. These modified areas are depicted as NS (non-sensitive) on the map.