

[illegible]

reated species that have been listed in Schedule 1 of the *Wildlife Act* are afforded protection on federal lands, and the new B.C. Wildlife Act provides protection to habitats and populations of priority species. Protection of Species at Risk and their important habitats on private lands is primarily achieved through careful land use planning and municipal levels.

Acknowledgements

Project partners include: The Ministry of Environment, Environment Canada and the Alcan Brooks Nature Centre, the Ministry of Forests, Lands and Natural Resource Operations, the Ministry of Oceans and Fisheries, Regional District of Central Okanagan, City of Kelowna, City of Vernon, District of Lake Country, and the Regional District of Bulkley-Nechako.

Financial or in-kind support for this project was provided by: The B.C. Ministry of Environment (B.C. Conservation Data Centre), Environment Canada (Canadian Wildlife Service), Real Estate Foundation of B.C., Habitat for Humanity, the Ministry of Forests, Lands and Natural Resource Operations Services Commission, Regional District of Central Okanagan, Regional District of the North Okanagan, Regional District of the Okanagan Similkameen, Alcan Brooks Nature Centre, City of Kelowna, District of Lake Country, Bulkley-Nechako Canada Ltd., District of Creston, City of Kelowna, and B.C. Conservation Foundation.

Cartography: Lisa Zuehlhagen and Ann Bylin (Cady's Consulting Ltd.) for design and layout. Cartography: Karen Kowal (Kowal Cartography Ltd.), Janice Miller, Mike Sarsel, John Inveron, Carmen Cadan, Jo Anne Stacey, and Kim Everett for their assistance in developing the map.

References

Information and access to full reports and map products for the Okanagan Valley www2.gov.bc.ca/gov/content/land/ocd/ocd_bcoke.html (type in SE Okanagan Valley or the project area name as a keyword).

SEI Report:
Vernon, K.E. & D.L. Orman, T.L. Fleming, and A.L. Hanes. 2009. *Sensitive Species Inventory of the Okanagan Valley*. Version to October 2009. 2007. **Methods, Ecological Observations, Results and Conservation Tools**. Technical Report No. 495, Canadian Wildlife Service, Pacific and Yukon Region.

This map can be cited as:
Environment Canada. 2009. *Sensitive Species Inventory - Okanagan Valley*. Vernon in October, 2009-2007. 12,000 Vancouver, B.C. Canadian Wildlife Service.

Namata Maps: Datzel, Rolf. 2006. *Namata Sensitive Species Inventory*. 12,000 maps.

Central Okanagan (including south Okanagan), Honey Lake, and K. Vernon, 2009. This analysis provides the ecosystem mapping for the Central Okanagan valley. Central Okanagan, South Shuswap, Kelowna, Enderby and Jase River. This report was prepared for the Okanagan Collaborative Conservation Program.

Inveron, K. and C. Ewin, 2001 and 2002. Ecosystem Mapping of Portions of the PPHF and IDPHF in the Okanagan Valley. Prepared for the Regional District of Central Okanagan and the Ministry of Sustainable Resource Management. 12,000 maps.

Lake Country Inveron, K. and P. Umlauf. 2006. Sensitive Ecosystems Inventory: Lake Country. Version 2005. 12,000 maps.

WTF, L.S. Brulhet, and D.L. Orman. 1999. Ecosystem Mapping of Okanagan Valley. Prepared for the Ministry of Forests, Lands and Natural Resource Operations. B.C. Ministry of Forests, Kelowna, B.C. 12,000 maps.

Vernon - Coonawonga Inveron, K. and P. Umlauf. 2006. Sensitive Ecosystems Inventory: Vernon. Vernon Community 2005. 12,000 maps.

Bella Vista - Goose Lake Inveron, K. and P. Umlauf. 2006. Sensitive Ecosystems Inventory: Bella Vista - Goose Lake. Vernon Community 2005. 12,000 maps.

Goldstream - Vernon Inveron, K. and P. Umlauf. 2006. Sensitive Ecosystems Inventory: Goldstream - Vernon. 12,000 maps.

South Okanagan Inveron, K. and P. Umlauf. 2006. Sensitive Ecosystems Inventory: South Okanagan. City of Kelowna. 12,000 maps.

South Okanagan Inveron, K. and A. Hanes. 1999. Refined and updated mapping for the South Okanagan and Lower Similkameen. Alcan Brooks Nature Centre report prepared for the Regional District of the Okanagan - Similkameen.

K. Henson. 2005. Fernleaves Ecosystems Inventory. This is an update to the 1999 Ecosystem Inventory. 12,000 maps.

Thompson and Kowal. 1999. Ecological Habitat Units of the South Okanagan. 12,000 maps.

John Rich, Vernon, K. and P. Umlauf. 2006. Sensitive Ecosystems Inventory: Bulkley-Nechako. Bulkley-Nechoco Canada Ltd. 12,000 maps.

Bio British Columbia Data Centre (CDC). Ecosystems Branch, BC Ministry of Environment. www.env.gov.bc.ca/cdc/

Related Publications and Links

Green Bylaws Toolkit for Developing Sensitive Ecosystems and Green Infrastructure. www.greenbylaws.ca

The Toolkit contains practical examples of bylaws provisions currently in use in British Columbia, as well as information on the Green Stages, Cities, Communities, Planning, Development, Permit, Access, Zoning, Tax Exemptions, Environmental Assessment, Stewardship Management and other regulatory and planning tools and case studies of successful green infrastructure projects and bylaws.

Climate Change: Wilson, S. and R. Hilde. *Mitigating and Adapting to Climate Change through the Conservation of Nature.* Available at www2.gov.bc.ca/gov/content/land/ocd/ocd_bcoke.html

Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia. BC Ministry of Environment. www.env.gov.bc.ca/bcdev/development/2006/develop2006_dev_with_care_1/

Talking Nature's Pulse: The Status of Biodiversity in British Columbia. Austin, M.A., D.A. Buffett, D.J. Nicolson, G.G. de Gooijer and V. Stevens (eds). 2008. Talking Nature's Pulse. The Status of Biodiversity in British Columbia. BC Ministry of Forests, B.C. 288 pp. Available at www.biodiversitybc.org

Alpine (AP):

Alpine ecosystems are the highest elevation alpine and parkland ecosystems including **heather** ecosystems dominated by bryos or graminoid vegetation (AP-g), **parkland** forests where hees occur in distinct canyons (AP-p), and **shrub** ecosystems dominated by dwarf shrubs such as heather (AP-sh). Alpine ecosystems are found at higher elevations in the South Caucasus (TS). So where there is significant snow cover for large parts of the year. Alpine ecosystems are sensitive to disturbances, as the shallow soils and cold temperatures slow vegetation recovery.

Alpine Ecosystems provide the following services:

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

Some species associated with Alpine Ecosystems are:

- Arctican Baderger
- Penguing Falcón
- Wolverine

Arctican Baderger
(Arctican Baderger)
Priority for Pats, Canada W, Lynx

Wolverine
(Wolverine)
Priority for Pats, Canada W, Lynx

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 other bird species, small mammals, and many types of predators. They are located along low-lying 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
- Drainage/irrigation
- Storm protection
- Carbon storage
- Maintenance of productive soils
- Pollination
- Fest regulation
- Flood protection

Some species associated with Seasonally Flooded Agricultural Fields are:

- Great Basin Sparfied
- Long-billed Curlew
- Penguing Falcón
- American Baderger
- Great Basin Gopher snake
- Western Noddy

Great Basin Sparfied
(Great Basin Sparfied)
Priority for Pats, Canada W, Lynx

Long-billed Curlew
(Long-billed Curlew)
Priority for Pats, Canada W, Lynx

Penguing Falcón
(Penguing Falcón)
Priority for Pats, Canada W, Lynx

American Baderger
(American Baderger)
Priority for Pats, Canada W, Lynx

Great Basin Gopher snake
(Great Basin Gopher snake)
Priority for Pats, Canada W, Lynx

Western Noddy
(Western Noddy)
Priority for Pats, Canada W, Lynx

Mature Forest (MF):

Mature Forest ecosystems are dominated by mature trees, including **broadleaf** (MF-bd) 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 Forest ecosystems have many important structural attributes, including some remaining large, old trees.

Mature Forest Ecosystems provide the following services:

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

Some species associated with Mature Forest Ecosystems are:

- Lynx's Mariposa Lily
- Western Screech Owl
- Wolverine
- Pennantized Owl
- Willamette's Sycamore
- Oliver's Yellowthroat
- Shony Pheasant
- Western Noddy

Lynx's Mariposa Lily
(Lynx's Mariposa Lily)
Priority for Pats, Canada W, Lynx

Western Screech Owl
(Western Screech Owl)
Priority for Pats, Canada W, Lynx

Wolverine
(Wolverine)
Priority for Pats, Canada W, Lynx

Pennantized Owl
(Pennantized Owl)
Priority for Pats, Canada W, Lynx

Willamette's Sycamore
(Willamette's Sycamore)
Priority for Pats, Canada W, Lynx

Oliver's Yellowthroat
(Oliver's Yellowthroat)
Priority for Pats, Canada W, Lynx

Shony Pheasant
(Shony Pheasant)
Priority for Pats, Canada W, Lynx

Western Noddy
(Western Noddy)
Priority for Pats, Canada W, Lynx

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 agriculture, farmland and native vegetation, or cultivated crops. Young forests are cone-dominated stands with an age range between 10 and 30 years. Non-sensitive landscapes are shown in white in the areas that are not designated by a sensitive ecosystem. In addition, many sensitive ecosystems are polygons close to urban or disturbed areas which may have a modified landscape interspersed with the sensitive ecosystem(s), in which the sensitive ecosystems are too small to map individually. These modified