TERRESTRIAL ECOSYSTEM MAPPING OF THE CENTRAL OKANAGAN

For portions of map sheets

082E083, 082E084, 082E093, 082E094, 082E095, 082L003, 082L004, 082L013, and 082L023

Scale 1:20,000

September 2001

Introduction

This project provides detailed ecosystem mapping of the Central Okanagan area in the PPxh1 and IDFxh1 subzones along the west side of Okanagan Lake and east of the city of Kelowna.

This detailed ecosystem mapping will provide baseline information for land use planning products such as a Sensitive Ecosystem map. Soil sensitivity maps and wildlife habitat maps will also be produced for the following species: mule deer, California bighorn sheep, badger, Townsend's big-eared bat, Western Screech-owl, Lewis' Woodpecker, Flammulated Owl, Western rattlesnake, painted turtle and gopher snake.

Mapping utilised the provincially recognised methodology in *Standard for Terrestrial Ecosystem Mapping in British Columbia* (RIC 1998). Fieldwork was completed in July 2000 and July 2001 to survey intensity level 4.

Map Unit Boundaries

Ecosection Map Unit	———	Study area boundary	———
Biogeoclimatic Map Unit	———	Plot location symbol	◆
Ecosystem Map Unit	———		

Ecosection and Biogeoclimatic Unit Symbols

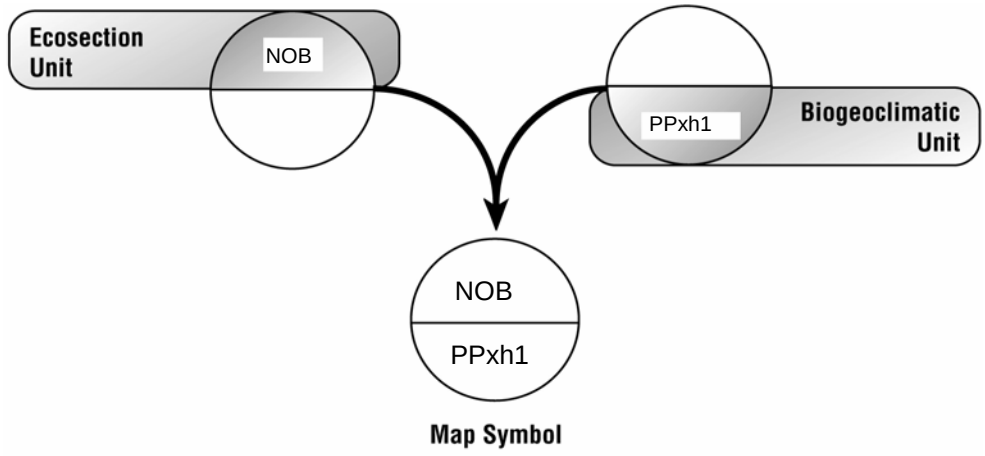
Ecosection:

NOB **North Okanagan Basin**

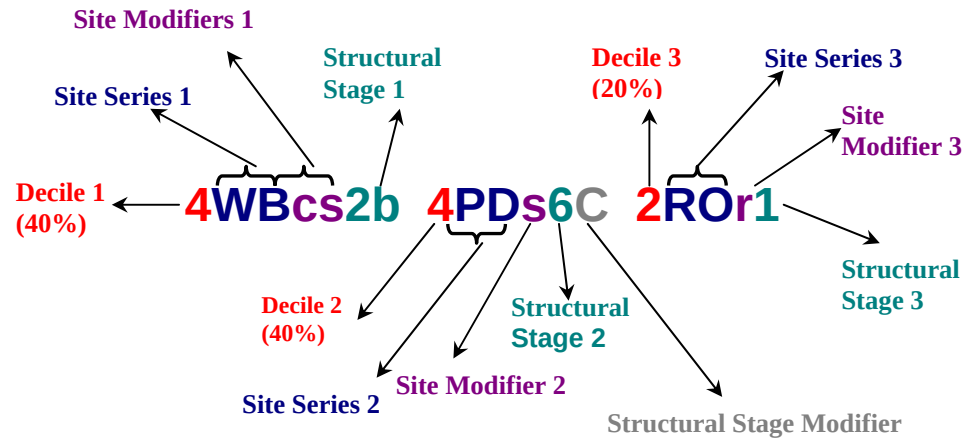
Biogeoclimatic Units:

IDFxh1 **Very Dry Hot Interior Douglas-fir, Okanagan Variant**

PPxh1 **Very Dry Hot Ponderosa Pine, Okanagan Variant**



Ecosystem Unit Label



Terrestrial Ecosystem Map Label

Site Modifiers

Code	Criteria
a	Active floodplain
c	Coarse-textured soils
d	Deep soil (>100 cm to bedrock)
f	Fine-textured soil
g	Site occurs in a gully
j	Gentle to moderate slope (<25%)
k	Cool aspect (25% - 100% slope, 285^{o} - 135^{o})
n	Fan (glaciofluvial, fluvial, or colluvial fans) or cone
q	Very steep cool aspect (>100% slope, 285^{o} - 135^{o})
r	Ridged or ridge crest
s	Shallow soil (20 – 100cm to bedrock)
t	Terrace or fluvial benches
v	Very shallow soil (<20 cm. to bedrock)
w	Warm aspect (>25% slope, 135^{o} - 285^{o})
z	Very steep warm aspect (>100% slope, 135^{o} - 285^{o})

Structural Stages

Code	Structural stage
1	Non-vegetated / sparsely vegetated
2	Herb
2a	Graminoid dominated
2b	Forb dominated
3	Shrub/Herb
3a	Low Shrub (less than 2m tall)
3b	Tall Shrub (between 2m and 10m tall)
4	Pole/Sapling; dense, single layered forests
5	Young Forest; more open than stage 4; lacking old trees; may have a few mature trees
6	Mature Forest (about 80-250 years old); usually selectively logged; dominated by mature trees with some scattered old trees
7	Old Forest (generally >250 years old); dominated by old trees; generally open forests

Stand Composition

Code	Description
C	Coniferous; greater than ¾ of the trees are conifers
B	Broadleaf; greater than ¾ of trees are broadleaf
M	Mixed; neither broadleaf nor coniferous trees account for greater than ¾ of the tree cover

Ecosystem Units				
IDFxh1 Interior Douglas-fir very dry hot subzone okanagan variant				
Map Code	**Site Series**	**Ecosystem Unit Name**	**Assumed Modifiers**	**Typical Conditions**
AM	00	Trembling aspen – Common snowberry – Mountain sweet-cicely	d, j, m	This forest ecosystem is commonly associated with rich, deep, medium-textured soils on gently sloping sites that are receiving seepage.
AO	00	Trembling aspen – Mock orange – Choke cherry Riparian	d, j, m	This forest ecosystem is commonly associated with gently sloping, moist streamside riparian sites in grassland areas. Deep, medium –textured soils are most typical.
AS	98	Trembling aspen – Snowberry – Kentucky bluegrass	d, j, m	This ecosystem commonly occurs in large, broad depressions with deep, medium-textured soils in grassland areas.
BM	00	Bulrush Marsh	d, f, j	This ecosystem commonly occurs as a fringe along the shoreline of small ponds, adjacent to shallow open water. Deep, fine-textured soils are typical.
BN	96	Kentucky bluegrass – Stiff needlegrass	d, j, m	This grassland ecosystem is typically found on deep, medium-textured soils, in small swales and depressions where moisture collects.
BR	00	Baltic Rush Marsh-Meadow	d, f, j	This marsh-meadow occurs along the edges of ponds and shallow open water in areas where the water table draws down below the soil surface during the growing season.
CD	00	Black cottonwood-Douglas-fir – Common Snowberry – Red-osier Dogwood Riparian	d, j, m	This forest ecosystem is commonly associated with active floodplains and fluvial terraces with subsurface water flow. Deep, medium-textured soils are typical.
CS	00	Common Spikerush Marsh	d, f, j	These marshes occur as a fringe around ponds and shallow open water in areas where there is standing water for most of the growing season.
CT	00	Cattail Marsh	d, j, m	These marshes commonly occur as a fringe on ponds or in small depressions, often adjacent to shallow open water.
CW	00	Choke cherry – Bluebunch wheatgrass rocky bluff	j, v	This ecosystem commonly occurs on gently sloping, fractured bedrock bluffs with very shallow soils.
DP	01	FdPy – Pinegrass	d, j, m	This forest ecosystem is commonly associated with gently sloping sites, on deep, medium-textured soils, that are neither receiving nor losing moisture.
DS	07	Douglas-fir-Ponderosa pine – Snowberry – Spirea	d, j, m	This forest ecosystem is commonly associated with gently sloping sites on deep, medium-textured soils that are receiving some moisture.
DW	03	Douglas-fir – Ponderosa pine – Bluebunch wheatgrass – Pinegrass	d, m, w	This forest ecosystem is common on moderate to steep warm aspects with deep, medium-textured soils.
FC	00	Rough Fescue – Cladina	k, v	This grassland ecosystem occurs on very shallow soils of smooth, cool slopes of gneiss rock outcrops in the south slopes area.
FO	00	Douglas-fir – Ponderosa pine – Saskatoon – Mock orange	c, d	This forest ecosystem is commonly associated with steep colluvial sites where there are deep, coarse-textured (rocky) soils.
FW	91	Idaho fescue – Bluebunch wheatgrass	d, j, m	This grassland ecosystem commonly occurs on gentle slopes and level sites (some cool aspects) with deep, medium-textured soils.
PB	02	Douglas-fir – Ponderosa pine – Bluebunch wheatgrass – Balsamroot	m, s, w	This forest ecosystem is typically associated with shallow, medium-textured soils on steep warm aspects. Bedrock outcrops with very shallow soils are most common.
RF	97	Prairie Rose – Idaho fescue	d, j, m	This shrub ecosystem commonly occurs in moisture collecting depressions and swales in grassland areas. Deep, medium-textured soils are typical.
RS	00	Western red cedar - Douglas-fir – False Solomon's Seal	d, j, m	This forest ecosystem is commonly associated with deep, medium-textured fluvial sites (terraces, slopes, and gullies) in

Ecosystem Units				
				areas under the influence of cold air drainage.
SA	00	Antelope brush – Selaginella	j, m, s	This ecosystem occurs on very shallow soil pockets (v) of small ledges on steep, warm (w) aspects of gneiss rock outcrops in the south slopes area.
SB	00	Selaginella – Bluebunch wheatgrass rock outcrop	j, v	This grassland ecosystem commonly occurs on gently sloping, unfractured bedrock outcrops with low relief and very shallow soils.
SD	08	Hybrid white Spruce – Douglas-fir – Douglas maple – Dogwood	d, j, m	This forest ecosystem is commonly associated with gullies that have intermittent or permanent streams or subsurface water flow. Deep, medium-textured soils are typical.
SM	00	Sedge Marsh	d, f, j	This wetland ecosystem commonly occurs on the edges of large wetlands (fens) or in depressions with water tables above or near the soil surface.
SO	00	Saskatoon – Mock orange Talus	c, d	This ecosystem is commonly associated with steep, blocky talus slopes (deep and coarse-textured) that have very little soil present between the blocks.
SP	04	Douglas-fir – Ponderosa pine – Snowbrush – Pinegrass	d, j, m	This forest ecosystem is typically associated with gently sloping sites on deep, medium-textured soils. Moderate to steep slopes on slightly cool aspects are most common.
SS	00	Saskatoon – Common snowberry	d, j, m	This shrubland ecosystem commonly occurs in large, broad depressions in grassland areas, on deep, medium-textured soils.
WA	92	Big sage – Bluebunch wheatgrass – Balsamroot	d, m, w	This grassland ecosystem occurs on steep warm aspects on glaciolacustrine slopes. Both big sage and rabbitbrush were common on these sites
WB	93	Bluebunch wheatgrass – Balsamroot	d, m, w	This grassland ecosystem commonly occurs on moderately steep to steep warm aspects with deep, medium-textured soils.
WS	09	Willow – Sedge Wetland	d, j, m	This swamp wetland ecosystem commonly occurs at the edges of ponds and other wetlands on deep, medium-textured soils.

Ecosystem Units				
PPxh1 Ponderosa pine very dry hot subzone okanagan variant				
Map Code	**Site Series**	**Ecosystem Unit Name**	**Assumed Modifiers**	**Typical Conditions**
AS	00	Trembling aspen – Snowberry – Kentucky bluegrass	d, j, m	This ecosystem commonly occurs in large, broad depressions in grassland areas with deep, medium-textured soils.
CT	00	Cattail Marsh	d, j, m	These marshes commonly occur as a fringe on ponds or in small depressions, often adjacent to shallow open water.
DM	08	Douglas-fir – Water birch – Douglas maple	d, j, m	This forest ecosystem is commonly associated with gullies that have intermittent or permanent streams or subsurface water flow. Deep, medium-textured soils are typical. It also occurs on fluvial benches.
DS	07	Douglas-fir – Ponderosa pine – Snowberry – Spirea	d, j, m	This forest ecosystem is commonly associated with gently sloping sites on deep, medium-textured soils that are receiving some moisture.
FB	00	Rough fescue – Bluebunch wheatgrass	d, j, m	This grassland ecosystem commonly occurs on gentle slopes and level sites (some cool aspects) with deep, medium-textured soils.
GW	00	Giant wildrye grassland	d, j, m	This rare ecosystem occurs on steep slopes with fine-textured alkaline soils with some seepage.
PA	00	Ponderosa pine – Black cottonwood – Snowberry riparian	d, j, m	This forest type is commonly associated with deep, medium-textured, active floodplains and fluvial terraces with subsurface water flow.
PC	04	Ponderosa pine – Bluebunch wheatgrass – Cheatgrass	d, j, m	This forest ecosystem is typically associated with gently sloping sites on deep, medium-textured soils. Moderate to steep slopes on

Ecosystem Units				
				warm aspects are most common.
PF	05	Ponderosa pine – Bluebunch wheatgrass – Rough fescue	d, j, m	This forest type is typically associated with gently sloping sites on deep, medium-textured soils. Moderate to steep slopes on slightly cool aspects are most common.
PT	02	Ponderosa pine – Red three-awn	c, d, w	This forest type is typically associated with deep, coarse-textured materials on moderate to steep warm aspects. Shallow or very shallow soils are most common.
PW	01	Ponderosa pine – Bluebunch – Idaho fescue	d, j, m	This forest ecosystem is typically associated with gently sloping sites, on deep, medium-textured soils, that are neither receiving nor losing moisture. Coarse-textured materials are also common.
SB	00	Selaginella – Bluebunch wheatgrass rock outcrop	j, v	This grassland ecosystem commonly occurs on gently sloping, unfractured bedrock outcrops with low relief and very shallow soils.
SO	00	Saskatoon– Mock orange Talus	c, d	This ecosystem is commonly associated with steep, blocky talus slopes (deep and coarse-textured) that have very little soil present between the blocks.
SP	06	Douglas-fir – Ponderosa pine – Snowberry – Pinegrass	d, j, m	This forest type is typically associated with gentle lower slopes on deep, medium-textured soils that are receiving some subsurface moisture. Moderate to steep slopes on cool aspects are also common.
SR	00	Snowberry - Rose – Kentucky bluegrass	d, j, m	This shrubland ecosystem commonly occurs in moisture collecting swales and depressions in grassland areas, on deep, medium-textured soils.
WB	00	Bluebunch wheatgrass – Balsamroot	d, w, m	This ecosystem commonly occurs on moderately steep to steep warm slopes with deep, medium-textured soils.

Ecosystem Units

Non-vegetated, sparsely vegetated, and anthropogenic units in all subzones

Map Code	Ecosystem Unit Name	Typical Conditions
BE	Beach	An area of sorted sediments, created by wave action, along the lakeshore.
CB	Cutbank	A part of a road corridor or river course situated upslope of the road or river, which is created by excavation and/or erosion of the hillside.
CF	Cultivated field	A flat or gently rolling, non-forested open areas that are subject to human agricultural practices.
CL	Cliff	A steep, vertical or overhanging rock face.
CN	Canal	An artificial watercourse created for transportation, drainage, and/or irrigation purposes.
CO	Cultivated orchard	An agricultural area composed of single or multiple fruit bearing tree species planted in rows.
CV	Cultivated vineyard	An agricultural area composed of single or multiple species of grapes, usually supported by trellises.
ES	Exposed soil	An area of exposed soil that is not included in any of the other definitions.
GC	Golf course	Flat to gently rolling grass covered fairways, separated by rows of shrubs and trees, used for golf.
GP	Gravel Pit	An area exposed through the removal of sand and gravel.
LA	Lake	A body of fresh water > 2m deep > 5ha.
OW	Shallow open water	Permanent shallow open water < 2m deep, lacking emergent plant cover.
PD	Pond	Small body of water > 2m deep < 5ha.
RE	Reservoir	An artificial basin of water created by a human-made structure such as a dam, berm, dyke, or wall.
RI	River	A watercourse formed when water flows within continuous definable banks.
RO	Rock outcrop	A sparsely vegetated, gentle to steep, bedrock escarpment or outcropping.
RZ	Road surface	An area cleared and compacted for the purposes of transporting goods and services by vehicle.
RW	Rural	An area where the residences and other human developments are intermixed with forested and/or agricultural lands.
TA	Talus	Angular rock fragments of any size accumulated at the foot of steep rock slopes due to rock fall.
UR	Urban/Suburban	An area in which residences and other human developments cover the landscape.

Data Sources

This mapping project is based on 1:15,000 colour stereo aerial photography from Geographic Data BC taken in 1994 and 1996. Base map is from Terrain Resource Inventory Mapping (TRIM) from Geographic Data BC. Forest cover maps from the Ministry of Forests, Kamloops Region were utilised. Survey Intensity 4 was utilised. A total of 19% polygon inspection was achieved. Forty-two full plots, 192 ground inspections, and 505 visual inspections were completed.

Credits

Mapped by Kristi Iverson (Iverson & MacKenzie Biological Consulting Ltd., Lac la Hache, B.C.) and Corey Erwin (Ministry of Sustainable Resource Management, Victoria, B.C.).

Bioterrain mapping was completed by Christina Sinneman (Victoria, B.C.), Larry Lacelle (Ministry of Sustainable Resource Management, Penticton, B.C.) and Deepa Spaeth Filatow (Ministry of Sustainable Resource Management, Penticton, B.C.).

Project management was provided by Carmen Cadrin (Ministry of Sustainable Resource Management, Victoria, B.C.), Kristi Iverson, and Steve Gormley (Regional District of the Central Okanagan, Kelowna, B.C.).

GIS personnel: Bon Lee (Baseline Geomatics Inc., Victoria, B.C.), Tim Brierley (Ministry of Sustainable Resource Management, Victoria, B.C.), and Bruce Ganton (Regional District of the Central Okanagan, Kelowna, B.C.)

Correlation and edit by: Ted Lea (Ministry of Sustainable Resource Management) and Carmen Cadrin.

Funding was provided by: Regional District of the Central Okanagan, Ministry of Sustainable Resource Management, and the Habitat Conservation Trust Fund.

Citation

Iverson, K. and C. Erwin. 2001 and 2002. Ecosystem Mapping of Portions of the PPxh1 and IDFxh1 in the Central Okanagan. Prepared for the Regional District of the Central Okanagan and the Ministry of Sustainable Resource Management.