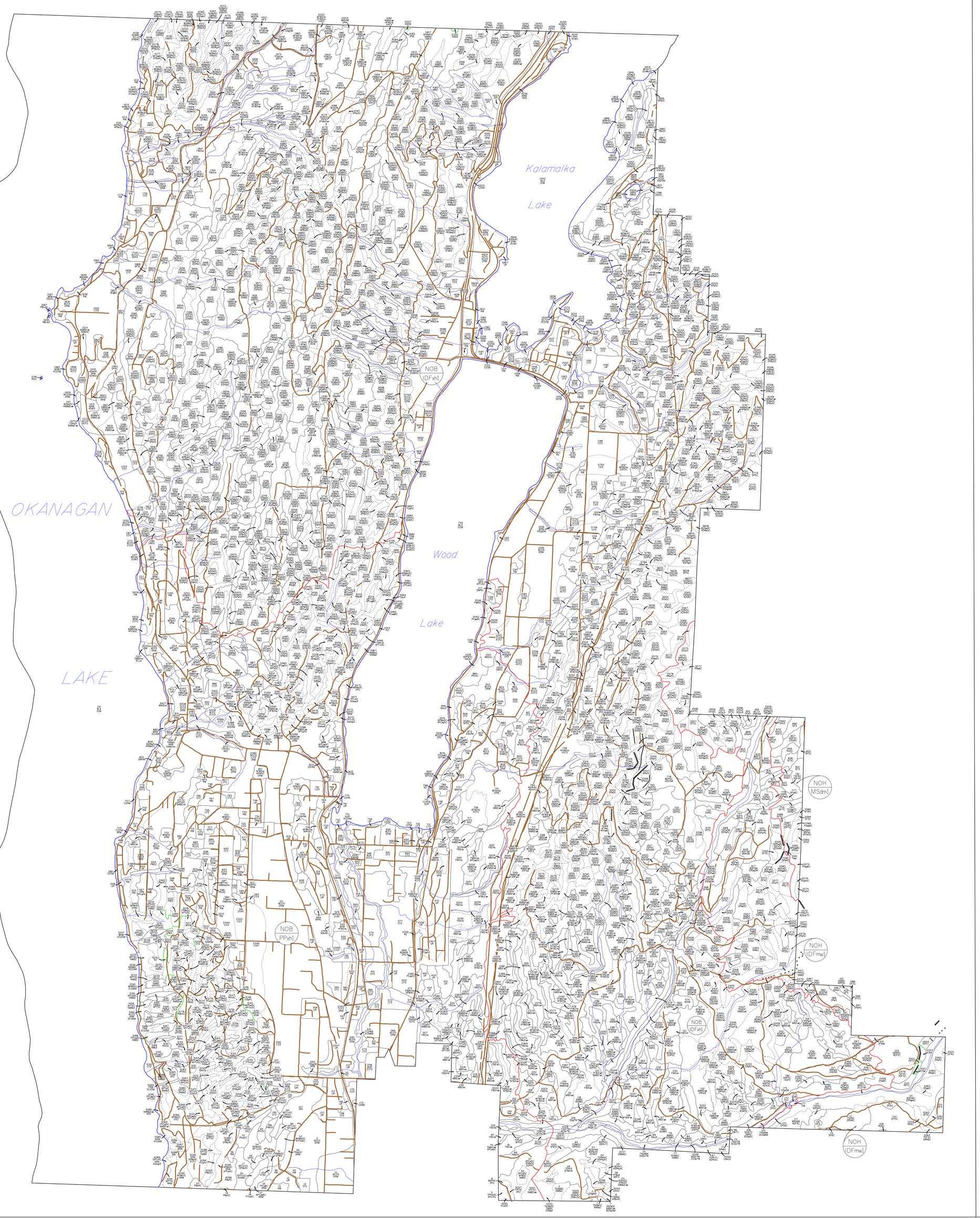


TERRESTRIAL ECOSYSTEM MAPPING OF THE DISTRICT OF LAKE COUNTRY

For portions of map sheets **082L.003, 082L.004, 082L.013,** and **082L.014**

Scale 1:20,000

2005

THE REAL ESTATE FOUNDATION OF BRITISH COLUMBIA

Introduction

This project provides detailed ecosystem mapping of the District of Lake Country. Project boundaries extend from the North Okanagan Regional District and City of Vernon in the north, west to Okanagan Lake, east south to the City of Kelowna and Regional District of the Central Okanagan.

This detailed ecosystem mapping will provide baseline information for land use planning products such as a Sensitive Ecosystem map. Wildlife habitat areas were produced for the following species: Great Basin Spadefoot, Painted Turtle, Great Basin Gopher Snake, Western Rattlesnake, Swainson's Hawk, Long-billed Curlew, Western Sasquatchet, Yellow-breasted Chat, Grasshopper Sparrow, Spotted Bat, and Badger.

Mapping used the provincially recognized methodology in *Standard for Terrestrial Ecosystem Mapping in British Columbia* (BC 1998). Fieldwork was completed in **June** 2005 to survey intensity level 3.

Map Unit Boundaries

Ecosection Map Unit	Study area boundary
Biogeoclimatic Map Unit	Plot location spotted
Ecosystem Map Unit	

Ecosection and Biogeoclimatic Unit Symbols

Ecosections:

NOB North Okanagan Basin

NOH North Okanagan Highlands

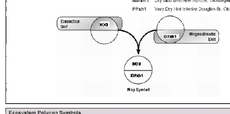
Biogeoclimatic units:

IDFxm1 Moist Warm Interior Douglas-fir, Okanagan Variant

IDFxh1 Very Dry Hot Interior Douglas-fir, Okanagan Variant

MSdm1 Dry Mild Interior Douglas-fir, Okanagan Variant

PPxh1 Very Dry Hot Interior Douglas-fir, Okanagan Variant



Ecosystem Polygon Symbols

Site Modifiers

Code	Criteria
a	Active flood plain
c	Gleyed soil subsoils
f	Fine-textured soil
g	Site occurs in a gully
j	Gentle to moderate slope (>25%)
k	Cool aspect (315° - 135°, slope 20° - 100°)
s	Very steep cool aspect (>100% slope, 270° - 135°)
r	Ridged or ridge crest
u	Shallow soil (20 - 100cm to bedrock)
t	Terrace
v	Very shallow soil (<20 cm to bedrock)
w	Warm aspect (<25% slope, 135° - 225°)
x	Other flood plain
y	Moist flood plain
z	Very steep warm aspect (>100% slope, 225° - 315°)

Structural Stages

Code	Structural stage
1	Non-vegetated / sparsely vegetated
2	Herb
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, may have a few mature trees
6	Mature Forest (distinguished by mature trees with some subdomnant tall trees
7	Old Forest (generally >250 years old); distinguished by old trees, gaps in upper layers

Ecosystem Units

IDFxm1 Interior Douglas-fir moist warm subzone Okanagan variant

Map Code	Site Series	Ecosystem Unit Name	Associated Modifiers	Typical Conditions
CO	00	Black cottonwood / Douglas-fir – Snowberry – Oregonwt	d, j, m	This forest ecosystem occurs in floodplains
CS	00	Cattail Marsh	d, j, m	Three meadows occur on poorly drained depressions.
DP	01	Douglas-fir / Western larch/ebar – Pinegrass – Prickly pear	d, j, m	This forest ecosystem is associated with warm gently sloping sites.
DF	01	Douglas-fir – Pinegrass – Yellowrose	d, j, m	This forest ecosystem occurs in moderate warm aspects.
DS	02	Douglas-fir / Ponderosa pine – Saskatoon – Stiff Sunflower	d, j, m	This forest ecosystem occurs in very shallow soils.
PT	03	Douglas-fir – Pinegrass – Pinegrass	d, m, w	This forest ecosystem occurs on steep warm aspects.
RO	05	Western redcedar – Douglas-fir – Twinflower	d, j, m	This forest ecosystem occurs on level lower and low slopes with subsurface seepage.
RS	05	Western redcedar / Douglas-fir – Oregonwt	d, j, m	This forest ecosystem occurs in gently sloping sites.
SO	06	Sedge/wet – Wooly sedge/ Tufted hairgrass	c, w	This ecosystem is associated with deep, finely textured soils.
WD	06	Quaking aspen/grass – Oatgrass/sedge	d, m, w	This ecosystem occurs on moderately deep to deep warm aspects on loamy, medium-textured soils.
WS	06	Willow – Sedge/ Redtop	d, j, m	This ecosystem occurs in lowlands, corners of the slopes of ponds and other wetlands.

IDFxh1 Interior Douglas-fir very dry hot subzone Okanagan variant

Map Code	Site Series	Ecosystem Unit Name	Associated Modifiers	Typical Conditions
AD	00	Water/ Lakeshore – Foxtail Barley/ Water Sedge – Spikerush	d f j	This riparian ecosystem occurs on flat to gently sloping lakeshores.
BS	00	Trembling aspen – Snowberry – Kentucky bluegrass	d, j, m	This ecosystem occurs in large, level depressions in gentle slopes.
BM	00	Bulrush Marsh	d f j	This ecosystem occurs as a fringe along ponds and wetlands.
DR	00	Hardhack/ Sedge – Bluejoint/ Kentucky bluegrass	d, j, m	This grassland ecosystem is found in small swales and depressions where water accumulates.
DS	00	Birch/ Fowl Bluegrass/ Sedge	d f j	This ecosystem occurs on low, dry, flat slopes, depressions and shallow open swales and wet depressions.
CO	00	Black cottonwood / Douglas-fir – Snowberry – Oregonwt	d, j, m	This forest ecosystem occurs on floodplains and as a fringe along the edge of ponds and lakes.
CS	00	Cottonwood Spikerush Marsh	d f j	A marsh that occurs at the edge of lake or ponds.
CR	00	Cattail Marsh	d, j, m	This marsh occurs as a fringe or pools or as small depressions.
CW	00	Cedar marsh – Bluejoint/ Kentucky bluegrass	j, s	This ecosystem occurs on gently sloping, moderate rock slopes.
DP	01	Douglas-fir / Ponderosa pine – Pinegrass	d, j, m	This forest ecosystem is associated with warm gently sloping sites.
DS	01	Douglas-fir / Ponderosa pine – Snowberry – Spiraea	d, j, m	This forest ecosystem is common on moderate to steep warm aspects.
DW	01	Douglas-fir – Ponderosa pine – Blue/wooly wildrye/grass – Pinegrass	d, hk, w	This forest ecosystem is common on moderate to steep warm aspects.
PO	00	Douglas-fir / Ponderosa pine – Saskatoon – Moss lichens	u, s	This forest ecosystem occurs on rocky outcrop areas.
HM	01	Water Birch – Bluejoint/ Kentucky bluegrass	d, j, m	This ecosystem occurs on gently sloped, well drained soil.
PD	02	Douglas-fir – Ponderosa pine – Bluebunch wheatgrass – Sandberg bluegrass	m, s, w	This forest ecosystem is typically associated with very shallow soils.
RT	07	Prairie Rose – Mariposa lily/ Sedge	d, j, m	This shrubby ecosystem commonly occurs in moisture collecting depressions in gentle slopes.
RA	00	Antelope brush – Bluegrass/lily	j, m, s	This ecosystem commonly occurs on very shallow well drained soils.
RB	00	Sagebrush – Bluebunch wheatgrass	j, s	This ecosystem is associated with very shallow, rocky, gently sloping sites.
BO	00	Birch/ white Spruce – Douglas-fir – Douglas maple – Oregonwt	d, j, m	This forest ecosystem is associated with gently to steep, moderate to low moisture sites.
SO	00	Sedge/wet – Wooly sedge/ Tufted hairgrass	c, d	This ecosystem is associated with deep, finely textured soils.
BP	01	Douglas-fir – Ponderosa pine – Snowberry – Pinegrass	d, j, m	This forest ecosystem is associated with subtropic sites.
WD	00	Quaking aspen/grass – Oatgrass/sedge	d, hk, w	This grassland ecosystem occurs on moderate to steep warm aspects.
WS	00	Willow – Sedge/ Redtop	d, j, m	This ecosystem occurs in lowlands, corners of the slopes of ponds and other wetlands.

MSdm1 Montane Spruce dry mild subzone Okanagan variant

Map Code	Site Series	Ecosystem Unit Name	Associated Modifiers	Typical Conditions
PO	00	Douglas-fir – Ponderosa pine – Saskatoon – Common juniper	d, j, m	This ecosystem occurs on steep warm aspects.
DP	01	Douglas-fir – Ponderosa pine – Snowberry – Pinegrass	d, j, m	This forest ecosystem is associated with warm gently sloping sites.
RO	00	Western redcedar – Douglas-fir – Twinflower	d, j, m	This forest ecosystem is associated with moist, gently sloping sites.
RH	07	Mixed shrub species – Trapper's tea – Twinflower	d, j, m	This forest ecosystem occurs on shallow soils at high water table

IDFxh1 Ponderosa pine very dry hot subzone Okanagan variant

Map Code	Site Series	Ecosystem Unit Name	Associated Modifiers	Typical Conditions
AS	00	Trembling aspen – Snowberry – Kentucky bluegrass	d, j, m	This ecosystem occurs on very large, level depressions in a gently sloping site.
CO	00	Black cottonwood / Douglas-fir – Snowberry – Oregonwt	d, j, m	This forest ecosystem occurs on floodplains and as a fringe along the edge of ponds and lakes.
CS	00	Cattail Marsh	d, j, m	This marsh occurs as a fringe or pools or as small depressions.
CW	00	Cedar marsh – Bluejoint/ Kentucky bluegrass	j, s	This ecosystem occurs on gently sloping, moderate rock slopes.
DM	00	Douglas-fir / Water birch – Douglas maple	d, j, m	This forest ecosystem is commonly associated with floodplains that have intermittent or subsurface water flow.
DS	00	Douglas-fir – Ponderosa pine – Snowberry – Spiraea	d, j, m	This forest ecosystem is commonly associated with subtropic sites.
FD	00	Fescue – Bluebunch wheatgrass	d, j, m	This ecosystem occurs on gently sloping and level sites.
PO	00	Douglas-fir / Ponderosa pine – Saskatoon – Moss lichens	u, s	This forest ecosystem occurs on rocky outcrop areas.
PC	04	Douglas-fir / Ponderosa pine – Bluebunch wheatgrass – Common juniper	d, j, m	This forest ecosystem is typically associated with moderate to steep slopes on well drained soils.
PF	07	Douglas-fir – Ponderosa pine – Bluebunch wheatgrass – Rough fescue	d, j, m	This forest type is typically associated with moderate to steep slopes on shallow soils.
PT	02	Ponderosa pine – Red fescue – Bluebunch wheatgrass	u, d, w	This forest type is typically associated with steep, coarse-textured materials on warm aspects or very shallow soils.
PM	01	Ponderosa pine – Bluebunch – Water Sedge	d, j, m	This forest ecosystem is typically associated with moist sites.
SA	00	Antelope brush – Bluegrass	j, m, s	This ecosystem is commonly occurs on very shallow soil pockets on ridges of rock outcrops.
SB	00	Sagebrush – Bluebunch wheatgrass – Sandberg bluegrass	j, s	This prominent ecosystem is commonly occurs on gently sloping, coarse-textured soils on ridge crests or benches.
SO	00	Sedge/wet – Wooly sedge/ Tufted hairgrass	c, d	This ecosystem is commonly associated with deep, finely textured soils.
SP	04	Douglas-fir – Ponderosa pine – Snowberry – Pinegrass	d, j, m	This forest ecosystem is associated with gently to moderate sloping sites on well drained soils.
SR	00	Snowberry / Birch – Kentucky bluegrass	d, j, m	This ecosystem occurs on very large, level depressions in gentle swales and depressions in gentle slopes.
WD	00	Quaking aspen/grass – Oatgrass/sedge	d, m, w	This ecosystem occurs on moderate to steep warm aspects with deep, medium-textured soils.
WS	00	Willow – Sedge/ Redtop	d, j, m	This ecosystem occurs in lowlands, corners of the slopes of ponds and other wetlands.

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

Map Code	Ecosystem Unit Name	Typical Condition
CR	Critical	A part of a steep corridor or other course shaded portion of the slopes over which is prepared by avalanches and/or crossed by the fall down
CF	Cultivated field	A flat or gently rolling, non-forested cover areas that are subject to human agricultural practices.
CL	Cliff	A vertical, rocky or overhanging rock face.
CV	Cultivated vineyard	An agricultural area comprised of shrubs or vines in series of grapes, usually supported by trellises.
ES	Exposed soil	An area of exposed soil that is not located in any of the other descriptors.
GC	Golf course	Flat to gently rolling grass covered terrain, supporting a mix 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 > 1ha
OW	Shallow open water	Permanent shallow open water < 2m deep, forming one geoclimatic zone
TI	River	A water course formed when water flows in Pro-defined or indefinite banks.
RR	Railway Surface	A railway with fixed rails for engine and freight lines.
RO	Rural outcrop	A rapidly vegetated, gentle to steep, nonforest ecosystem or outcropping.
RW	Rural	An area where the vegetation are interspersed with forested or agricultural lands.
RZ	Road surface	An area cleared and prepared for the purposes of transporting people and goods by vehicle.
TA	Talus	Angular rock fragments of any size accumulated at the foot of steep rock slopes on rock fall.
UR	Urban/Industrial	An area in which residences and other human developments cover the landscape.

Seral Associations

Ecosystem Code	Code	Name	Description
FD or PJ	ba	Douglas-fir – Douglas maple/grass	Early seral sites dominated by mature second cover with scattered Douglas maple and some native grassland forbs.
	fg	Water fescue – Douglas/ grass	Mid and late seral sites dominated by Water fescue and shrubs, annual forbs, exotic dry grasses, and a variety of native grassland forbs.
	ks	Kentucky/ – Douglas/ grass	Early and very early seral sites. These are fine and medium textured soils dominated by Kentucky bluegrass.
	ac	Columbia needlegrass – Douglas/ grass	Early seral sites dominated by Columbia needlegrass and Fescue species but with a variety of native grasses forbs.
	wb	Bluebunch wheatgrass – Kingsmill	Mid to late seral sites dominated by bluebunch wheatgrass but also with some Kingsmill or Douglas/ grass.
SS	cg	Douglas/ grass	Mid to late seral sites with Douglas/ grass, native Douglas fir, antelopebrush, and hairy aster forbs.
PW	ks	Kentucky/ – Douglas/ grass	Early and very early seral sites. These are fine and medium textured soils dominated by Kentucky bluegrass.
	wb	Bluebunch wheatgrass – Kingsmill	Mid to late seral sites dominated by bluebunch wheatgrass but also with some Kingsmill or Douglas/ grass.

Data Sources

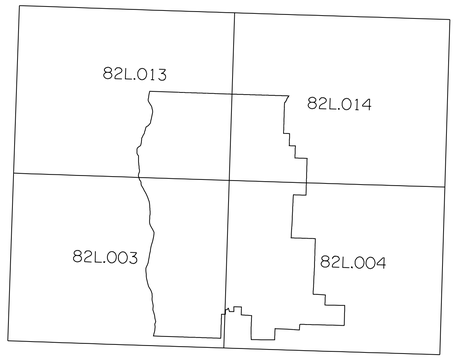
This mapping project is based on 1:15,000 colour stereo aerial photography from Geographic Data BC taken in 1996 and updated based on field work in 2005. Base maps from Terrain Resource Inventory Mapping (TRIM) from Geographic Data BC. Survey intensity 3 was used. A total of 175 polygon inspection was achieved. Nine full plots, 66 ground inspections, and 207 visual inspections were completed in the field.

Credits

Participating Agencies: District of Lake Country and the BC Ministry of Environment.
Ecosystem mapping: Kirsti Iverson, R.P.Bio. (Iverson & MacKenzie Biological Consulting Ltd.)
Biotersin mapping: Polly Durda (Polly Consultants)
Digitizing and Cartography: Ben Lee (Resource Informatics Inc., Victoria, B.C.)
Funding: The District of Lake Country, The Real Estate Foundation of BC, and the BC Ministry of Environment

Citation

Iverson, K. 2005. Ecosystem Mapping of the IDFxm1, IDFxh1, MSdm1, and PPxh1 in the District of Lake Country. Prepared for the District of Lake Country and the BC Ministry of Environment.



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Scale 1:20 000