Alberta Government

Ecological Information System
Data Users Manual
ECOSYS

Version 1

Nov 3, 2016

Revision History

Version	Date	Author/Organization	Description
1	Oct 2016	AEP	Original Document

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1.0 Preface

1. Version

Data User Guide v1.0

In order to request raw data extracts from the Alberta Ecological Information System (ECOSYS) begin by selecting a search method (Ecological Area, Study Area, Lat/Long or ATS locations) from the attached link to ECOSYS (Figure 1). The type of data reports that can be extracted include:

1. Plot/Locations

2. Vegetation Totals

3. Vegetation Species

4. Soil Horizon

5. Soils

6. Site

7. Forage Production

Figure 1. External Access Screen to Ecological Information System (ECOSYS) data.

The attached document outlines the various attributes that are captured within each report.

For general inquiry, comments and account setup, please contact:

- **Email:** mike.willoughby@gov.ab.ca
- **Raw Data:** https://securexnet.env.gov.ab.ca/EcoSysExternal/

2. Introduction

2.1 Background

In 1976, following the lead of the biogeoclimatic site classification program in British Columbia, a joint project was initiated, by Canadian Forestry Service and the Alberta Forest Service, to establish a framework for describing and classifying land for resource management. The main objectives of the Biogeoclimatic Ecosystem Classification of Alberta project were:

- to classify Alberta into biogeoclimatic zones
- to classify the forests of the Province into plant associations
- to analyze forest environment relationships
- to provide basic information on the plant associations on terms of their structure, ecological characteristics and potential for forest production
- to promote application of this classification in forest management practices and research programs.

Data collection commenced in 1977 and a computer based system was established to store, retrieve and analysis the data.

The project was initially staffed by S. Kojima and G.J. Krumlik of the Canadian Forestry Service with further resources provided by J. Soos of the Research Branch of the Alberta Forest Service. In the late 1970's the Resource Evaluation and Planning Division joined the project providing data collection and analysis support. The data was stored and reports created at the University of Alberta Computer Center. In the early years of the project, the data was processed using methodologies and programs obtained from BC Ministry of Forests. Programs such as the Klinka-Phelps vegetation tabulation programs were modified for use in Alberta. The complete information set for a field plot consisted of four parts: site description, vegetation description, soil description and mensuration data.

Currently, the ECOSYS (Ecological Information System) database is a provincial database that stores over 26,000 vegetation and soil plots described in the province of Alberta. This information is used in the development of management tools (plant community guides, ecosite guides, natural subregion maps, range health tools etc.) to ensure Alberta's public lands are being managed sustainably. ECOSYS also summarizes the raw plot information into Ecosite Guides for each subregion in the province.

2.2 Data Source

The database was initially set up as the repository for the Biogeoclimatic Forest Site program and data from all regions of the province was collected from 1977-95 and stored in the database. Data for the following projects were stored in ESIS: An Ecosystem Classification of the Boreal Cordilleran Ecozone-Sundre and Ecological Zonation of North Western Alberta. Later, data from the following projects were added: Field Guide for West Central Alberta in 1986, Field Guide for Southwest Alberta and Field Guide to Ecosites of Northern Alberta 1996 and a replacement for West Central Guide in 1996.ESIS was not developed until 1992 when funding for Site classification field guides was made available through the Canada Alberta Partnership Agreement in Forestry (CAPAF). To do the field guides it was necessary to standardize the existing data sets that had been collected since 1976 for both biogeoclimatic and Ecological Land Classification studies. Data from the field guides was not added – the field guides were based largely on existing data that was collected through ELC projects and Integrated Resource Inventory projects. A limited amount of new data was collected.

As part of the Biogeoclimatic Forest Site program procedures for describing ecosites in the field were established. In addition data terminology, definitions and standards were adopted. With the cooperation of the British Columbia Ministry of Forests the manual "Describing Ecosystem in the Field" was modified and became the standard for Alberta. The establishment of standards, definitions and manuals for ecological data collection was a significant as other departmental inventories adopted or modified the

procedures in later years. Most of all it this work provided the foundation for a provincial ecological data collection and facilitated inter agency data sharing.

During the 1980's the ecological inventory methods and standards were adopted for the integrated resources inventories. These inventories were conducted as part of the Integrated Resource Planning program. Data was collected throughout the Province and entered into ESIS. ESIS did not exist at that time. Data was collected and entered into the university system or later into a government supported database. Ecological Reports were prepared and printed for numerous planning areas including Coal Branch, Keg River, Berland and Fox Creek.

Also the Canadian Forestry Service made available the data from 4000 plots, collected as part of the Ecological Surveys of the Alberta National Parks (Jasper and Banff) in the late 1970's and this data was added to ESIS in about 1994 after the database was developed

The Alberta Forest Service completed site descriptions for the 650 forest inventory permanent sample plots that are part of growth and yield studies. The data collected included the site description, soil and vegetation. In addition 200 Stand Dynamic Plots, established by the Alberta Forest Service for monitoring growth of young stand, were visited, site description completed and the data added to the system.

In 2008 a project was initiated to accommodate over 5000 plots in the Prairie (PARADOX) database. New fields were added to the Location screen, Site Screen, Vegetation Screen and Soil Description screen to accommodate the prairie data. In addition a new screen was created (Range Management) to capture specific management information used to manage rangeland dispositions. A description of all the attributes in the ESIS database is outlined in the ESIS Attribute Description Manual (Metadata) (2011).

From the time of commencement of data collection in 1977 until today, over 26,000 site descriptions have been carried out and the plot data entered in the database. The value represented by this work is well over ten million dollars.

This database has been invaluable in a number of key resource management initiatives in Alberta in particular the 3 field guides to Ecosites for the province (This project was the driving force behind developing ESIS). In 1999 this database also supported the development of the Ecological Succession Description database (ESD) within Rangeland Management Branch. The primary objective of the database was the development of a plant community classification system that can be used by field staff and the public to assess the ecology and succession of ecological sites within each subregion. Plant communities in the database are organized within each ecological site where an ecological site is defined as a "distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation" (Task Group on Unity and Concepts 1995). All of the plot information stored in ESIS is used to develop the plant community descriptions outlined in the ESD website.

In 1994 various Department agencies cooperated in developing a single uniform provincial eco-region map. Previously each resource management agency, had its own individual map (ecoregions and Natural subregions) which created difficulties for interagency consultation and decision making. The ESIS data was used to develop the 1994 and 2006 Natural Regions and Subregions map of Alberta. This subregion map is the framework for dealing with issues of sustainability and conservation throughout the province.

In 2010 funding was provided by Policy and Planning Division, Alberta Environment and Parks to redevelop the original ESIS and ESD databases into one database and produce hard copy pdf documents from the ECOSYS website.

This database also provides the background data for interpreting GVI (Grassland Vegetation Inventory), PLVI (Primary Land Vegetation Inventory) and DEP (Derived Ecosite Phase). PLVI, GVI and DEP are spatial ecologically based land cover inventories and provide information that fits within the provinces ecological classification hierarchy. These types of inventories allow us to predict ecological changes on the landscape based on successional information outlined in the (ECOSYS) website rather than re-inventorying. Providing these *choices* of ecological inventories is more cost effective in supporting our clients and partners, and provides support to future challenges dealing with biodiversity, climate change, and balanced economic, social, and environmental decision making.

3. System Overview, Requirements and Data Accuracy

3.1 System Overview

ECOSYS uses Microsoft SQL Server as the database, runs on Windows 2012 servers, and is written in MVC.NET.

3.2 System Requirements

ECOSYS is run 100% inside Windows Server. ECOSYS external access has been tested to work in the following browsers/environments:

PC:

•   Internet Explorer 11 (both native and via Citrix)

•   Internet Explorer 10 (emulated)

•   Internet Explorer 9 (emulated)

•   Firefox 47.0.1

•   Chrome 54.0.2840.71

Mobile (Apple iPhone 7):

•   Chrome Mobile

•   Safari Mobile your computer must be able to run Internet Explorer.

3.3 Data Accuracy

Location accuracy of plot data for the data collected in the 1970s and 1980s is only accurate to the center of an ATS section or Township. Newer data was collected with GPS units and is only accurate to the GPS unit that was used. The extent of the data is within Alberta.

4. Accessing ECOSYS Raw Data:

ECOSYS is currently available to department employees only via a web service. For external users only raw data can be downloaded into one of five reports. The type of data reports that can be extracted include:

1. Plot/Locations

2. Vegetation Totals

3. Vegetation Species

4. Soil Horizon

5. Soils

6. Site

7. Forage Production

In order to request raw data extracts from the Alberta Ecological Information System (ECOSYS) begin by selecting a search method (Ecological Area, Study Area, Lat/Long or ATS locations) from the attached link to ECOSYS (Figure 1).

The rest of this manual describes the attributes for each data report.

4.1 Plot/Locations

A study area is a code unique to the project being conducted. It consists of a 2 digit number followed by a 2 or 3 letter acronym, which identifies the geographical location of the study area, The use of a sequential numbering system permits for the unique identification of projects that have taken place in the same geographical location (eg 72CAP). Usually the first number of the study area will refer to the project the user is assigned too. The various project codes include:

1 – Former AFS Research Branch

2 – LFS Forest Research Management Branch

3 – LISD Resource Information Division

4 – Universities

5 – Other

6 – BGC Plots

7 – LFS Range Management

8 – Former Reforestation Branch

9 – Parks Canada

10 – Tourism, Parks and Recreation

The second number will usually refer to the information that is being collected in that study area. The various codes for information collected include:

0 – Location

1 – Site, Soils

2 – Site, Vegetation

3 - Site, Mensuration

4 – Site, Soils, Vegetation

5 – Site, Soils, Mensuration

6 – Site, Vegetation, Mensuration

7 – Site, Soils, Vegetation, Mensuration

8 – Site

9 – Soils

An example for rangeland (project code7) and collection of only site and vegetation information (code 2) would be 72ALO where the three letter code is unique for the disposition (in this case ALLOTMENT).

Table 1. Attributes for the Plot/Location report from ECOSYS

Field Name	Column
Program_Description	CODE where Event Type is Ecological Assessment
Study_Area_Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE
Study_Area_Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original_Other_Plot_Number	ORIGINAL_OTHER_PLOT_NUMBER (Field versions of plot number)
Assessment_Date	ASSESSMENT_DATE
LEGAL_SUB_DIVISION	LEGAL_SUBDIVISION_NUMBER (ATS)
ATS_QUARTER_SECTION	QUARTER_SECTION
ATS_SECTION	SECTION
ATS_TOWNSHIP	TOWNSHIP
ATS_RANGE	RANGE
ATS_MERIDIAN	MERIDIAN
LATITUDE_DEGREES	LATITUDE (Decimal Degrees)
LONGITUDE_DEGREES	LONGITUDE (Decimal Degrees)
Map_Datum_Type	MAP_DATUM_TYPE_CODE (NAD 83)
Measurement_Type	LAT_LONG_MEASUREMENT_TYPE_CODE (1=GPS, 2=ATS centroid)

Elevation	ELEVATION_METERS
Aspect	ASPECT_DEGREES
Slope	SLOPE_PERCENT
Exposure_Type	SITE_EXPOSURE_CLASS_TYPE_CODE (Figure 2)
Flood_Hazard	FLOOD_HAZARD_CLASS_TYPE_CODE (1= No hazard, 2=Rare, 3=Maybe expected,4=Frequent)
Soil_Drainage	SOIL_DRAINAGE_CLASS_TYPE_CODE (Figure 3)
Perviousness	SOIL_PERVIOUSNESS_CLASS_TYPE_CODE (1=Rapidly, 2=Moderately, 3=Slowly)
Landform_Element_(MF5)	LANDFORM_ELEMENT_TYPE_CODE (1=Crest, 2=Upper slope, 3=Middle Slope,4=Lower Slope, 5=Depression, 6=Level, 7=Terrace)
Local_Landform_(Both)	LOCAL_LANDFORM_CLASS_TYPE_CODE (Figure 4)
Regional_Landform_(Both)	REGIONAL_LANDFORM_CLASS_TYPE_CODE (Figure 5)
Macro_Site_Position_(LISD)	MACRO_SITE_POSITION_CLASS_TYPE_CODE (Figure 6)
Meso_Site_Position_(RDB)	MESO_SITE_POSITION_CLASS_TYPE_CODE (1=Level, 2=Crest, 3=Lower Slope, 4=Midslope,5=Upper slope,6=Toe, 7=Depression)
Site_Surface_Shape	SURFACE_SHAPE_CLASS_TYPE_CODE (1=Concave, 2=Convex, 3=Straight)
Site_Microtopography_(RDB)	MICRO_TOPOGRAPHY_TYPE_CODE (1=Level, 2=Micro mounded, 3=Slightly mounded, 3=Moderately mounded, 4=Strongly mounded, 5=Severely mounded, 6=Extremely mounded, 7=Ultra mounded)
Ecological_Moisture_Regime	SOIL_MOISTURE_REGIME_TYPE_CODE (Figure 7)
Ecological_Nutrient_Regime	SOIL_NUTRIENT_TYPE_CODE (Figure 8)
Precipitation_Zone	PRECIPITATION_ZONE_TYPE_CODE (Figure 9)
NATURAL_SUBREGION	GEOGRAPHIC_AREA_CODE where GEOGRAPHIC_AREA_TYPE_ID_=_'13' (Figure 10)
ECOSITE	ECOLOGICAL_AREA_CODE where ECOLOGICAL_AREA_TYPE_ID_=_'1' (Codes are unique to a subregion eg. "a")(see subregion guides http://aep.alberta.ca/lands-forests/grazing-range-management/range-plant-community-guides-stocking-rates.aspx)
ECOSITE_PHASE	ECOLOGICAL_AREA_CODE where ECOLOGICAL_AREA_TYPE_ID_=_'2'(Codes are unique to a subregion eg. "a1")(see subregion guides http://aep.alberta.ca/lands-forests/grazing-range-management/range-plant-community-guides-stocking-rates.aspx)
Plant_COMMUNITY_TYPE	ECOLOGICAL_AREA_CODE where ECOLOGICAL_AREA_TYPE_ID_=_'3'(Codes are unique to a subregion eg. "CMA1")(see subregion guides http://aep.alberta.ca/lands-forests/grazing-range-management/range-plant-community-guides-stocking-

	rates.aspx)
AGRASID_Polygon_Number	AGRASID_POLYGON_NUMBER (from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)
AGRASID_Soil_Landscape_Model	AGRASID_SOIL_LANDSCAPE_MODEL (from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)
Soil_Correlation_Area	SOIL_CORRELATION_TYPE_CODE (from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)
Soil_Series_Agrasid_Poly_Type	SOIL_SERIES_TYPE_CODE (from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)
Field_Verified	SOIL_SERIES_FIELD_VERFIED_INDICATOR (yes or no)
Percent	PERCENTAGE
GVI_Site_Type	GRASSLAND_VEGETATION_INVENTORY_SITE_TYPE_CODE (Figure 11)
GVI_Site_Type_Field_Verified	AGRASID_SOIL_LANDSCAPE_MODEL_FIELD_VERIFIED_INDICATOR (yes or no)
Modifier_1	GRASSLAND_VEGETATION_INVENTORY_MODIFIER_1_TYPE_CODE (from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)
Modifier_2	GRASSLAND_VEGETATION_INVENTORY_MODIFIER_2_TYPE_CODE (from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)

Site Exposure Class Types

Show 50 entries

ID	Code	Name	Description	Active From
1		Not Applicable		1900-01-01
2		Wind		1900-01-01
3		Insolation		1900-01-01
4		Frost		1900-01-01
5		Cold Air Drainage		1900-01-01
6		Atmospheric Toxicity		1900-01-01

Showing 1 to 6 of 6 entries

Figure 2. Site exposure code and name

Figure 3. Soil Drainage Class Types

Local Landform Class Types

Show 50 ∨ entries

ID	Code	Name
1		Apron
2		Blanket
3		Bowel
4		Delta
5		Depressional
6		Domed
7		Fan
8		Floating
9		Flood Plain
10		Hilly
11		Horizontal
12		Hummocky
13		Inclined
14		Level
15		Pitted
16		Plain
17		Plateau
18		Ribbed
19		Ridged
20		Rolling
21		Sloping
22		Steep Slopes
23		Subdued
24		Terraced
25		Undulating
26		Veneer

Figure 4. Local Landform Class Types

Regional Landform Class Types

Show 50 entries

ID	Code	Name
1		Organic Wetland
2		Scarp
3		Dune
4		Delta
5		Mountains
6		Valley
7		Plain
8		Plateau
9		Hills
10		Uplands
12		Lowlands
13		Midlands
14		Valleys

Figure 5. Regional Landform Class Types

Macro Site Position Types

Show 50 entries

ID	Code	Name
1		Apex
2		Face
3		Upper Slope
4		Middle Slope
5		Lower Slope
6		Valley Floor
7		Plain
8		Plateau
11		Benchland

Figure 6. Macro Site Position Types

Soil Moisture Regime Types

ID	Code	Name
1		Very Xeric (very dry)
2		Xeric (dry)
3		Subxeric (moderately dry)
4		Submesic (moderately fresh)
5		Mesic (fresh)
6		Subhygric (moderately moist)
7		Hygric (moist)
8		Subhydric (moderately wet)
9		Hydric (wet)

Figure 7. Soil Moisture Regime Types

Soil Nutrient Types

ID	Code	Name
1		Oligotrophic (very poor)
2		Submesotrophic (poor)
3		Mesotrophic (medium)
4		Permesotrophic (rich)
5		Eutrophic (very rich)
6		Hypereutrophic (e.g. saline)

Figure 8. Soil Nutrient Type Codes

Precipitation Zone Types

ID	Code	Name
1	15-25	15 to 25 cm (6" to 10")
2	25-36	25 to 36 cm (10" to 14")
3	36-46	36 to 46 cm (14" to 18")
4	46-56	46 to 56 cm (18" to 22")
5	56-66	56 to 66 (22" to 26")

Figure 9. Precipitation Zone Type Codes

GEOGRAPHIC_AREA_CODE	NAME
CM	Central Mixedwood
DMW	Dry Mixedwood
NM	Northern Mixedwood
BSR	Boreal Sub-Arctic
PAD	Peace Athabasca Delta
UB	Upper Boreal Highlands
A	Alpine
SA	Sub-Alpine
M	Montane
UF	Upper Foothills
LF	Lower Foothills
AP	Athabasca Plain
KU	Kazan Upland
FP	Foothills Parkland
PRP	Peace Parkland
CP	Central Parkland
DMG	Dry Mixedgrass
FF	Foothills Fescue
NF	Northern Fescue
MG	Mixedgrass
LBH	Lower Boreal Highlands
XX	Unknown

Figure 10. Subregion codes

ID	Code	Name
22	LENT	Lentic - Temporary
20	LENS	Lentic - Seasonal
19	LENA	Lentic - Alkali
21	LENSP	Lentic - Semi To Permanent
31	LENW	Lentic - Open Water
26	LTCR	Lotic - River
23	LTCC	Lotic - Coniferous
24	LTCD	Lotic - Deciduous
27	LTCS	Lotic - Shrub
25	LTCH	Lotic - Herbaceous
12	SB	Subirrigated
8	OV	Overflow
3	CY	Clayey
7	LO	Loamy
15	SY	Sandy
6	LI	Limy
11	SA	Sand
1	BLO	Blowouts/Solonetzic
2	CS	Choppy Sandhills
16	TB	Thin Breaks
14	SWG	Shallow To Gravel
9	SL	Saline Lowland
5	GR	Gravel
4	BDL	Badlands/Bedrock
28	CI	Crop - Irrigated
29	CN	Crop - Non-Irrigated
32	PI	Tame Pasture Or Hay Irrigated
18	PN	Tame Pasture Or Hay Non-Irrigated
33	PIT	Pits
30	DEV	Developed
35	UR	Urban
34	RU	Rural
10	SU	Saline Upland
13	SV	Savannah
17	WL	Wet Lands

Figure 11. GVI Site Types and Codes

4.2   Vegetation Totals

Table 2. Attributes for Vegetation Totals report for ECOSYS

Field Name	Column
Program Description	CODE where Event Type is Ecological Assessment
Study Area Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE
Study Area Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original Other Plot Number	ORIGINAL_OTHER_PLOT_NUMBER
Assessment Date	ASSESSMENT_DATE
TOTAL_PERCENTAGE_COVER_EPIPHYTES	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'E'
STRATUM_HEIGHT_EPIPHYTES (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'E'
TOTAL_PERCENTAGE_COVER_FUNGI	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'FU'
STRATUM_HEIGHT_FUNGI (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'FU'
TOTAL_PERCENTAGE_COVER_GRAMINOID	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'G'
STRATUM_HEIGHT_GRAMINOID (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'G'
TOTAL_PERCENTAGE_COVER_LICHEN	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'L'
STRATUM_HEIGHT_LICHEN (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'L'
TOTAL_PERCENTAGE_COVER_LOW_FORB	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'F2'

STRATUM_HEIGHT_LOW_FORB (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'F2'
TOTAL_PERCENTAGE_COVER_LOW_SHRUB	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'S3'
STRATUM_HEIGHT_LOW_SHRUB (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'S3'
TOTAL_PERCENTAGE_COVER_MEDIUM_SHRUB	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'S2'
STRATUM_HEIGHT_MEDIUM_SHRUB (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'S2'
TOTAL_PERCENTAGE_COVER_MOSS	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'M'
STRATUM_HEIGHT_MOSS (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'M'
TOTAL_PERCENTAGE_COVER_NOT_APPLICABLE	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'NA'
STRATUM_HEIGHT_NOT_APPLICABLE (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'NA'
TOTAL_PERCENTAGE_COVER_OVERSTORY_TREE	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'T1'
STRATUM_HEIGHT_OVERSTORY_TREE (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'T1'
TOTAL_PERCENTAGE_COVER_TALL_FORB	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'F1'
STRATUM_HEIGHT_TALL_FORBS (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'F1'
TOTAL_PERCENTAGE_COVER_TALL_SHRUB	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'S1'

STRATUM_HEIGHT_TALL_SHRUB (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'S1'
TOTAL_PERCENTAGE_COVER_UNDERSTORY_TREE	PERCENTAGE_COVER where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'T2'
STRATUM_HEIGHT_UNDERSTORY_TREE (meters)	STRATUM_HEIGHT where SPECIES_STRATUM_TYPE.SPECIES_STRATUM_TYPE_CODE = 'T2'

4.3   Vegetation Species

Table 3. Attributes for Vegetation Species report for ECOSYS

Field Name	Column
Program Description	CODE where Event Type is Ecological Assessment
Study Area Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE
Study Area Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original Other Plot Number	ORIGINAL_OTHER_PLOT_NUMBER
Assessment Date	ASSESSMENT_DATE
GENUS_CODE	TAXON_CODE (first four letters latin name)
SPECIES_CODE	TAXON_CODE (first three letters latin name)
VEGETATION_STRATUM_CODE	SPECIES_STRATUM_TYPE_CODE (Figure 12)
AVERAGE COVER	
VIGOR	SPECIES_VIGOR_TYPE_CODE (1=Excellent vigor, 2=Fair vigor, 3=Good vigor, 4=Poor vigor, 5=Species dead)
DENSITY_DISTRIBUTION	SPECIES_DENSITY_DISTRIBUTION_TYPE_CODE (Figure 13)

Species Stratum Types

Show 50 entries

ID	Code	Name	Description
1	T1	Overstory Tree	Any woody species growing to a height of greater t...
2	T2	Understory Tree	Any woody species growing to a height of greater t...
3	S1	Tall Shrub (2 to 5m)	All woody species at least 2.0m but less than 5.0 m tall.
4	S2	Medium Shrub (0.5 to 2 m)	All woody species at least 0.5m but less than 2.0 m tall.
5	S3	Low Shrub (< 0.5m)	All woody species less than 0.5 m tall.
6	E	Epiphyte	Mosses or lichens growing on other plants (usually trees / shrubs).
7	F1	Tall Forb (>= 30 cm)	All forb species 30 cm tall or greater.
8	F2	Low Forb (< 30 cm)	All forb species less than 30 cm tall.
9	M	Moss	All moss species.
10	FU	Fungi	All fungi species.
11	G	Graminoid	All grass and grass like species (sedges).
12	L	Lichen	All lichen species.
13	NA	Not Applicable	Stratum Not Applicable for Genus only

Figure 12. Species stratum types

Species Density Distribution Types

Show 50 entries

ID	Code	Name
1		Rare Individual, a Single Occurrence
2		A Few Sporadically Occurring Individuals
3		A Single Patch or Clump of a Species
4		Several Sporadically Occurring Individuals
5		A Few Patches or Clumps of a Species
6		Several Well Spaced Patches or Clumps
7		Continuous Uniform Occurrence of Well Spaced Indiv...
8		Continuous Occurrence of a Species With a Few Gaps...
9		Continuous Dense Occurrence of a Species
10		A Single Patch or Clump Plus a Few Sporadically Oc...
11		A Single Patch or Clump and Several Sporadically O...
12		A Few Sporadically Occurring Individuals and a Few...

Figure 13. Species Density Distribution Types

4.4 Soil Horizons

Table 4. Attributes for Soil Horizons Report from ECOSYS

Field Name	Column
Program Description	CODE where Event Type is Ecological Assessment
Study Area Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE
Study Area Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original Other Plot Number	ORIGINAL_OTHER_PLOT_NUMBER
Assessment Date	ASSESSMENT_DATE
HORIZON_LEVEL	HORIZON_LEVEL (0,II,III,…VIII) (8 levels)
DISCONTINUITY	NAME
HORIZON_CODE	NAME (A,AB,AC, C,C+H, CA,CB, F, FH, H, L, LF, LFH, H, O, R, W)
HORIZON_SUFFIX	NAME (b,c,ca,cc,e,f,g,h,j,k,m,n,p,s,sa,t,u,x,y,z)
SUBDIVISION	SUBDIVISION (number)
UPPER_DEPTH	UPPER_DEPTH (cm)
LOWER_DEPTH	LOWER_DEPTH (cm)
MINIMUM_THICKNESS	MINIMUM_THICKNESS (cm)
MAXIMUM_THICKNESS	MAXIMUM_THICKNESS (cm)
BOUNDARY_DISTINCTNESS_CLASS	NAME (Abrupt, Clear, Gradual, Diffuse, None)
BOUNDARY_FORM_CODE	NAME (S=Smooth, W=Wavy, I=Irregular, B=Broken)
SOIL_TEXTURE_CLASS	NAME (Figure 14)
VON_POST_TYPE	NAME (Fibric, Mesic, Humic)
VON_POST_DECOMP	NAME (1=Undecomposed, 2=Almost undecomposed, 3=Very Weakly decomposed, 4=Weakly decomposed,5=Moderately decomposed,6=Moderately Strongly decomposed, 7=Strongly decomposed, 8=Very Strongly decomposed, 9=Almost completely decomposed, 10=Completely decomposed)

COARSE_FRAGMENT_PERCENTAGE	COARSE_FRAGMENT_PERCENTAGE
GRAVEL_PERCENTAGE	PERCENTAGE where SOIL_HORIZON_COARSE_FRAGMENT_TYPE.SOIL_HORIZON _COARSE_FRAGMENT_TYPE_CODE = 'G'
GRAVEL_TYPE	NAME where SOIL_HORIZON_COARSE_FRAGMENT_TYPE.SOIL_HORIZON _COARSE_FRAGMENT_TYPE_CODE = 'G'
COBBLES_PERCENTAGE	PERCENTAGE where SOIL_HORIZON_COARSE_FRAGMENT_TYPE.SOIL_HORIZON _COARSE_FRAGMENT_TYPE_CODE = 'C'
COBBLES_TYPE	NAME where SOIL_HORIZON_COARSE_FRAGMENT_TYPE.SOIL_HORIZON _COARSE_FRAGMENT_TYPE_CODE = 'C'
STONES_PERCENTAGE	PERCENTAGE where SOIL_HORIZON_COARSE_FRAGMENT_TYPE.SOIL_HORIZON _COARSE_FRAGMENT_TYPE_CODE = 'S'
STONES_TYPE	NAME where SOIL_HORIZON_COARSE_FRAGMENT_TYPE.SOIL_HORIZON _COARSE_FRAGMENT_TYPE_CODE = 'S'
STRUCTURE_GRADE	NAME (Weak, Weak to Moderate, Moderate, Moderate to Strong, Strong)
STRUCTURE_CLASS	NAME (Very fine, Very fine to fine, Fine, Fine to Medium, Medium to Coarse, Coarse, Very Coarse)
STRUCTURE_KIND	NAME (Singular grain, Massive, Angular Blocky, Subangular Blocky, Granular, Platy, Prismatic, Columnar)
STRUCTURE_MOD	NAME (Not applicable, Pseudo)
CONSISTENCY_DRY	NAME (Loose, Soft, Slightly hard, Hard, Very hard, Extremely hard, Rigid)
CONSISTENCY_MOIST	NAME (Loose,Very friable, Friable, Firm, Very firm, Extremely firm)
CONSISTENCY_WET	NAME (Non-sticky, Slightly sticky, Sticky, Very sticky)
CONSISTENCY_PLASTICITY	NAME (Non-plastic, Slightly plastic, Plastic, Very plastic)
PH_REACTION	PH_VALUE (0-9)
PH_METHOD	NAME (Figure 15)
EFFERVESCENCE_DEGREE	NAME (None, Very weak, Weak, Moderate, Strong)
COLOUR_1_ASPECT	NAME (Figure 16)

COLOUR_1_HUE	SOIL_HUE_TYPE_CODE (Figure 17)
COLOUR_1_VALUE	VALUE (2.0,2.5,3.0,3.5,4.0,4.5,5.0,5.5,6.0,6.5,7.0,7.5,8.0)
COLOUR_1_CHROMA	CHROMA (1.0,1.5,2.0,2.5,3.0,3.5,4.0,4.5,5.0,5.5,6.0,6.5,7.0,7.5,8.0, N, 10Y,5GY,10GY,5G,10G,5BG,10BG,5B,10B,5PB)
MOTTLES_ABUND	NAME (None, Few, Common, Many)
MOTTLES_SIZE	NAME (Fine, Medium, Course)
MOTTLES_CONTRAST	NAME (Faint, Distinct, Prominent)
MOTTLES_CLR_ASPECT	NAME (Figure 16)
MOTTLES_CLR_HUE	SOIL_HUE_TYPE_CODE (Figure 17)
MOTTLES_CLR_VALUE	VALUE (2.0,2.5,3.0,3.5,4.0,4.5,5.0,5.5,6.0,6.5,7.0,7.5,8.0)
MOTTLES_CLR_CHROMA	CHROMA (1.0,1.5,2.0,2.5,3.0,3.5,4.0,4.5,5.0,5.5,6.0,6.5,7.0,7.5,8.0, N, 10Y,5GY,10GY,5G,10G,5BG,10BG,5B,10B,5PB)
ROOTS_ABUND	NAME (None, Very few, Few, Plentiful, Abundant)
ROOTS_SIZE	NAME (Very fine, Fine, Medium, Coarse)
ROOTS_ORIENT	NAME (Vertical, Horizontal, Oblique, Random)
ROOTS_DIST	NAME (Inped, Exped, Matrix)
CLAY_FREQUENCY	NAME (None (0%), Few (<2%), Common (2-20%), Many (20-80%), Continuous (>80%))
CLAY_THICKNESS	NAME (Thin, Moderately thick, Thick, Very thick)
CLAY_LOCATION	NAME (Figure 18)
ORGMAT_MATCOMP_COMP1	NAME (Figure 19)
ORGMAT_MATCOMP_COMP2	NAME (Figure 19)
ORGMAT_MATCOMP_DECOMP	NAME (None, Slight, Moderate, High)
ORGMAT_WOOD_HARD	NAME (Soft, Slightly hard, Hard, Very hard)
ORGMAT_WOOD_VOL	NAME (0=None, 1=<10%, 2=10 to20% , 3=20 to 50%, 4=>50%)
SALINITY	NAME (Non-saline, Weakly saline, Moderately saline, Strongly saline)
SAMPLE	LABORATORY_SAMPLE (yes or no)

Code		Soil Textural Classes
S	Sand	contains 85% or more sand; the percentage of silt, plus 1.5 times the percentage of clay, does not exceed 15.
CS	Coarse Sand	25% or more very coarse and coarse sand, and less than 50% of any other one grade of sand.
MS	Medium Sand	25% or more very coarse, coarse, and medium sand, and less than 50% fine or very fine sand.
FS	Fine Sand	50% or more fine sand, or less than 25% very coarse, coarse and medium sand and less than 50% very fine sand.
VFS	Very Fine Sand	50% or more very fine sand.
LS	Loamy Sand	contains at the upper limit 85-90% sand, and the percentage of silt plus 1.5 times the percentage of clay is not less than 15; contains at the lower limit 70-85% sand, and the percentage of silt plus twice the percentage of clay does not exceed 30.
LCS	Loamy Coarse Sand	as for CS.
LMS	Loamy Medium Sand	as for MS.
LFS	Loamy Fine Sand	as for FS
LVFS	Loamy Very Fine Sand	as for VFS
SL	Sandy Loam	contains either 20% clay or less, with the percentage of silt plus twice the percentage of clay exceeding 30, and 52% or more sand; or less than 7% clay, less than 50% silt, and 43-52% sand.
CSL	Coarse Sandy Loam	as for CS.
MSL	Medium Sandy Loam	30% or more very coarse, coarse, and medium sand, (but less than 25% very coarse sand), and less than 30% very fine or fine sand.
FSL	Fine Sandy Loam	30% or more fine sand and less than 30% very fine sand, or 15-30% very coarse, coarse, and medium sand; or more than 40% fine and very fine sand, at least half of which is fine sand, and less than 15% very coarse, coarse and medium sand.
VFSL	Very Fine Sandy Loam	30% or more very fine sand, or more than 40% fine and very fine sand, at least half of which is very fine sand, and less then 15% is very coarse, coarse, and medium sand.
L	Loam	contains 7-27% clay, 28-50% silt and less than 52% sand.
SIL	Silt Loam	contains 50% or more silt and 12-27% clay, or 50-80% silt and less than 12% clay.
SI	Silt	contains 80% or more silt and less than 12% clay.
SCL	Sandy Clay Loam	contains 20-35% clay, less than 28% silt, and 45% or more sand.
CL	Clay Loam	contains 27-40% clay and 20-45% sand.
SICL	Silty Clay Loam	contains 27-40% clay and less than 20% sand.
SC	Sandy Clay	contains 35% or more clay and 45% or more sand
SIC	Silty Clay	contains 40% or more clay and 40% or more silt.
C	Clay	contains 40% or more clay, less than 45% sand, and less than 40% silt.
HC	Heavy Clay	contains more than 60% clay.

Figure 14: Soil Textures and Codes

ID	Code	Name
1		Bromthymol Blue
2		Cresol Red
3		Hellige-Truog
4		Lamotte-Morgan
5		pH Meter (1:1 H2O)
6		pH Meter (.1M CaCl2)
7		Phenol Red
8		Soiltex
9		Thymol Blue
10		pHdyrion
11		Colorplast Strips
12		FieldScout SoilStik pH Meter
13		Other

Figure 15. Method for collecting pH.

ID	Code	Name
1	1	Matric Moist
2	2	Matrix Dry
3	3	Exped Moist
4	4	Exped Dry
5	5	Inped Moist
6	6	Inped Dry
7	7	Crushed Moist
8	8	Crushed Dry
9	9	Natural Wet/Reduced
10	10	Natural Wet/Oxidized
11	11	Pressed Wet/Reduced
12	12	Pressed Wet/Oxidized
13	13	Rubbed Wet/Oxidized
14	14	Rubbed Dry

Figure 16. Soil Aspect Codes

ID	Code	Name
1	GL1	Gley 1
2	GL2	Gley 2
7	10R	10 Red
9	2.5YR	2.5 Yellow-Red
3	5YR	5 Yellow-Red
4	7.5YR	7.5 Yellow-Red
5	10YR	10 Yellow-Red
6	2.5Y	2.5 Yellow-Red
8	5Y	5 Yellow

Figure 17. Soil Hue Codes

ID	Code	Name
1	1	In Pores And/Or Channels Only
2	2	On Ped Faces (Unspecified)
3	3	In Many Pores/Channels, Ped Faces
4	4	In All Pores/Channels, Ped Faces
5	5	Visible Bridges Between Sand Grains
6	6	Coatings On Sand Grains
7	7	On Lower Surfaces Of Coarse Fragments
8	8	On Upper Surfaces Of Coarse Fragments

Figure 18. Soil Clay Location Codes

ID	Code	Name
1	1	Angiosperm Broad Leaves
2	2	Coniferous Needles
3	3	Sphagnum Moss
4	4	Mosses Other Than Sphagnum
5	5	Sedes,Reeds And Assoc. Plants
6	6	Herbaceous Fragments
7	7	Coprogenous Earth
8	8	Other (Specify in Comments)
9	9	Woody Material

Figure 19. Soil Organic Matter Decomposition codes.

4.5   Soils

Table 5. Attributes for the Soils Report from ECOSYS

Field Name	Column
Program Description	CODE where Event Type is Ecological Assessment
Study Area Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE
Study Area Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original Other Plot Number	ORIGINAL_OTHER_PLOT_NUMBER
Assessment Date	ASSESSMENT_DATE
HUMUS_FORM	NAME (Figure 20)
SURFACE_TEXTURE	NAME accessed through ECOLOGICAL_PLOT_ASSESSMENT_SOIL.SOIL_TEXTURE_CLASS_TYPE_ID (Figure 14)
SURFACE_NON_TEXTURE	NAME accessed through ECOLOGICAL_PLOT_ASSESSMENT_SOIL.SOIL_NON_TEXTURE_CLASS_TYPE_ID (Gravels, Cobbles, Stones, Bedrock, Ice, Water)
SURFACE_TEXTURE_MOD	NAME accessed through ECOLOGICAL_PLOT_ASSESSMENT_SOIL.SOIL_TEXTURE_MODIFIER_TYPE_ID (Mucky)
EFFECTIVE_TEXTURE	NAME accessed through ECOLOGICAL_PLOT_ASSESSMENT_SOIL.EFFECTIVE_SOIL_TEXTURE_CLASS_TYPE_ID (Figure 14)
EFFECTIVE_NON_TEXTURE	NAME accessed through ECOLOGICAL_PLOT_ASSESSMENT_SOIL.EFFECTIVE_SOIL_NON_TEXTURE_CLASS_TYPE_ID (Gravels, Cobbles, Stones, Bedrock, Ice, Water)
EFFECTIVE_TEXTURE_MOD	NAME accessed through ECOLOGICAL_PLOT_ASSESSMENT_SOIL.EFFECTIVE_SOIL_TEXTURE_MODIFIER_TYPE_ID (Mucky)
SOIL_PH	SOIL_PH (0-9)
LFH_THICKNESS	LFH_THICKNESS (cm)
ORGANIC_THICKNESS	ORGANIC_THICKNESS (cm)
PRIMARY_WATER_SOURCE	NAME (Precipitation, Precipitation and Seepage, Seepage, Seepage and Permanent water, Permanent water table)
SEEPAGE_INFLUENCE	NAME (None, Permanent, Temporary)
BEDROCK_SOURCE	NAME (Figure 21)

DECOMPOSITION_OF_ORGANIC_LAYER	NAME (Fibric, Mesic, Humic)
SOIL_TYPE	NAME (Figure 22)
SOIL_SUBGROUP	SOIL_GROUP_TYPE.NAME and SOIL_SUBGROUP_TYPE.NAME (see Canadian System of Soil Classification, http://sis.agr.gc.ca/cansis/taxa/cssc3/index.html)
SOIL_PROFILE_SERIES	SOIL_PROFILE_SERIES ((from Agrasid http://www4.agric.gov.ab.ca/agrasidviewer/)
DEPTH_TO_CARBONATES	DEPTH_TO_CARBONATES (cm)
DEPTH_TO_MOTTLES_GLEY	DEPTH_TO_MOTTLES_GLEY (cm)
DEPTH_TO_IMPERMEABLE	DEPTH_TO_IMPERMEABLE (cm)
DEPTH_TO_EFFECTIVE_ROOTING	DEPTH_TO_EFFECTIVE_ROOTING (cm)
DEPTH_TO_WATER_TABLE	DEPTH_TO_WATER_TABLE (cm)
DEPTH _TO_BEDROCK	DEPTH _TO_BEDROCK (cm)
DEPTH_TO_ROOT_REST	DEPTH_TO_ROOT_REST (cm)
DEPTH_TO_FROZEN	DEPTH_TO_FROZEN (cm)
DEPTH_TO_SALINITY	DEPTH_TO_SALINITY (cm)
WETLAND_CLASS	WETLAND_CLASS (B-Bog, F-Fen, M-Marsh, S-Swamp, W-Shallow Open Water, Z-Non-Wetland (Upland))
VEGETATION_MOD	VEGETATION_MOD (Forested-Close Canopy, Forested-Open Canopy, Open-Shrub, Graminoid,Forb)
COMPLEX_MODIFIER	COMPLEX_MODIFIER (Patterning present, Permafrost or Patterning Present, Permafrost Present)
LOCAL_LFM_CLASS	LOCAL_LFM_CLASS (Figure 23)
PM_DISCONT	PM_DISCONT (0,I,II,II….VII up to eight)
PM_CLASS	PM_CLASS (Figure 24)
PM_SURFACE_EXPRESSION	PM_SURFACE_EXPRESSION (Figure 25)
PM_SURFACE_MOD	PM_SURFACE_MOD (Figure 26)

PM_UPPER_DEPTH	PM_UPPER_DEPTH (cm)
PM_LOWER_DEPTH	PM_LOWER_DEPTH (cm)
PM_TEXTURE	PM_TEXTURE (Figure 14)
PM_TEXTURE_MOD	PM_TEXTURE_MOD (Mucky)
PM_COARSE_FRAG	PM_COARSE_FRAG (Cobbles, Gravel, Blocky, Rubble, Bouldery)
PM_PERCENT_COARSE_FRAG	PM_PERCENT_COARSE_FRAG

ID	Code	Name
1	.MU	MULL
3	R.MU	RHIZOMULL
2	Z.MU	ZOOMULL
4	.MD	MODER
5	ML.MD	MULL-LIKE MODER
6	T.MD	TYPICAL MODER
7	W.MD	RAW MODER
16	FP.MR	FIBRIC PEATYMOR
17	AN.	ANMOOR
8	.MR	MOR
10	F.MR	FIBRIMOR
12	HF.MR	HUMIFIBRIMOR
13	FH.MR	FIBRIHUMIMOR
11	H.MR	HUMIMOR
9	P.MR	PEATYMOR
14	HP.MR	HUMIC PEATYMOR
15	MP.MR	MESIC PEATYMOR

Figure 20. Soil Humus Form Codes

ID	Code	Name
10		Andesite
27		Arenite
16		Argillite Shale
14		Basalt
15		Biotite Schist
18		Chert
33		Coal
8		Conglomerate
6		Dacite
9		Diorite
20		Dolomite
28		Dolostone
23		Dunite
13		Gabbro
11		Garnet Schist
29		Gneiss
1		Granite
5		Granodiorite
12		Graywacke
26		Gypsum Halite and Other Evaporates
22		Limestone
25		Marble
31		Mudstone
17		Peridotite
21		Phyllite
34		Preglacial Gravels and Cobbles
7		Quartz Gneiss
4		Quartz Sandstone
3		Quartzite
2		Rhyolite
35		Sandstone
30		Schist
24		Serpentine
36		Shale
37		Siltstone
19		Slate

Figure 21. Soil Bedrock Source

ID	Category	Code	Name
1	VERY DRY SOILS	SV1	Very Dry/Sandy
2	VERY DRY SOILS	SV2	Very Dry/Coarse
3	VERY DRY SOILS	SV3	Very Dry/Silty-Loamy
4	VERY DRY SOILS	SV4	Very Dry/Fine
5	DRY SOILS	SD1	Dry/Sandy
6	DRY SOILS	SD2	Dry/Coarse
7	DRY SOILS	SD3	Dry/Silty-Loamy
8	DRY SOILS	SD4	Dry/Fine
9	MOIST SOILS	SM1	Moist/Sandy
10	MOIST SOILS	SM2	Moist/Coarse
11	MOIST SOILS	SM3	Moist/Silty-Loamy
12	MOIST SOILS	SM4	Moist/Fine
13	MOIST SOILS	SMp	Moist/Peaty
14	WET SOILS	SWm	Wet/Mineral
15	WET SOILS	SWp	Wet/Peaty
16	ORGANIC SOILS	SR	Organic
17	SHALLOW SOILS	SS	Shallow

Figure 22. Soil Type Codes and Description

ID	Code	Name
1	C	Type 1 - Internal Lawn/Collapse Scar
2	G	Graminoid Dominated - Shrub Cover <= 25% And Tree...
3	I	Type 2 - Internal Lawns Present
4	N	Internal Lawns Not Present
5	R	Type 2 - Internal Lawn With Islands Of Forested Pe...
6	S	Shrub Over > 25%, Tree Cover <= 6%

Figure 23. Wetland Local Life Form Modifer

ID	Code	Name
1	A	Anthropogenic
19	S	Swamp
2	B	Bog
3	C	Colluvial
4	E	Eolian
16	O	Undifferentiated Organic
18	R	Rock
14	M	Morainal
15	N	Fen
22	X	Residual
13	LT	Lacustromoraine
5	F	Fluvial
17	P	Saprolite
6	FE	Fluvioeolian
20	T	Tephra
23	W	Water
9	GL	Glaciolacustrine
10	H	Marsh
21	U	Undifferentiated Mineral
8	GF	Glaciofluvial
7	FL	Fluviolacustrine
12	L	Lacustrine
11	I	Ice

Figure 24: Parent Material Class Type Codes

ID	Code	Name
1	MA	Mineral Apron
2	MB	Mineral Blanket
4	MD	Mineral Delta
7	MF	Mineral Fan
9	MH	Mineral Hummocky
11	MI	Mineral Inclined
13	ML	Mineral Level
17	MP	Mineral Pitted
19	MR	Mineral Ridged
14	MM	Mineral Rolling
21	MS	Mineral Steep
12	MK	Mineral Subdued
23	MT	Mineral Terraced
24	MU	Mineral Undulating
25	MV	Mineral Veneer
6	ME	Mineral Depressional
15	MO	Mineral Flood Plain
3	OB	Organic Blanket
16	OO	Organic Bowl
5	OD	Organic Domed
8	OF	Organic Floating
10	OH	Organic Horizontal
18	OP	Organic Plateau
20	OR	Organic Ribbed
22	OS	Organic Sloping

27	A	Apron
28	B	Blanket
29	E	Depressional
30	F	Fan
31	H	Hummocky or Horizontal????
32	I	Inclined
33	L	Level
34	M	Rolling
35	O	Flood Plain or Bowl???
36	R	Ridged or Ribbed???
37	S	Steep or Sloping
38	T	Terraced
39	V	Veneer

Figure 25. Parent Material Surface Expression codes

ID	Code	Name
1	A	Avalanched
2	B	Bevelled
3	D	Deflated
4	E	Eroded
5	F	Failing
6	G	Glaciated
7	H	Kettled
8	K	Karst Modified
9	M	Mass-Wasted
10	N	Nivated
11	P	Piped
12	S	Soluflucted
13	V	Gullied
14	W	Washed

Figure 26. Parent material Modifier Codes

4.6   Site Information

Table 6. Attributes for the Site Information Report from ECOSYS

Field Name	Column
Program Description	CODE where Event Type is Ecological Assessment
Study Area Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE

Study Area Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original Other Plot Number	ORIGINAL_OTHER_PLOT_NUMBER
Assessment Date	ASSESSMENT_DATE
SURFACE SUBSTRATE BEDROCK	BEDROCK PERCENTAGE
SURFACE SUBSTRATE COBBLES STONES	COBBLES STONES PERCENTAGE
SURFACE SUBSTRATE DECAYING WOOD	DECAYING WOOD PERCENTAGE
SURFACE SUBSTRATE MINERAL SOIL	MINERAL SOIL PERCENTAGE
SURFACE SUBSTRATE ORGANIC MATTER	ORGANIC MATTER PERCENTAGE
SURFACE SUBSTRATE WATER	WATER PERCENTAGE
SUCCESSIONAL STATUS 1-5	SUCCESSIONAL STATUS NAME (1=Pioneer Seral, 2=Young Seral, 3=Maturing Seral, 4=Old Seral, 5=Young Edaphic Climax, 6=Mature Edaphic Climax, 7=Young Climatic Climax, 8=Mature Climatic Climax, 9=Disclimax, 10=Non-vegetated, 11=Cutblock, 12=Cultivated Pasture, 13=Old Field, 14=Reclaimed
DISTURBANCE FACTOR 1-5 CATEGORY	DISTURBANCE FACTOR CATEGORY NAME (1=Atmosphere related, 2=Cutting and Soil Disturbance, 3=Dumping, disposal and spills, 4=Fires, 5=Plant and Animal Related Effects, 6=Terrain Related Effects, 7=Vegetation and Site Improvement Related Effects, 8=Water Related Effects)
DISTURBANCE FACTOR 1-5 TYPE	DISTURBANCE FACTOR TYPE NAME (Table 7)
REGENERATING TREE SPECIES 1-5	REGENERATING TREE SPECIES NAME (Alpine fir, Alpine larch, Balsam fir, Balsam poplar, Black spruce, Dead conifer, Dead deciduous, Douglas fir, Engelman spruce, Engelman X White spruce, Jack pine, Limber pine, Lodgepole pine, Tamarack, Trembling aspen, White spruce, Whitebark pine)
REGENERATING TREE SPECIES PERCENTAGE	REGENERATING TREE SPECIES PERCENTAGE
REGENERATING TREE SPECIES HEIGHT	REGENERATING TREE SPECIES HEIGHT (m)

Table 7. Site Disturbance Factor Categories and Types.

1. Atmosphere – related effects	**1**. Atmospheric pollution (specify type) **2**. Climate extremes (specify type) **3**. Windthrow
2. Cutting and soil disturbances:	**1**. Abandoned construction sites (road-bed, railway, etc.) **2**. Clearcut logging (no slash burn unless indicated) **3**. Cultivation (continued disturbance of the vegetation and/or the soil, excluding harvesting of native crop) **4**. Excavation **5**. Harvesting of native crop (haying, berry picking, etc.) **6**. Land clearing (includes grubbing and/or other forms of disturbance of the natural soil as for pipeline construction etc. **7**. Scarification **8**. Selective logging (including shelter cut) **9**. Soil compaction (including effects from foot traffic, machinery traffic and animal traffic)
3. Dumping, disposal and spills	**1**. Chemical spill or disposal (specify type) **2**. Effluent disposal **3**. Mine spoils **4**. Oil spill or disposal **5.** Radioactive waste disposal or exposure
4. Fires:	**1**. Intensive fires (consuming trees and larger shrubs) **2**. Light fire (primarily ground fire) **3**. Repeated intensive fire **4**. Repeated light fire **5**. Slash burn (following logging)
5. Plant and animal-related effects:	**1**. Beaver tree cutting **2**. Disease (excluding insects: specify type) **3**. Domestic grazing/browsing (specify animal) **4**. Excrement accumulation (other than that normally associated with grazing or browsing) **5**. Insect kill (specify insect) **6**. Succession (generation of vegetation including climax stands) **7**. Wildlife grazing/browsing (specify animals)
6. Terrain-related effects:	**1**. Avalanching **2**. Eolian (active deflation or deposition) **3**. Recent deglaciation **4**. Rock quarrying (including open mine pits) **5**. Terrain failures (active or recent slumps, slides, solifluction. etc.) **6**. Volcanic activity
7. Vegetation and site improvement-related effects	**1**. Fertilization (specify fertilizer) **2**. Irrigation **3**. Planted trees or shrubs **4**. Seeded or planted to grass or herbs **5.** Seeded to trees or shrubs
8. Water-related effects:	**1**. Inundation (including temporary inundation resulting from beaver activity) **2**. Temporary seepage (usually man-induced seepage; this excludes intermittent seepage resulting from climate patterns. **3**. Water table control (diking, damming) **4**. Water table depression (associated with extensive water extraction from wells.

4.7   Forage Production

Table 8. Attributes for the Forage Production Report from ECOSYS

Field Name	Column
Program Description	CODE where Event Type is Ecological Assessment
Study Area Code	ECOLOGICAL_ASSESSMENT_STUDY_AREA _CODE
Study Area Description	NAME
PLOT_NUMBER	PLOT_NUMBER
Field_PLOT_NUMBER	OTHER_PLOT_NUMBER
Original Other Plot Number	ORIGINAL_OTHER_PLOT_NUMBER
Assessment Date	ASSESSMENT_DATE
FORM 1-9 TYPE	FORM_TYPE_NAME (TR=Tree, GTR=Good/Fair Tree, GSH=Good/Fair Shrub, GFO=Good/Fair Forb, SH=Shrub, FO=Forb, GR=Graminoid, PTR=Poor Tree, U=Unspecified, PSH=Poor Shrub, PFO=Poor Forb, LIT=Litter)
FORM 1-9 MEAN QUANTITY	FORM_TYPE_MEAN_QUANTITY (g/m^2)

5.0 Literature Cited

Ecological Land Survey Site Description Manual (2ed). 2003. Resource Data Branch, Strategic Corporate Services Division, Alberta Sustainable Resource Development. Edmonton, Alberta. 112pp.