Guide to

ECOLOGICAL SITES OF THE LOWER FOOTHILLS SUBREGION

Alberta Government

ECOLOGICAL SITES OF THE LOWER FOOTHILLS SUBREGION

Second approximation

This publication is a revision of the guides to Ecological sites of West-central and Southwestern Alberta (1996) for the Lower Foothills subregion

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Please note: Marsh reedgrass and Bluejoint (Calamagrostis canadensis) are used interchangeably throughout the guide

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Executive Summary

The Lower Foothills subregion is a classic example of multiple use land. The land provides summer range for livestock, primary habitat for wildlife, productive watersheds, timber and recreational areas. Guides like this are developed for each Natural Region and Subregion in the province to provide a framework that will easily group the vegetative community types. It is hoped that these guides will be used by field staff to assess the ecology of the sites and develop management prescriptions.

This guide represents the analysis of 1950 plots described in the Lower Foothills subregion. The 1950 plots represent 115 community types. These community types were described in 15 ecological sites. The various community types fit within these broad categories of disturbed and undisturbed forested and non-forested community types:

a: Tame pasture plant community types
b: Native Grassland community types
c: Native Shrubland community types
d: Grazing modified Native Grassland and Shrubland community types (see range plant community guide)
e: Aspen forest dominated community types
f: Balsam poplar - Aspen forest dominated community types
g: Grazing modified deciduous forest dominated community types (see range plant community guide)
h: Mixedwood dominated forest community types
i: Grazing modified Mixedwood dominated forest community type (see range plant community guide)
j: Conifer dominated forest community types
k: Grazing modified Conifer dominated forest community types (see range plant community guide)
l: Harvesting/Burn modified forest community types (see range plant community guide)
m:Grazing modified Harvesting/Burn forest dominated community types (see range plant community guide)

The dominant plant species, canopy cover and environmental conditions are outlined for each type.

Acknowledgements

Landscape classification is the process of breaking the landscape into definable and manageable pieces through a hierarchical classification. In the early 1990's the forested landscape of Alberta was classified using a well organized hierarchical system (Archibald/Beckingham/Klappstein/Corns). Unfortunately this left about 50% of the remaining natural landscapes of the province unclassified. Starting in the late 1990's rangelands undertook efforts to classify the rangelands of Alberta. A need for consistency across the province was recognized. Therefore a hierarchical classification that built on the forested classification was used for all forest dominated subregions in the province.

In January, 1999 the Rangeland Health Assessment Project was initiated. Its purpose was to coordinate the development of rangeland health assessment methods and ecological site descriptions for both forested and grassland dominated rangelands in the province and transfer the new technology (awareness, information and tools) to livestock producers, staff and other stake holders. At this time a website (ESD) was also developed to store the rangeland ecological data, but there was insufficient funds to develop hard copy reports from the website. In 2005 funding was provided by Prairie Farm Rehabilitation Administration (PFRA) of Agriculture and Agri-Food Canada through the technical assistance objective of the Green Cover program and hard copy pdf documents were made available from the old ESD website. In 2010 funding was provided by Policy and Planning Division, Alberta Environment and Parks to upgrade the ESD website to ECOSYS in order to produce hard copy pdf documents from the new website (https://securexnet.env.gov.ab.ca/EcoSysExternal/).

We would like to acknowledge the work done by Bill Thompson and Paul Hansen who completed the Classification and Management of Riparian and Wetland Sites of Alberta's Grassland Natural Region. All plots done in the Lower Foothills subregion for this riparian classification were included in this guide. We would also like to acknowledge the work of Harry Archibald, Grant Klappstein, John Beckingham and Ian Corns who developed the initial classification of ecological sites and plant communities in both the Southwestern and West-Central ecosite guides. Annually the Rocky Mountain Forest Range Association funds the collection of allotment range inventories in the Rocky Mountains Forest Reserve. We would like to acknowledge the data contributed by the association that supports plant community classification.

This document "Ecological Sites of the Lower Foothills subregion of Alberta" also includes work done on Range Plant Community guides. The 4th approximation range plant community guide (Lawrence et al. 2000) has added a range of ecologically sustainable stocking rates that cover the productivity variation within a plant community and takes into account the ecological status of a plant community compared to its reference plant community. One major outcome of the project will be to produce ecological base information which will be used to develop management tools for northern livestock producers, resource managers and other stakeholders of Alberta's forest. This new knowledge will aide in the sustainable grazing of forested plant communities, and maintain the good health and proper functioning of these ecosystems. This information is available in an accompanying range plant community guide for the Lower Foothills subregion.

Introduction and Background

The province of Alberta is covered by a broad spectrum of vegetation regions from prairie in the South, to alpine vegetation in the mountains and dense forests in the Central and Northern parts of the province. These broad vegetation regions have been classified into 6 natural regions and 21 subregions (Natural Regions and Subregions of Alberta 2006). Each of the regions consists of groups of plant communities which are influenced by environmental conditions and human impacts. Intensive management of these regions requires the ability to recognize the vegetative communities that have similar productivities and respond to disturbance in the same way. These vegetative communities are highly regarded by most resource managers for their ability to provide a wide variety of benefits. They are a classic example of multiple use land, providing summer range for livestock, prime habitat for many species of wildlife, productive watersheds and recreational areas.

The purpose of this guide was to develop a framework that would easily group the ecological sites and vegetative community types in the Lower Foothills Natural Subregion of the province. Ecological site classification helps to organize our current understanding about ecosystem function. This organization is achieved by grouping research plots into similar and functional units that respond to disturbance in a similar and predictable manner.

The ecological site classification system outlined in this document organizes ecological information into a format that facilitates understanding and provides a structure for ecologically based management. The system has been developed primarily as a field tool to complement the user's knowledge about ecological site classification, soil description, and plant identification. The objectives of the ecological site classification are:

1. to facilitate the application of ecological information to decisions on a wide variety of activities within the realm of land resource management
2. to facilitate the collection and organization of information to expedite the development of resource management applications and decision support systems
3. to promote communication among resource managers and between managers and the public
4. to provide a common basis for integrated planning, and
5. to reduce resource management costs by integrating ecological information into the decision-making process.

This guide builds on the work outlined in the Field guide to Ecosites of West-Central Alberta (Beckingham et al. 1996) and the Field guide to Ecosites of Southwestern Alberta (Archibald et al. 1996) for the Lower Foothills ecological area. It also builds on work done by Lawrence et al. (2005) for the rangeland plant community guide for the Lower Foothills subregion. This guide outlines the analysis of 1950 plots described in the Lower Foothills subregion. In 2006 (Natural Regions and Subregions of Alberta 2006) the original Lower Foothills subregion in the Chinchaga area of the province was split into the Lower Boreal Highlands and the Lower Foothills area southwest of Calgary was split into the Montane and Foothills Parkland subregion. This reduced the area of the original Lower Foothills subregion and it was felt that one guide would now adequately cover the ecology of the whole subregion. As a result the original plots described in the Southwestern and West-Central ecosite guides and the range plant community guide were combined into this one subregion guide.

Physiography, Climate and Soils

Please note this summary of Natural Subregion characteristics is extracted directly from the Natural Subregions guide (Natural Regions Committee 2006) and is presented here for the reader's convenience.

The Lower Foothills Natural Subregion occupies a broad northwest-to-southeast belt between the Bow River Valley to the south and Grande Prairie to the north, with outliers in the Swan Hills and Pelican Mountains to the east, and the Saddle Hills to the north. It occurs at lower elevations in the Region, ranging from about 700-800 m in the north and east along its boundary with the Dry and Central Mixedwood Natural Subregions, to over 1500 m in the south and west along its boundary with the Upper Foothills Natural Subregion. Its upper boundary with the Upper Foothills Natural Subregion decreases with latitude at a rate of about 1.2 m per kilometer northward; its lower boundary with the Central and Dry Mixedwood Natural Subregions decreases with latitude at a rate of about 1 m per kilometer northward. Lower Foothills climate, soils and vegetation patterns indicate a transition between cold, dry continental climates and milder, moister Cordilleran climates. Continental influences are more pronounced in the Lower Foothills than in the Upper Foothills. This is most clearly reflected by a decrease in both annual and winter precipitation and an increase in growing degree-days. The Lower Foothills Natural Subregion occurs mainly at the westernmost extent of the Interior Plains, and rolling and undulating till-covered landscapes are typical.

Monthly temperature and precipitation patterns are shown in Figure 4-2.1, and Table 3-2 summarizes annual and seasonal climate statistics. Precipitation is higher than in adjacent Natural Subregions to the east and north. The available moisture is sufficient to support the growth of lodgepole pine as pure stands and as components of mixedwood stands; however, the growing season is shorter with fewer growing degree-days, and its length is more variable. This restricts the suitability of the Natural Subregion for producing agricultural crops, but forest productivity tends to be high compared to other forested Natural Subregions. Excess moisture in low-lying areas combined with nutrient-rich groundwater can support very productive and species-rich forests. The Lower Foothills Natural Subregion has a longer growing season than the higher elevation Upper Foothills Natural Subregion, but less winter precipitation. At its northern limits, it differs from the Lower Boreal Highlands Natural Subregion by more frequent and pronounced warm, dry westerly flows in winter and less variation between summer and winter temperature.

Lower Foothills Natural Subregion landscapes are defined by undulating to strongly rolling dissected plateaus at the western edge of the Interior Plains with some inclusions of the undulating Alberta Plains. Sandstones and siltstones of Tertiary origin underlie the southern two thirds of the area, and Upper Cretaceous sandstones and shales underlie the northern portion. Surficial materials are dominated by medium textured, weakly to moderately calcareous glacial till deposits that are often quite thin on the steeply sloping lands, and may be somewhat stony near the higher elevation plateaus capped with Tertiary gravels. Bedrock exposures can occur in the steep landscapes. There are significant inclusions of glaciofluvial sands and minor amounts of glaciolacustrine clays, mainly in the lower elevation plains.

Orthic Gray Luvisolic soils dominate on the medium and fine textured materials of the uplands. They are accompanied by Brunisolic subgroups, particularly at higher elevations. Brunisolic Gray Luvisols and Dystric Brunisols are typical of sandy terrain, and Eutric Brunisols and Regosols are often associated with calcareous, recently deposited aeolian and fluvial materials. Most upland soils in these materials are well to imperfectly drained, but there may be imperfectly to poorly drained Gleysolic soils and seepage in lower slope positions. The wetland organic deposits associated with poor to rich fens are mainly Mesisols, and include an approximately equal representation of Typic and Terric subgroups. Some Fibric Mesisols are associated with relatively uncommon bog vegetation. Orthic and Peaty Gleysols often occur adjacent to wetlands and are more common in the gently undulating areas.

Approach and Methods of Classification

Approach:

Ecological classification hierarchy and terminology

The system of classification in this guide was initially based on the community type approach of Mueggler (1988). Mueggler's system was chosen over the habitat type approach (Daubenmire 1952) or ecosystem association approach (Corns and Annas 1986) because it could classify plant communities regardless of their successional status. However, as the philosophy of proper functioning condition of a site evolved, it became apparent (through data analysis) that there was a need to also organize the various plant communities based on their response to disturbance (i.e. disturbance vs. natural succession) within an area under similar environmental influences.

It was determined that the ecosystem classification system developed by Corns and Annas (1986) and Beckingham et al. (1996) could accommodate this additional requirement. Thus, this classification system is a combination of Mueggler (1988) and Beckingham et al. (1996). Consequently, this guide adopts a similar ecological unit classification hierarchy (ecodistrict, ecosection, ecological site, ecological site phase, plant community). The ecological classification system is nested within Alberta's geographically based natural region and subregion classification system (Natural Regions Committee 2006).

Ecodistrict

The ecodistrict level is a unique pattern of slope, landform, soils and vegetation. Mapping of this unit is usually done at a scale of 1:1,000,000 to 1: 250,000 within the whole province (Strong and Anderson 1980). This level of the classification hierarchy is spatially defined and may or may not be unique to a subregion.

Ecosection

The natural subregion used by the Alberta Government is equivalent to the ecoregion defined by the Canada Committee on Ecological Land Classification (CCELC) as part of a multi-level national mapping system for Canada and that was used for integrated resource planning in Alberta (Marshall et al. 1996). Similarly, the ecodistrict as presently used and its associated scale of mapping is equivalent to the ecodistrict defined by the CCELC. However, the ecosection has a somewhat different meaning in the current context than it did in the national system or than it did when it was applied to integrated planning maps in Alberta in the 1980's and 1990's. For those mapping projects, the ecosection was a subdivision of the ecodistrict and was mapped at 1:20 000 to 1:50 000 as a more specific delineation of recurring landform and vegetation patterns, usually with reference to major community type groups or soil subgroups. In the current scheme, the ecosection is a term used to define one ecodistrict or an aggregation of ecodistricts that represent one or more climatic variants within a natural subregion; therefore, its mapping scale is flexible. This level of the classification system is not spatially defined. The ecosection is a unique pattern of slope, landform, soils and vegetation and may also represent a slight change in the climate of a subregion. Mapping of this unit is usually done at a scale of 1:1,000,000 to 1:100,000 and can be a grouping of ecodistricts or at smaller scales outliers in a subregion. For example the Lower Boreal Highlands subregion is split into the foothills and boreal ecosections which are influenced by their proximity and location within the Boreal and Foothills Natural Regions. Spatially these two ecosections are split by grouping ecodistricts. In contrast an example of a smaller scale ecosection (1:100,000) is the Cypress Hills outlier of the Montane subregion. Subregion ecosections have a characteristic sequence of ecological sites according to soil moisture regime (SMR) and, to a lesser degree, soil nutrient regime (SNR). Currently there is no ecosection described for this subregion.

Ecological Site

Ecological sites are ecological units that develop under similar environmental influences (climate, moisture, nutrient regime). They are groups of one or more ecological site phases that occur within the same portion of

the edatope (moisture/nutrient grid). Each ecological site is designated with a small letter. These letters range from "a" the driest ecological site and the last letter being the wettest. Each ecological site has been given a name that conveys some information about the ecology of the unit. Ecological sites are typically named after plant species that are common or typical of the site (eg. e low-bush cranberry). The plant that the ecological site is named after, however, may not be present in every plot or stand belonging to the site. Ecological site in this classification system is a functional unit defined by moisture and nutrients. It is based on the combined interaction of biophysical factors which together dictate the availability of moisture and nutrients for plant growth. Thus, different ecological sites vary in their moisture and nutrient regime and have similar characteristic plants and soils.

Ecological site phase

An ecological site phase is a subdivision of the ecological site based on the dominant species in the canopy. On lowland, meadow or grassland sites where tree canopy is not present the tallest structural vegetation layer with greater than 5% cover determines the ecological site phase. Generally, ecological site phases are mappable units and spatial ecological site phase land cover datasets have been developed from AVI (Alberta Vegetation Inventory) DEP (Derived Ecosite Phase) and PLVI (Primary Land Vegetation Inventory). Ecological site phases are identified by the ecological site letter "a" along with a number "a1" representing the phase within the ecological site. Ecological site phases have a distinct range in canopy composition, lower strata plant species and pedogenic processes. The ecological site phase has a strong ecological basis and correlates well with forest cover on forest inventory maps.

Plant community type

Ecological site phases may be subdivided into plant community types, which are the lowest taxonomic unit in the classification system. While plant community types of the same ecological site phase share vegetational similarities they differ in their understory species composition and abundance. Generally the plant community types are named by combining the name of the dominant plant species in each structural layer (eg. White spruce/Horsetail/Moss)

Methods:

Plant community classification

Data used to create this guide were collected from field plots within the Lower Foothills subregion. One thousand, nine hundred and fifty plots were used to create the classification for this subregion. Field inventory for these plots generally followed the Ecological Land Survey Site Description Manual (2003) and uses various site, vegetation and soils forms. Plot data was analyzed using the multivariate analysis techniques of classification and ordination. Classification is the assignment of plots to classes or groups based on the similarity of species within each plot. A polythetic agglomerative approach was used to group the samples. This technique assigns each plot to a cluster which has a single measure. It then agglomerates these clusters into a hierarchy of larger and larger clusters until finally a single cluster contains all the plots (Gauch 1982). The cluster analysis was performed in SAS with Euclidean distance used as the Cluster Distance Measure and Ward's method was used in the Group Linkage Method. The groupings generated in cluster analysis were overlain on the site ordination to determine final groupings.

Ordination was used to find relationships among species, communities and environmental variables. Ordination reduces the dimensionality of the data to 1-3 most important axes to which environmental gradients can be assigned. The ordination technique used in the analysis of the data was DECORANA (Detrended Correspondence Analysis). Once final groupings were determined on the ordination specific environmental variables can be assigned to the variation outlined on the ordination axes.

Plant community summaries were generated by averaging plant species composition, range in composition, and percent constancy of occurrence, among vegetation inventory plots which were part of a community type. Environmental data was sorted into the same plant community groupings to create the plant community descriptions outlined in this guide. The number of vegetation sample plots on which the description was based

is also provided (e.g. n=16).

Ecological Health and Ecological Status Score

Ecological health is determined by comparing the functioning of ecological processes on an area (e.g. plant community polygon) to a standard (i.e. Reference Plant Community) described within an ecological site description. An ecological site is defined by the Task Group on Unity and Concepts (1995) 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”. This guide can be used to determine the appropriate reference plant community, within an ecological site, for a health assessment. We use health terminology (healthy, healthy with problems, or unhealthy) to rank the ability of the land to perform certain ecological functions. These functions include: net primary production, maintenance of soil/site stability, capture and beneficial release of water, nutrient and energy cycling and plant species functional diversity. For a detailed description on how to assess health for various plant communities please refer to “Rangeland Health Assessment for Grassland, Forest and Tame Pasture” (Adams et al. 2016).

An ecological status score (i.e. the integrity of the plant community composition compared to the reference plant community) has been added to each community type description. These values are based on what is currently known about how a reference plant community (RPC) responds to various kinds and levels of disturbance or successional processes. The values indicate how a particular plant community fits in the state and transition model relative to the RPC. If an experienced observer wishes to estimate the health of a plant community without completing a health form, (e.g. a small riparian area), these values can be used as a guide. Occasionally there are 2 options provided for the ecological status score. This was done for two reasons: 1) to express the range of divergence from the RPC possible for a particular plant community; or 2) to allow for different health forms to be used in communities with variable shrub or tree cover (e.g. on sites with high woody cover and/or an obvious LFH layer use the forest rangeland health form and the corresponding ecological status score; on sites dominated by herbaceous cover and/or an obvious herbaceous litter layer use the native grassland form). Late seral plant communities tend to be superior in the efficient capture of solar energy, in cycling of organic matter and nutrients, in retaining moisture, in supporting wildlife habitat values and in providing the highest potential productivity for the site (Adams et al. 2016). In contrast, early seral disturbed stages represent plant communities with diminished ecological processes, which are less stable and more vulnerable to erosion and invasion by weeds and non-native species. In most cases these late seral plant communities are used as the RPC, but sometimes management goals influence the choice of RPC (e.g. a cut block to be maintained as untimbered rangeland).

Correlation of Soils and Ecological Sites

Please note this summary of Natural Subregion characteristics is largely extracted directly from the Natural Subregions guide (Natural Regions Committee 2006) and is presented here for the reader's convenience.

The Lower Foothills Natural Subregion has the most diverse forests in Alberta in terms of forest types and tree species. Aspen, balsam poplar, white birch, lodgepole pine, black spruce, white spruce, balsam fir and tamarack grow as pure stands or as mixtures on a variety of slopes and aspects; stands with three or four tree species are common. Pure deciduous stands are more common at lower elevations. Shrubby grasslands occur on the driest sites, and poor to rich fens dominated by black spruce, tamarack, shrubs and herbs occur on low, wet sites. The lower boundary of the Lower Foothills Natural Subregion is marked by the occurrence of lodgepole pine stands on sites of average moisture and nutrient status. Lodgepole pine–jack pine hybrids are found in the Central Mixedwood Natural Subregion near the Central Mixedwood–Lower Foothills boundary, and indicate the combined climatic influences of both Subregions. However, they occur generally as single trees or small clumps of trees distributed within predominantly deciduous stands.

The upper boundary of the Lower Foothills Natural Subregion is typically identified by the restriction of pure deciduous stands to mainly southerly and westerly aspects. The diverse array of sites created by changes in latitude, elevation, aspect and parent material creates a correspondingly high diversity in both community types and species composition. In terms of latitudinal variation, the community types presented in two site guides (Beckingham et al. 1996; Archibald et al. 1996) indicate a north-south division within the Lower Foothills. On the driest sites, bearberry, common juniper and hairy wild rye form open communities. Slightly moister sites typically support pure or mixed aspen, lodgepole pine and white spruce stands with an understory of bearberry and hairy wild rye. Mesic sites also support pure or mixed stands of these tree species, but are more species rich. The major species include green alder, low-bush cranberry, prickly rose, wild sarsaparilla, dewberry, fireweed and bluejoint. Nutrient-poor mesic to very moist sites have an overstory of lodgepole pine and black spruce (the latter dominant on wetter areas), and a species-poor understory dominated by feathermosses with variable cover of common Labrador tea, bog cranberry, and common blueberry. Rich, moist sites support diverse, vigorous communities. Bracted honeysuckle, ferns, bluejoint and cow parsnip are common associates under mixed or pure overstories of aspen, balsam poplar, lodgepole pine and white spruce. Devil’s-club is locally common in west-central Alberta.

Several different community types occur on wet, poorly drained areas depending on nutrient conditions. Black and white spruce occur in pure or mixed stands, often with tamarack. Horsetail, common Labrador tea, willows, bog birch, and various mosses occur in the understory. Shrubby or sedge- dominated fens occur in the wettest areas.

Guidelines for Determining Ecological Sites

Alberta currently uses two ecological classification methods to determine ecological sites. In the agricultural settlement area of the Province, resource managers can determine site soil conditions using AGRASID (Agricultural Region of Alberta Soil Inventory Database). In the Rocky Mountain, Foothills and Boreal Natural Regions, the Ecological Landscape Classification approach incorporates both vegetation and site conditions (climate, soils and geology) into a hierarchical ecological unit classification (e.g. subregion, ecodistrict, ecosection, ecological site, ecological site phase, plant community) (Strong and Thompson 1995). Ecological sites are areas of similar climate, moisture and nutrient regimes. The combination of moisture and nutrient regimes can be represented on a two-dimensional grid called the edatope grid. The edatope grid is a two-dimensional table with soil moisture regime increasing from bottom to top along the vertical axis and soil nutrient regime increasing from left to right on the horizontal axis. Soil moisture regime (SMR) is defined as the average amount of soil water available annually for evapotranspiration by vascular plants (Meidinger and Pojar 1991). The SMR uses nine classes to define the available soil moisture, which range from the driest (very xeric) to the wettest (hydric). Soil nutrient regime (SNR) is defined as the amount of essential soil nutrients that are available to vascular plants over a period of several years (Meidinger and Pojar 1991). SNR is broken down into five classes that range from A (very poor) to E (very rich). Generally ecological sites are named from low moisture/low nutrient to high moisture/high nutrient. Ecological sites within a Natural subregion are defined unique combinations of soil moisture and nutrients. These conditions, in addition to climate, terrain, and elevations create conditions favourable to specific suite of plants referred to as Indicator species. For example a site with a subxeric moisture regime and poor nutrient regime site is characterized by the "a" [bearberry (subxeric/poor)] ecological site. A resource manager can review the indicator plant species of the ecological site, plant community types, soils and site conditions to see if the plant community in question fits the general descriptions. The following steps provide a framework for determining ecological sites.

Step 1 Review background information and pre-stratify the area to be classified

Review information about the area of interest to learn what you can about the landscape and ecology. Consult the natural subregions and Derived Ecosite Phase (DEP) or Primary Land Vegetation Inventory (PLVI) maps to ensure you are using the correct subregion guide. DEP and PLVI classification will also give you the common ecological site phase for a particular forest polygon.

Step 2 Carry out a quick reconnaissance of the site to be classified

Take note of the variability and relationship between topography and position on the landscape and the general plant species distribution including trees and understory. Check the DEP and PLVI ecological site phase maps.

Step 3 Choose a location that appears to be representative of the area to be classified

Locate an area for your assessment that appears to be representative of the site to be classified, and is homogeneous in slope, plant cover, and overstory canopy conditions as possible. Avoid locating the sample in areas that have received significant natural or artificial disturbance. Also avoid ecotone areas or relatively small areas that are transitional between homogenous ecological units such as slope breaks.

Step 4 Determine the plant species composition and abundance

Determine the plant species composition and abundance within a 10x10 m plot. Also record any species that appear to be representative of the ecological unit but occur outside the plot within the same slope position and on the same parent materials. Abundance is estimated by determining the amount of ground area that is covered by the plant species when its canopy is projected onto the ground surface (Ecological Land Survey Site Description Manual 2003).

Step 5 Determine the important soil properties

To collect soils data, a soil pit must be dug or augered. In most cases a soil pit 60 cm deep will be adequate. A deeper pit is required when the soil has a coarse to moderately coarse texture. In these cases the pit is dug deeper to see if there are finer-textured layers that are influencing ecological function below the 60 cm of coarse material. A deeper pit is also required when the plant community on the site cannot be explained by the site conditions and soil conditions above 60 cm. The minimum soils data that should be collected within a plot to classify it correctly are organic matter thickness, humus form, Ah horizon thickness, surface texture, effective texture, presence of seepage, depth to mottles, depth to gley, coarse fragment content, parent material/landform and drainage.

Step 6 Determine important site properties

Important site variables that should be collected include topographic position, slope and aspect. Moisture regime and nutrient regime are synthetic variables that are derived from integration of site, soil and vegetation attributes.

Step 7 Determine the natural subregion, ecological site, ecological site phase and plant community type.

There are several ways to determine the ecological site, ecological site phase and plant community type. The first way is to assign an ecological classification to a site is to use the field data collected and go through the various subregion guides to identify the ecological site. You can also use the dichotomous keys to determine ecological site and ecological site phase. Once you find a potentially correct plant community type, check the soil, site and vegetational characteristics of your site to make sure it matches the ecological site, ecological site phase and plant community type on the various fact sheets. To consider all ecological site choices, you must compare the characteristics of your site, with the descriptions on the fact sheets for all ellipses that overlap the moisture and nutrient classes of your site on the edatope grid for the subregion and adjacent subregions within the area (Ecological Land Survey Site Description Manual 2003).

How to use the Guide

Organization of the guide

This guide is an expansion of the Ecosites of West-Central Alberta guide (Beckingham et al. 1996). It contains new information and it is recommended that the reader has access to relevant information from both guides. The community types in this guide are closely related to the ecosites and ecosite phases outlined in Ecosites of West-Central Alberta (Beckingham et al. 1996), and are similarly arranged (e.g. Table 1). Table 1 is a reproduction of Figure 1 in Ecosites of West Central Alberta.

The bulk of this guide is community descriptions which include information on the dominant plant species, canopy cover, and environmental conditions.

Generally ecological units within a subregion are classified by their position on the edatopic grid [a specific combination of soil moisture and soil nutrient regime].

The information in this guide is presented and named by:

1. Subregion/Ecological area = Lower Foothills (LF)
2. Dominant cover type
a. Tame Pastures
b. Native Grasslands
c. Native Shrublands
d. Grazing Modified Grasslands & Shrublands
e. Aspen Communities
f. Aspen - Balsam Poplar Birch Community Types
g. Aspen Grazed Modified Community Types
h. Mixedwood Community Types
i. Mixedwood Grazed Modified Community Types
j. Coniferous Community Types
k. Coniferous Grazed Modified Community Types
l. Forest Cutblock Community Types
m. Grazed Modified Forest Cutblock Community Types
3. Community types are presented and named by:
a. Subregion/Ecological area and dominant cover type [e.g. LFb (native grasslands)].

NOTE: As additional information is collected and new ecological units are identified and described, an attempt is made to fit them into the pre-existing ones. At times the usual conventions of naming and organization have to be compromised to accommodate the new units. Sometimes it was necessary to add an additional letter to an existing name to wedge the new unit into the appropriate place within the pre-existing ones. For example, the extra letter in the new ecological site "ff" and the pre-existing ecological site "f".

How to read the fact sheets

This field guide contains 4 types of fact sheets: One for ecosection, one for ecological site, one for ecological site phase and one for plant community type.

Ecosection

There is an identification code at the top of the ecosection fact sheet and a name followed by the number of sample sites (pg 27). Each ecosection has been given a name that conveys information about the location of the unit and are frequently named after a general location within the subregion (Ecosection: Lower foothills (LF) of the Lower Foothills subregion). A short text description of the site is given under the General Description (pg 27), this is followed by a picture or a cross section diagram and map of the ecosection(pg

27). The section on successional relationships gives a brief note about the spatial locations and differences in ecosections (pg 27). This is followed by a list of envrionmental variables (elevation), ecodistricts and ecological sites associated with the ecosection (pg 27). Currently there are no ecosections for the Lower Foothills subregion.

Ecological site

There is an identification letter at the top of the ecological site fact sheet and a name, moisture and nutrients followed by the number of sample sites (pg 28). Each ecological site has been given a name that conveys information about the ecology of the unit and are frequently named after a common plant species. A short text description of the site is given under the General Description (pg 28), this is followed by a picture or a cross section diagram of the ecological site (pg 28). The section on successional relationships gives a brief note about the temporal development of the ecological site (pg 28). It generally describes the successional relationships among the ecological site phases and plant community types. Plant species that are indicators of the ecological conditions on the site are listed (pg 28). Site index at 50 years of age at breast height (1.3 m) is presented next (Beckingham et al. (1996)). The mean site index is presented in meters followed by the standard error and the number of trees used to calculate the mean (pg 28). Environment and soil variables are then listed and represent a roll-up from the plant community and ecological site phase descriptions (pg 28). Variables that represent environment and soils have a number (1) that indicates the number of the samples in which each variable class occurred. Data has been collected and analyzed from many sources over 40 years and data gaps may exist for many variables. The frequency of occurrence value indicates the number of sampled plots for which data was collected for that variable at the Ecological site, Ecological site phase and plant community fact sheets. Optional variables such as soil exposure, LFH thickness, forage production and stocking rate for livestock may also be listed and represent a roll-up for the plant community and ecological site phase.

Ecological site phase

There is an identification code at the top of the ecological site phase fact sheet and a name followed by the number of sample sites (pg 29). Each ecological site phase has been given a name that conveys information about the dominant tree species or lifeform (shrubland, grassland, tame/disturbance) of the unit and are frequently named after a common plant species. A short text description of the site and successional information maybe given under the General Description or Successional relationships (pg 29) if it is provides more detail than is available on the ecological site fact sheet. Plant species that are indicators of the ecological conditions on the site are listed with the average cover summarized from the various plant communities (pg 29). Indicator species for the ecological site phase are identified with an asterix "*" and are rolled-up to develop the indicator species list for the ecological site fact sheet. Environment and soil variables are then listed and represent a roll-up from the plant community (pg 29). Optional variables such as soil exposure, LFH thickness, forage production and stocking rate for livestock may also be listed and represent a roll-up for the plant communities.

Plant community

There is an identification code at the top of the plant community fact sheet and a name followed by the number of sample sites (pg 30). The name of the plant community is generally the common name of the indicator plant species within the various lifeform layers (tree, shrub, forb, grass, lichen, moss). This is followed by the latin name of each indicator species and a general description of the community type describing its unique ecology. Plant species that are indicators of the ecological conditions on the site are listed with the mean cover summarized, range in cover and overall constancy (frequency of plots that the species was described (pg 30)). Environment and soil variables are then listed and represent a roll-up from the various plots and assessements (pg 30). Optional variables such as soil exposure, LFH thickness, forage production and stocking rate for livestock may also be listed and represent a roll-up for various plots.

Results

This guide represents the analysis of 1950 plots described in the Lower Foothills subregion. The 1950 plots represent 115 community types. These community types were described in 15 ecological sites. The various community types fit within these broad categories of disturbed and undisturbed forested and non-forested community types:

a: Tame pasture plant community types
b: Native Grassland community types
c: Native Shrubland community types
d: Grazing modified Native Grassland and Shrubland community types (see range plant community guide)
e: Aspen forest dominated community types
f: Balsam poplar - Aspen forest dominated community types
g: Grazing modified deciduous forest dominated community types (see range plant community guide)
h: Mixedwood dominated forest community types
i: Grazing modified Mixedwood dominated forest community type (see range plant community guide)
j: Conifer dominated forest community types
k: Grazing modified Conifer dominated forest community types (see range plant community guide)
l: Harvesting/Burn modified forest community types
m:Grazing modified Harvesting/Burn forest dominated community types (see range plant community guide)

The dominant plant species, canopy cover, and environmental conditions are outlined for each type.

General Ecological Descriptions

TAME FORAGE COMMUNITIES (Cleared areas that have been broken and seeded to tame forage)(Plant community code a) (see also Range Plant Community guide)

Throughout the Lower Foothills subregion there are sites that have been deforested, broken, and seeded to tame forage. Usually these areas are mesic and moderately well to well drained with good nutrient levels. Because most of these tame forage stands are established on similar sites, the most influential factors affecting plant species composition are stand establishment and grazing regime.

Stand establishment is important because it determines what the initial plant species composition is going to be. Seed bed preparation and the type of seed sown are the two most important factors influencing stand establishment. Seed bed preparation is important because it helps to determine how well the sown seed germinates and establishes. If the seed bed is not well prepared the tame forage stand may establish poorly and native species can become a dominant component of the plant community. If the seed bed is well prepared, the community type that establishes will depend on the type of seed sown.

After the stand is established, the grazing regime applied to the stand will determine the plant species composition. Generally, a light to moderate amount of grazing allows the stand to maintain itself while sustained heavy grazing causes the stand to degrade. Damage to a stand due to over grazing occurs more readily while the stand is establishing than it does when the stand is established. This is because the forage plants in an establishing stand have not had time to develop energy reserves in their roots, and are therefore, more susceptible to grazing induced damage.

Well distributed light to moderate grazing will normally maintain a forage stand similar to what was seeded on the site. These stands are generally the most productive and provide the best grazing opportunities for livestock. They are normally considered to be healthy. Non-use or very light grazing often results in the stand becoming dominated by the forage species that is most competitive under an ungrazed situation. Plant community changes which occur under heavy grazing are dependent on the grazing history (level of use, season of use and duration of the grazing regime). Overgrazed community types develop over a long period of repeated overgrazing. If weedy species such as tall buttercup, become established on overgrazed sites, they can quickly become a dominant species.

NATIVE SHRUBLANDS AND GRASSLANDS (Plant community codes b and c, grazed code d) (for grazed plant community descriptions see Range Plant Community guide)

Within the Lower foothills subregion, shrublands and native grasslands are associated with lowland, seepage, riparian areas or south and west facing slopes.

The lowland sites which are routinely flooded can be arranged along a moisture gradient. Sites that are flooded for most of the year are dominated by the Wet sedge meadows (LFb8). Areas that are flooded during the spring and have the water table remain near the soil surface for the remainder of the year are invaded by willow and bog birch to form the Willow-Bog Birch/Sedge (LFc10) community type. Drier sites where the water table falls well below the soil surface later in the season are dominated by willow and marsh reedgrass to form the Willow/Marsh Reed Grass (Bluejoint) (LFc6) or the Marsh Reedgrass (Bluejoint) (LFb7) community types. These sites are not readily grazed, but if there are no better grazing opportunities in close proximity these sites may be heavily utilized to form Kentucky bluegrass, timothy, clover and dandelion dominated community types.

Areas that are occasionally flooded and located next to rivers and streams are typically vegetated by Cow parsnip/Veiny Meadow rue (LFb4) on rich sites or Tufted hairgrass-Sedge/Veiny meadow rue (LFb5 and b6) on slightly poorer nutrient sites. In the absence of disturbance these sites can succeed to willow or aspen to form the Willow-Bog birch/Tufted hairgrass (LFc5) shrubland or aspen dominated forest. Prolonged heavy grazing of these community types generally reduces the cover of native grass and forb species and allows Kentucky bluegrass, timothy, clover and dandelion to dominate the site.

There are a number of upland shrub dominated community types that were described in the Lower Foothills subregion. These included Alder/Marsh reedgrass (Bluejoint) (LFc7) and Willow-Alder/Horsetail Fern (LFc9) communities which were found on nutrient rich, seepage areas, with east and northerly aspects. These community types are very productive, but are generally not utilized by livestock because of the thick shrub cover which limits access. On more mesic, south and west facing slopes Hazelnut/Wild sarsaparilla (LFc3) communities were described. These communities are generally of fire origin and will eventually succeed to aspen dominated forest.

There were a number of grassland community types described on steep to level, rapidly drained south facing slopes and rough fescue dominated lower slope positions in transition to the Upper Foothills subregion. These included the Intermediate oatgrass/Bearberry (LFb3), Rough fescue-Hairy wildrye (LFb10) and Bearberry-Juniper/Sedge (LFb1) dominated community types.

DECIDUOUS FOREST COMMUNITIES (Plant community codes e and f, grazing modified g) (for grazed plant community descriptions see Range Plant Community guide)

Aspen (Populus tremuloides Michx.) and balsam poplar (Populus balsamifera L.) make up nearly one-quarter of the 4327 million oven-dry tonnes of forest standing crop in the prairie provinces (Bonnor 1985). Deciduous forest communities are also the dominant productive range community types of the Lower Foothills subregion. Six hundred and thirteen deciduous stands were sampled. These stands fell into three broad groupings, they were the Aspen dominated community types, the Aspen-Balsam Poplar - Paper Birch dominated community types, and the Aspen grazed modified community types. This guide separates these three broad groupings.

Aspen is the most widely distributed native tree species in North America (Jones 1985). Alberta alone has over 6.8 million hectares of pure aspen stands which are affected by the multiple use activities of forestry, oil, gas, domestic grazing, wildlife, watershed and recreational use (Wheeler and Willoughby 1993). Over 60% of the 613 deciduous forest stands sampled were grouped into the Aspen dominated community types. It would appear the majority of pure aspen stands are found on mesic-medium sites with a productive shrub, forb and grass layer. These community types are generally primary to secondary range on most grazing dispositions within the Lower Foothills.

Balsam poplar and paper birch and are found on moister sites than most Aspen dominated community types. Balsam poplar grows best on moist, nutrient-rich, imperfectly-drained, on low-lying ground and paper birch is well adapted to growing on mesic-loamy soils, medium shade tolerance, and is fairly tolerant of nutrient deficits (La Roi 1991). Beckingham (1993) also found that paper birch may prefer to grow on soils with a lower pH (<5.3).

Aspen grazing modified community types represent Aspen community types that have undergone moderate to heavy historic grazing regimes. Overall, as grazing pressure increases the canopy cover in the shrub and forb layer declines and there is an increase in low forbs. When grazing pressure becomes severe, native plant species are replaced by non-native invaders (Willoughby 1995).

Ecology of the Aspen Dominated Community Types

Over 60% of the 613 deciduous forest stands sampled in the Lower Foothills subregion were classified into Aspen community types. Within the Lower Foothills aspen ranges from submesic to hydric moisture regimes, with medium to rich nutrient regimes (Beckingham et al 1996). However the modal site conditions are well-drained, mesic-medium dominated by Aw/Rose - Low-bush Cranberry/Tall Forb (LFe7) community type. Prickly rose seems to be a dominant, co-dominant, or subdominant shrub in most aspen stands sampled within this guide. It is believed that prickly rose is an extremely adapted species with a diverse rooting medium that can occupy and array of site and disturbance conditions.

Other shrub and forb species are indicative of specific site conditions along slope gradients. The blueberry and bearberry dominated community types are indicative of dry, well drained sites, on sandy and coarse textured soils. The rose-twin-flower (low forb) (LFe8) type appears to be slightly drier with poorer nutrients than the

rose-tall forb dominated type, but the dominance of low forbs over tall forbs may also indicate increased grazing pressure. The Aw/buffaloberry (LFe2) type has a similar moisture regime to the Aw/rose types, but appears to be found on sites with poorer nutrient regimes with a lower pH (Beckingham 1993). Aw/hazelnut (LFe11), and Aw/saskatoon (LFe4) appear on similar mesic topographic positions but are affected by specific site conditions (seepage during the growing season).

Further down slope are community types associated with moderately well drained moist-rich adapted species. The Aw/alder (LFe5) dominated types are found on moister sites, although it can be found on upland sites where there is an impermeable soil layer which entraps soil moisture e.g. Aw/alder/hairy wild rye (LFe6). Aw/bracted honeysuckle (LFe12) are also associated with mid to lower sloped subhygric-rich sites and is often associated with balsam poplar. The oak fern (LFe12) and horsetail (LFf7) types are found on moist, nutrient rich sites and seepage areas. The snowberry type (LFe9) is found on well drained sites overlooking rivers and streams. Thimbleberry (LFe13) is commonly found within the Montane Subregion but has been found on nutrient rich seepage areas along river flats. Aw/willow (LFe15) is found on low-lying subhygric to hygric-rich sites in close association with other indicator shrubs such as honeysuckle and dogwood.

Ecology of Aspen - Balsam Poplar - Paper Birch Dominated Community Types

In the Lower Foothills subregion deciduous forest stands on moist-nutrient rich sites are often codominated by aspen, balsam poplar and to some extent paper birch. Balsam poplar grows best on moist, nutrient-rich, imperfectly-drained, on low-lying ground and paper birch is well adapted to growing on mesic-loamy soils, medium shade tolerance, and is fairly tolerant of nutrient deficits (La Roi 1991). Beckingham (1993) also found that paper birch may prefer to grow on soils with a lower pH (<5.3). Pure stands of Alaska variety paper birch are also found on dry sandy ridges with imperfect drainage (Wilkinson 1990). Beckingham (1993), found that white birch may prefer to grow on soils with a lower pH (<5.3).

Moist upslope positions Aw-Pb/Red osier dogwood-Honeysuckle/Fern (LFe12) is found with late seral aspen stands. This community type is in close association with Aw-Pb/river alder-green alder/fern (LFf6) which is found on mid to lower slopes with slightly higher moisture-nutrient regimes. The bracted honeysuckle, cow parsnip, devil's-club, green alder, oak fern are associated with mid to lower slopes, moderately moist, nutrient rich sites created from seepage waters (Beckingham et al 1996).

Ecology of the Aspen Grazing Modified Community Types (*for grazed plant community descriptions see Range Plant Community guide)*

The Aspen/Rose-Low-bush Cranberry/Tall Forb (LFe7) plant community type is the primary foraging area on undisturbed forest, mesic/medium sites within the Lower Foothills subregion. With moderate to heavy grazing regimes the canopy cover in the shrub and forb layer declines and there is an increase in low forbs; strawberry (Fragaria virginiana), bunchberry (Cornus canadensis), common pink wintergreen (Pyrola asarifolia), and clover (Trifolium spp.) (Willoughby 1995). This disturbance regime has created two unique community types based on grazing succession. With prolonged moderate grazing regimes Aw/Rose/Strawberry (LFg2) establishes and under heavier grazing regimes Aw/Rose/Clover (LFg3) is the predominant community type. On slightly drier sites Aw/Rose/Hairy Wild Rye/Clover (LFg1) predominates under moderate to heavy grazing regimes. With moderate to heavy grazing native shrub and forb richness, diversity, and forage production declines (898, 720, 480 kg/ha respectively), and as a result suggested grazing levels are reduced compared to the modal undisturbed community type (Aw/Rose-Low-bush Cranberry/Tall Forb at 957 kg/ha), However, It is presently unclear whether this community type can revert back to its modal undisturbed condition by restricting grazing. Monitoring an Aw/Rose/Clover, restricted from grazing, over the past 10 years has not changed its species composition.

When grazing pressure becomes severe, native plant species decline in cover and are replaced by Kentucky bluegrass (Poa pratensis), dandelion (Taraxacum officinale) and clover (Trifolium spp.) to form the Aw/Kentucky Bluegrass/Clover (LFg4) community type. However, it is believed that Kentucky bluegrass is also an indicator of a slightly higher moisture/nutrient regime and as a result has a higher forage production (1178 kg/ha). To compensate for the loss of native species diversity it is recommended that grazing levels reflect a more conservative estimate; thereby the ecosite phase e2_low-bush cranberry Aw forage production summary

is used when calculating carrying capacity of these overgrazed community types.

MIXEDWOOD FORESTS

The mixedwood forest community types within the Lower Foothills subregion occur as either a mixture of white spruce or lodgepole pine and deciduous (usually aspen) trees. The sites where the different mixedwood community types occur are determined by moisture and soil nutrient regime. The white spruce-deciduous community types usually occur on finer textured soils that have good soil drainage, while the lodgepole pine-deciduous community types usually occur on coarser textured soils with poorer nutrients.

The white spruce-deciduous community type that occurs most often (the reference plant community) throughout the Lower Foothills subregion on ungrazed sites is the Aspen-White Spruce/Rose/Forb (LFh9) community type described as Aw-Sw-Pl/prickly rose or Aw-Sw-Pl/low-bush cranberry by Beckingham et al (1996). Heavy grazing of this community type can cause a decline in tall forbs, eg. fireweed, wild sarsaparilla, cream-colored vetchling creating a new community type dominated by low-growing forbs Aspen/Rose/Clover (LFg3). Sites that are drier (either because of rapid drainage or exposure) than the reference white spruce-deciduous type support Aw-Sw/Buffalo-berry (LFh5) or Pb-Sw/Chokecherry/Bearberry (fluvial) (LFh1)community types. While sites that are wetter than the modal community type support Aspen-Balsam Poplar-White spruce/Alder (LFh4), and Aspen-White Spruce-Balsam Poplar/Bracted honeysuckle (LFh12) community types. As white spruce begins to dominate the overstory and exert more shading influences on the understory vegetation a later seral White Spruce-Aspen/Low Forb (LFh7) community type will predominate and continue to develop to a climax White Spruce (Balsam Fir)/Feathermoss (LFj12) community type on most of the sites described above.

The lodgepole pine-deciduous community types seem to occur along a gradient of soil moisture and nutrient regime. The Lodgepole Pine-White Spruce-Aspen/Labrador tea/Feathermoss (LFh15) community type seems to occur under the poorest soil nutrient conditions (mesic/poor). The higher cover of Labrador tea may indicate slightly more acidic soils (Beckingham et al 1996). Under slightly drier soil moisture and higher soil nutrient conditions Logdepole Pine-Aspen/Buffalo-berry and Lodgepole Pine-White Spruce-Aspen/Rose/Hairy Wild Rye are apparent on the lower scale of a mesic(or submesic)/medium grid. The Lodgepole Pine-Aspen/Forb/Marsh Reedgrass community type occupies sites on typical mesic moisture and medium nutrient regimes. These better growth conditions result in a better developed understory and higher forage productivity. The Logdepole pine-Aspen/Alder (LFh6) dominated community type are also found on mesic/medium sites. However, the presence of alder may indicate higher elevation sites in the upland ecodistricts or an impermeable soil layer that permits higher soil moisture availability. Upland seepage areas may also consist of Aspen-Lodgepole Pine-White Spruce/Snowberry (LFh11) community types.

CONIFEROUS FORESTS

Throughout the Lower Foothills subregion coniferous forest occurs either on lowland sites that have a high water table or on well drained, upland sites. The coniferous forests described here span 8 ecosites as described by Beckingham et al (1996) from submesic/medium to subhydric/rich. On sites with submesic moisture and medium nutrient regimes, the dry conditions are a result of either coarse-textured, rapidly-drained soils, or southerly aspects. Species indicating dry sites such as bearberry, bog cranberry and lichens are common (Pl/Bearberry/Hairy wild rye (LFj1)). Shrub layers are generally poorly developed and succession to spruce is very slow due to the dry site conditions.

On the mesic/poor to mesic/medium sites, the understory shrub and forb layers become slightly more developed and white spruce becomes more prevalent in the overstory (Pl/fireweed; Pl/green alder). Labrador tea and bog cranberry (LFj4 Pl-Sb/labrador tea/feathermoss to LFj30 Pl/labrador tea-bearberry) are indicative of relatively acidic surface soil conditions and thereby are lower in available soil nutrients (Beckingham et al. 1996). These community types generally have limited potential for livestock grazing.

The modal ecosite for the Lower Foothills subregion is the mesic/medium low-bush cranberry ecosite. Aspen and lodgepole pine stands are prevalent in the area due to high fire frequency. Young stands of aspen and lodgepole pine generally have a higher grass and shrub layer and thus can provide some forage for domestic

livestock Pl/green alder (LFj8). After canopy closure, shrub species become more prevalent than grass and forbs (Pl-Sw/Twinflower/Moss (LFj9); Sw/Buffaloberry (LFj3)). In older stands, moss becomes more dominant as light levels decrease and forbs and shrubs are shaded out (Sw/Moss (LFj12)).

As moisture and nutrients increase, such as on seepage areas, the understory becomes especially well-developed (Sw/Alder (LFj15); Sw/willow-bracted honeysuckle (LFj14)). Often a dense shrub understory will inhibit access for cattle (thus making some of these areas non-use despite an abundance of forage) as well as inhibit regrowth of spruce seedlings after disturbance such as fire and logging (Archibald et al 1996). Engelmann spruce is generally not found in the Lower Foothills subregion, thus its presence here may indicate a transition to the higher elevation Upper Foothills subregion.

Black spruce and larch communities dominate on wetter, lowland sites with subhygric to subhydric moisture regimes and poor to rich nutrient regimes. Generally, larch is more tolerant of excessive moisture and is indicative of an enriched nutrient status, while black spruce is typical in areas of stagnating ground water with poor nutrient status (Hay et al 1985). These community types have very limited potential for livestock grazing.

CUTBLOCKS (for harvested plant community descriptions see Range Plant Community guide)

Forest harvesting affects the understory community through removal of the tree overstory as well as root destruction, soil compaction, scarification, forest floor displacement, and understory destruction. These mechanical disturbances can alter the energy flows between soil and plants which can alter the tree regeneration, species diversity and production. Logging will often increase understory production by reduced competition of understory species for light and nutrients. This increase in production is not included in the calculation of the overall carrying capacity of the disposition because these increases are only temporary. To determine the rates (ha/AUM) for grazing on harvested cutblocks the carrying capacity is based on the undisturbed mature stand (summarized by the ecosite phase). For example, l5 Aw/marsh reed grass/ rose/fireweed has an average production at 2-8 years following harvesting of 2154 kg/ha; however to ensure sustainable timber and forage production the livestock stocking is measured from e2 ecosite phase production of 917 kg/ha or 2.0 ha/AUM.

Although cutblocks can be productive primary range for both livestock and wildlife, careful management of these areas is required to ensure that forest regeneration is successful. It is undeniable that both livestock and wildlife can cause damage to regenerating forests and in extreme situations can threaten regeneration. However, with good range management cutblocks can be grazed without seriously affecting forest regeneration and in some instances grazing can promote regeneration by removing competing vegetation.

This section describes the types of forested cutblocks found to be common throughout the Lower Foothills Subregion, these community types provide some base-line information to integrate the management of domestic livestock with forest regeneration practices. The community types were numbered sequentially from l1-l17 (Table 1) based on an understanding of how these communities would link into the ecosite classification system identified by The Ecosite Guides of West-Central (Beckingham et. al. 1996) and Southwestern Alberta (Archibald et. al. 1996). This attempts to bridge the gap of understanding between forest and range management practioners by recognizing the values of both forage and fibre production. It is recommended that integrating range and forest resources should occur using the information provided in the ecosite phase summary.

Grazed Modified Forest Cutblocks (for grazed plant community descriptions see Range Plant Community guide)

The effects of domestic livestock grazing on forest cutblocks is varied depending on site and imposed management practices. Generally, imposing a seasonal light grazing regime (< 25% utilization) on cutblock area does not effect deciduous or conifer regeneration. However, when seasonal moderate to heavy grazing regimes (>30% utilization) are imposed livestock foraging and trampling damage has a significant effect on regeneration.

The grazed modified community types described in this section are due to moderate to heavy grazing regimes

imposed over several years and thereby have restricted the regrowth of deciduous and coniferous seedlings. In order to sustain required regeneration standards domestic grazing must be restricted to allow replanted seedlings to establish and dominate the area. If these retreated cutblocks become properly regenerated domestic grazing can again be imposed; however, the stocking (ha/AUM) must be based on a mature forested community, thereby most aspen and conifer communities would have a sustained grazing level of < or = 2.0 ha/AUM.

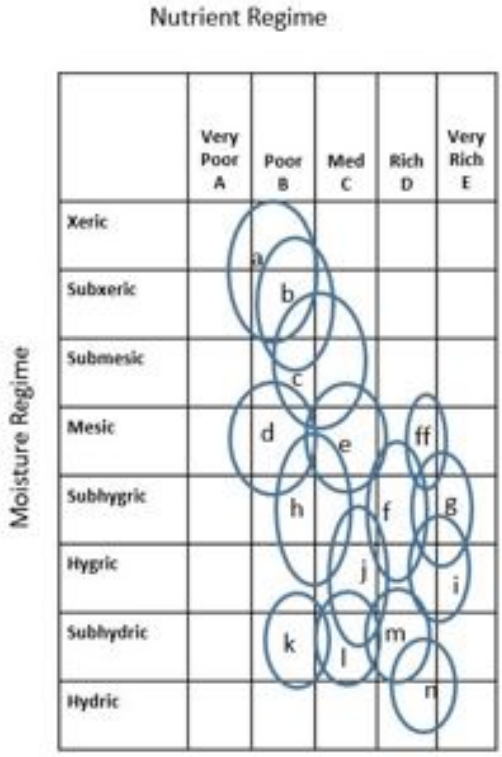
WETLANDS

The Alberta Wetland Classification System (AWCS) (2015) recognizes the hydrological, biogeochemical and biotic processes that affect differing characteristics that can be used to define a wetland. The AWCS recognizes five classes of wetlands in Alberta: bogs, fens, marshes, shallow open water and swamps. Wetlands can be divided into two broad groups: **peatlands** and **mineral wetlands**. In general the AWCS considers bogs and fens to be peatlands and all other wetland classes (i.e. swamps, marshes and shallow open waters) are considered to be mineral wetlands. For the most part the ecological sites align with AWCS five classes of wetlands (Table A), however some willow, bog birch, sedge, marsh reedgrass and tufted hairgrass dominated ecological sites because of their moisture regime and species composition are classified as meadows and fens and have mineral soils but in the AWCS classification these sites are mineral wetlands which are considered marshes or swamps.

Table A. Cross walk of broad AWCS classes to general Ecological site

AWCS	**Ecological Sites**
Bog	Bog
Fen	Poor fen (Organic soils)
Fen	Rich fen (Organic soils)
Marsh	Poor fen, Rich fen (Mineral soils)
Marsh	Meadows
Marsh	Marsh
Swamp	Red osier dogwood, Honeysuckle, Horsetail and wetter Labrador tea, black spruce dominated ecological sites.

There is very little standing water in this dissected landscape, with the man-made Brazeau Reservoir being a notable exception. However, many major rivers including the North Saskatchewan, Macleod, Athabasca, Smoky and Wapiti, run eastward and northward through the Lower Foothills Natural Subregion. Wetlands are not common on the steep valley sides, although seepage is common in places on middle to lower slopes, often on northerly aspects. In the valley bottoms, and particularly on the undulating benchlands and plains, wetlands can cover 15 to 40 percent of the area. Wetlands in this Natural Subregion are characterized by peat accumulations up to 3 m thick. They are dominantly treed fens with some bogs and open fens. Wet mineral soils occasionally occur under the fens.



Ecological sites

a=grassland
xeric/poor
b=bearberry/lichen
subxeric/poor
c=hairy wild rye
submesic/medium
d=Labrador tea-mesic
mesic/poor
e=low-bush cranberry
mesic/medium
f=bracted honeysuckle
subhygric/rich
ff=rough fescue-hairy wildrye
mesic/rich
g=meadow
subhygric/very rich

h=Labrador tea-subhygric
subhygric/poor
i=horsetail
hygric/rich
j=Labrador tea/horsetail
hygric/medium
k=bog
subhydric/very poor
l=poor fen
subhydric/medium
m=rich fen
subhydric/rich
n=marsh
hydric/rich

Figure 1. Edatope and Ecological Sites for the Lower Foothills Subregion.

Plant Community Keys

21. lodgepole pine, black spruce dominated overstory (ecosite phase d1) 22
lodgepole pine dominated overstory little black spruce cover (ecosite phase d2) 23
site dominated by a mixture of deciduous and conifer species (ecosite phase d3) 24

22. Pl-Sb/Labrador tea/Feather moss (LFj4) ..... *p 58*
Pl-Sb/Green alder-Labrador tea/Feather moss (LFj5) ..... *p 59*

23. Pl/Labrador tea-Bog cranberry (LFj6) ..... *p 61*

24. unharvested site 25
harvested site 26

25. Aw-Sw-Pl/Labrador tea/Feather moss (LFh15) ..... *p 63*

26. Dwarf bilberry-Labrador tea/Hairy wild rye (Aw) (LFl2) ..... *(see Range Plant Community guide)*

27. overstory dominated by lodgepole pine (ecosite phase e1) 28
overstory dominated by aspen (ecosite phase e2) 33
overstory dominated by a mixture of deciduous and conifer species (ecosite phase e3) 38
overstory dominated by white spruce (ecosite phase e4) 43
overstory dominated by shrub species rose and hazelnut (ecosite phase e5) 44
seeded well sites, pipelines and pastures generally dominated by creeping red fescue and kentucky bluegrass (ecosite phase e9) 47

28. unharvested site 29
harvested site 32

29. grazed site with Kentucky bluegrass and clover in the understory 30
ungrazed site 31

30. Pl/Kentucky bluegrass/Clover (LFk1) ..... *(see Range Plant Community guide)*.
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harvested sites 37

34. grazed sites with strawberry, clover, dandelion and Kentucky bluegrass in the understory 35
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35. Aspen/Rose/Strawberry (LFg2) ..... *(see Range Plant Community guide)*
Aspen/Rose/Clover (LFg3) ..... *(see Range Plant Community guide)*
Aspen/Kentucky Bluegrass/Clover (LFg4) ..... *(see Range Plant Community guide)*

36. Aw/Beaked hazelnut/Wild sarsparilla (LFe11) ..... *p 69*
Aw/Canada buffaloberry-White meadowsweet (LFe3) ..... *p 70*
Aw/Saskatoon (LFe4) ..... *p 71*
Aw/Green alder (LFe5) ..... *p 72*
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Aw/Rose-Twinflower (LFe8) ..... *p 74*
Aw-Pb/Snowberry (LFe9) ..... *p 75*

37. Beaked hazelnut/Wild sarsaparilla (Aw) (LFl7) ..... *(see Range Plant Community guide)*
Marsh reed grass (Bluejoint)/Clover (Aw) (LFm2) ..... *(see Range Plant Community guide)*
Hairy wildrye-Marsh reedgrass/Saskatoon (LFb9) ..... *(see Range Plant Community guide)*
Rose/Fireweed/Marsh reed grass (Aw) (LFl5) ..... *(see Range Plant Community guide)*
Rose/Strawberry-Clover/Marsh reedgrass (LFm3) ..... *(see Range Plant Community guide)*
Kentucky bluegrass/Clover (LFm4) ..... *(see Range Plant Community guide)*

38. unharvested sites 39
harvested sites 42

39. ungrazed sites 40
grazed sites with clover and dandelion in the understory 41

40. Aw-Sw-Pl/Feather moss (LFh10) ..... *p 77*
Aw-Pl-Sw/Snowberry (LFh11) ..... *p 78*
Aw-Pl-Sw/Canada buffaloberry (LFh5) ..... *p 79*
Aw-Sw-Pl/Green alder (LFh6) ..... *p 80*
Aw-Sw-Pl/Low-bush cranberry-Rose (LFh9) ..... *p 81*

41. Aspen-White spruce/Clover (LFi1) ..... *(see Range Plant Community guide)*

42. Green alder/Fireweed (Pl-Sw) (LFl14) ..... *(see Range Plant Community guide)*
Alder /Clover/Kentucky bluegrass (Aw-Pl) (LFm1) ..... *(see Range Plant Community guide)*

Plant Community Tables

Table 1. Lower Foothills Communities

Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community
a grassland (xeric/poor)	a1 shrubby grassland	LFb1 Bearberry-Juniper/Hairy wildrye
b bearberry/lichen (subxeric/poor)	b1 bearberry Aw-Sw-Pl	LFj1 Pl/Bearberry/Hairy wild rye
		LFj22 Pl/Blueberry/Lichen
c hairy wild rye (submesic/medium)	c1 hairy wild rye Pl	LFj2 Pl/Canada buffaloberry/Hairy wild rye
		LFj23 Pl/Green alder/Hairy wild rye
	c2 hairy wild rye Aw	LFe1 Aw/Blueberry/Hairy wildrye
		LFe2 Aw/Buffaloberry/Hairy wildrye
		LFe6 Aw/Green alder/Hairy wild rye
	c3 hairy wild rye Aw-Sw-Pl	LFh1 Sw-Pb/Choke cherry-Bearberry (fluvial)
		LFh14 Aw-Sw-Pl/Green alder/Hairy wild rye
		LFh2 Aw-Sw-Pl/Canada buffaloberry/Hairy wildrye
	c4 hairy wild rye Sw	LFj29 Sw/Yellow mountain avens (fluvial)
		LFj3 Sw/Canada buffaloberry/Hairy wildrye
	c5 hairy wild rye shrubland	LFc1 Rose-Dwarf bilberry/Feather moss
	c6 intermediate oatgrass grasslands	LFb3 Intermediate oat grass-Sedge/Bearberry
	c7 hairy wild rye tame	LFa7 Hairy wild rye-Slender wheatgrass-Creeping red fescue/Clover
d Labrador tea - mesic (mesic/poor)	d1 Labrador tea-mesic Pl-Sb	LFj4 Pl-Sb/Labrador tea/Feather moss
		LFj5 Pl-Sb/Green alder-Labrador tea/Feather moss
	d2 Labrador tea-mesic Pl	LFj6 Pl/Labrador tea-Bog cranberry
	d3 Labrador tea-mesic Aw-Sw-Pl	LFh15 Aw-Sw-Pl/Labrador tea/Feather moss
e low-bush cranberry (mesic/medium)	e1 low-bush cranberry Pl	LFj8 Pl/Green alder

Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community
		LFj9 Pl/Low-bush cranberry/Feather moss
	e2 low-bush cranberry Aw	LFe11 Aw/Beaked hazelnut/Wild sarsparilla
		LFe3 Aw/Canada buffaloberry-White meadowsweet
		LFe4 Aw/Saskatoon
		LFe5 Aw/Green alder
		LFe7 Aw/Rose-Low bush cranberry/Tall forbs
		LFe8 Aw/Rose-Twinflower
		LFe9 Aw-Pb/Snowberry
	e3 low-bush cranberry Aw-Sw-Pl	LFh10 Aw-Sw-Pl/Feather moss
		LFh11 Aw-Pl-Sw/Snowberry
		LFh5 Aw-Pl-Sw/Canada buffaloberry
		LFh6 Aw-Sw-Pl/Green alder
		LFh9 Aw-Sw-Pl/Low-bush cranberry-Rose
	e4 low-bush cranberry Sw	LFj31 Sw/Green alder
		LFj12 Sw/Feather moss
		LFj30 Sw/Low-bush cranberry-Rose
	e5 low-bush cranberry shrubland	LFc3 Hazelnut/Wild sarsaparilla
	e9 low-bush cranberry tame	LFa16 Timothy-Creeping red fescue/Clover
f bracted honeysuckle (subhygric/rich)	f1 bracted honeysuckle/fern Pl	LFj32 Pl/Bracted honeysuckle/Fern/Feather moss
		LFj24 Pl/Green alder/Fern
		LFj25 Pl/Devils club/Fern
	f2 bracted honeysuckle/fern Aw-Pb	LFe12 Aw-Pb/Bracted honeysuckle-Red osier dogwood/Fern

Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community
		LFe13 Aw/Thimbleberry
		LFe15 Aw/Willow
		LFf2 Aw-Pb/Cow parsnip-Devils-club/Fern
		LFf6 Aw-Pb/Green alder-River alder/Fern
	f3 bracted honeysuckle/fern Aw-Sw-Pl	LFh12 Aw-Sw-Pl/Bracted honeysuckle-Red osier dogwood/Fern
		LFh16 Aw-Sw-Pl/Devils-club/Fern
		LFh17 Aw-Sw-Pl/Green alder/Fern
		LFh7 Aw-Sw-Pl/Fern/Feather moss
		LFh18 Sw-Aw/Silverberry (fluvial)
	f4 bracted honeysuckle/fern Sw	LFj13 Sw/Devils-club/Fern
		LFj14 Sw/Bracted honeysuckle/Fern
		LFj15 Sw/Green alder-River alder/Fern
		LFj26 Sw/Fern/Feather moss
	f5 bracted honeysuckle shrubland	LFc7 Green alder/Marsh reed grass (Bluejoint)
	f6 bracted honeysuckle tame	LFa20 Reed Canary Grass-Meadow foxtail/Clover
ff rough fescue-hairy wildrye (mesic/rich)	ff1 grassland	LFb10 Rough fescue-Hairy wildrye
g meadow (subhygric/very rich)	g1 shrubby meadow	LFc5 Willow-Bog birch/Tufted hairgrass-Sedge
	g2 forb meadow	LFb4 Cow parsnip-Veiny meadow rue/Fringed brome
	g3 graminoid meadow	LFb5 Tufted hair grass-Sedge/Veiny meadow rue
		LFb6 Sedge/Veiny meadow rue
h Labrador tea (subhygric/poor)	h1 Labrador tea-subhygric Sb-Pl	LFj16 Sb-Pl/Feather moss
		LFj27 Sb-Pl/Labrador tea/Feather moss

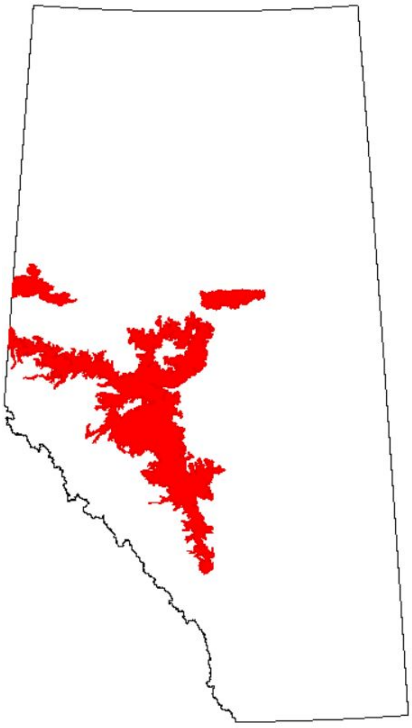
Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community
		LFj28 Sb-Pl/Green alder/Feather moss
i horsetail (hygric/rich)	i1 horsetail Pb-Aw	LFe16 Aw-Pb/Rose/Horsetail
	i2 horsetail Pb-Sw	LFf15 Pb-Sw/Horsetail
	i3 horsetail Sw	LFj17 Sw/Horsetail/Feather moss
	i4 horsetail shrubland	LFc9 Willow-River alder/Horsetail-Fern
j Labrador tea/horsetail (hygric/medium)	j1 Labrador tea/horsetail Sb-Sw	LFj18 Sb-Sw/Labrador tea/Horsetail
k bog (subhydric/poor)	k1 treed bog	LFj19 Sb/Labrador tea/Cloudberry/Peat moss
	k2 shrubby bog	LFc14 Labrador tea/Peat moss
l poor fen (subhydric/medium)	l1 treed poor fen	LFj20 Sb-Lt/Bog birch/Sedge/Peat moss
	l2 shrubby poor fen	LFc13 Bog birch-Willow/Sedge/Peat moss
m rich fen (subhydric/rich)	m1 treed rich fen	LFj21 Lt/Bog birch/Sedge/Golden moss
	m2 shrubby rich fen	LFc10 Willow-Bog birch/Sedge/Golden moss
		LFc6 Willow/Marsh reed grass (Bluejoint)
	m3 graminoid rich fen	LFb14 Swamp horsetail
		LFb7 Marsh reed grass (Bluejoint)
		LFb8 Sedge rich fen
n marsh (hydric/rich)	n1 marsh	LFb11 Cattail marsh
		LFb12 Bulrush marsh

LF Lower Foothills (n=1950)

Natural Subregion: Lower Foothills

General Description

There currently are no ecosections described for the Lower Foothills subregion. The Lower Foothills occurs mainly within the mid elevation dissected plateaus and foothills of the Rockies Front Ranges with one outlier at the mid elevations of the Swan Hills. The Lower Foothills subregion is part of numerous ecodistricts. These include the Cutbank Upland, Blueridge Upland, Edson Plain, Obed Upland, Cynthia Upland, O'Chiese Upland, Winfield Upland, Saddle Upland, Pelican Upland and Driftpile Upland.



Environmental Variables

Elevation (range): 1068.29 (527-1580) M

Ecological Sites		Site Count
a	grassland (xeric/poor)	5
b	bearberry/lichen (subxeric/poor)	19
c	hairy wild rye (submesic/medium)	102
d	Labrador tea - mesic (mesic/poor)	181
e	low-bush cranberry (mesic/medium)	828
f	bracted honeysuckle (subhygric/rich)	393
ff	rough fescue-hairy wildrye (mesic/rich)	5
g	meadow (subhygric/very rich)	37
h	Labrador tea (subhygric/poor)	105
i	horsetail (hygric/rich)	60
j	Labrador tea/horsetail (hygric/medium)	39
k	bog (subhydric/poor)	22
l	poor fen (subhydric/medium)	72
m	rich fen (subhydric/rich)	79
n	marsh (hydric/rich)	3

a grassland (xeric/poor) (n=5)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The grassland ecosite is frequently found on rapidly drained, steep, southerly slopes with glaciofluvial, fluvial, and morainal parent materials. These dry, exposed sites are dominated by bearberry.

Successional Relationships

The grassland ecosite can be considered an edaphic climax as the moisture limitations and or disturbance regime prevent the establishment of a tree canopy. Fluvial disturbance may maintain some sites at an early successional stage.

Indicator Species

Shrub

SHRUBBY CINQUEFOIL
Potentilla fruticosa

GROUND JUNIPER
Juniperus communis

COMMON BEARBERRY
Arctostaphylos uva-ursi

Graminoid

HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Xeric (dry) (1), Subxeric (moderately dry) (2), Very Xeric (very dry) (2)

Nutrient Regime: Mesotrophic (medium) (1), Submesotrophic (poor) (4)

Elevation (range): 980 (980-980) M

Slope (%): strong slope (1), very strong slope (1), steep slope (3)

Aspect: Easterly (1), Westerly (1), Southerly (3)

Topographic Position:Crest (1), Midslope (2), Upper Slope (2)

Soil Variables

Soil Drainage: Very rapidly drained (5)

Soil Subgroup: EUTRIC BRUNISOL (4)

Surface Texture: Medium sandy loam (1), Silty clay loam (1), Coarse sand (2)

Effective Texture: Loamy medium sand (1), Sandy clay loam (1), Coarse sand (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Morainal (1), Glaciofluvial (3)

Soil Type: Dry/Silty-Loamy (1), Very Dry/Sandy (1), Very Dry/Coarse (2)

Humus Form FIBRIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

a1 shrubby grassland (n=5)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: a grassland (xeric/poor)

Characteristic Species

Tree

[1.1]ASPEN
Populus tremuloides

Shrub

[52.0]COMMON BEARBERRY*
Arctostaphylos uva-ursi

[4.4]CANADA BUFFALOBERRY
Shepherdia canadensis

[2.0]CREEPING JUNIPER*
Juniperus horizontalis

[1.6]SHRUBBY CINQUEFOIL*
Potentilla fruticosa

[1.3]SASKATOON
Amelanchier alnifolia

[1.2]PRICKLY ROSE
Rosa acicularis

Forb

[1.3]NORTHERN BEDSTRAW
Galium boreale

Graminoid

[2.3]HAIRY WILD RYE*
Elymus innovatus

Environmental Variables

Moisture Regime: Xeric (dry) (1), Very Xeric (very dry) (2), Subxeric (moderately dry) (2)

Nutrient Regime: Mesotrophic (medium) (1), Submesotrophic (poor) (4)

Elevation (range): 980 (980-980) M

Slope (%): strong slope (1), very strong slope (1), steep slope (3)

Aspect: Easterly (1), Westerly (1), Southerly (3)

Topographic Position:Crest (1), Upper Slope (2), Midslope (2)

Soil Variables

Soil Drainage: Very rapidly drained (5)

Soil Subgroup: EUTRIC BRUNISOL (4)

Surface Texture: Medium sandy loam (1), Silty clay loam (1), Coarse sand (2)

Effective Texture: Loamy medium sand (1), Sandy clay loam (1), Coarse sand (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Morainal (1), Glaciofluvial (3)

Soil Type: Dry/Silty-Loamy (1), Very Dry/Sandy (1), Very Dry/Coarse (2)

Humus Form FIBRIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFb1 Bearberry-Juniper/Hairy wildrye (n=5)

(Arctostaphylose uva-ursi-Juniperus horizontalis /Elymus innovatus)

This community type is common on steep, south facing, rapidly drained slopes on the river banks of the Athabasca River and Solomon Creek near Hinton and Grande Cache. The parent materials are glacialfluvial, fluvial and morainal in origin. These grasslands can be considered an edaphic climax as the moisture limitations prevent the establishment of a tree canopy. On the moister sites with shallower slopes, grasses such as slender wheatgrass and northern wheatgrass can form significant cover. On steeper drier slopes there is little grass cover.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: a grassland (xeric/poor)
Ecosite Phase: a1 shrubby grassland

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
ASPEN *(Populus tremuloides)*	1.1	0.0-2.0	80
SASKATOON *(Amelanchier alnifolia)*	1.3	0.0-5.0	60
Medium Shrub (0.5 to 2 m)			
GROUND JUNIPER *(Juniperus communis)*	0.8	0.0-3.0	60
PRICKLY ROSE *(Rosa acicularis)*	1.2	0.0-2.0	80
SHRUBBY CINQUEFOIL *(Potentilla fruticosa)*	1.6	0.0-8.0	20
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	4.4	0.0-7.0	80
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	52.0	0.0-90.0	80
Low Shrub (< 0.5m)			
CREEPING JUNIPER *(Juniperus horizontalis)*	2.0	0.0-10.0	20
Low Forb (< 30 cm)			
NORTHERN BEDSTRAW *(Galium boreale)*	1.3	0.5-3.0	100
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	2.3	0.0-5.0	80

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Xeric (dry) (1), Subxeric (moderately dry) (2), Very Xeric (very dry) (2)

Nutrient Regime: Mesotrophic (medium) (1), Submesotrophic (poor) (4)

Elevation (range): 980 (980-980) M

Slope (%): 16 - 30.99 (1), 31 - 45.99 (1), 46 - 70.99 (3)

Aspect: Easterly (1), Westerly (1), Southerly (3)

Topographic Position: Crest (1), Upper Slope (2), Midslope (2)

Soil Variables

Soil Drainage: Very rapidly drained (5)

Soil Subgroup: EUTRIC BRUNISOL ORTHIC (4)

Surface Texture: Medium sandy loam (1), Silty clay loam (1), Coarse sand (2)

Effective Texture: Loamy medium sand (1), Sandy clay loam (1), Coarse sand (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Morainal (1), Glaciofluvial (3)

Soil Type: Dry/Silty-Loamy (1), Very Dry/Sandy (1), Very Dry/Coarse (2)

Humus Form FIBRIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

b bearberry/lichen (subxeric/poor) (n=19)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

This ecosite has dry conditions with rapidly drained, acidic soils and poor nutrient status due to the coarse-textured glaciofluvial, fluvial, and eolian parent materials. Plants that are indicative of the nutrient-poor substrate include bearberry, lichen, bog cranberry, and blueberry. Lodgepole pine dominates the primary canopy of this ecosite with black spruce forming a secondary canopy below the pine in approximately half the plots sampled.

Site Index at 50 Years

	Height (m)	Variation (m)	Count
LODGEPOLE PINE *(Pinus contorta)*	13.20	0.30	42

Environmental Variables

Moisture Regime: Very Xeric (very dry) (1), Xeric (dry) (2), Submesic (moderately fresh) (6), Subxeric (moderately dry) (9)

Nutrient Regime: Mesotrophic (medium) (6), Submesotrophic (poor) (12)

Elevation (range): 1130.5 (815-1510) M

Slope (%): moderate slope (1), nearly level (1), very gentle slope (1), gentle slope (2), strong slope (3), level (11)

Aspect: Northerly (1), Level (3), Westerly (3), Southerly (4)

Topographic Position:Crest (2), Midslope (2), Upper Slope (2), Level (5)

Soil Variables

Soil Drainage: Very rapidly drained (1), Moderately well drained (4), Rapidly drained (6), Well drained (7)

Soil Subgroup: DARK BROWN CHERNOZEM (1), DYSTRIC BRUNISOL (1), REGOSOL (1), GRAY LUVISOL (5), EUTRIC BRUNISOL (8)

Surface Texture: Sandy clay loam (1), Silt (1), Silty clay loam (1), Sandy loam (2), Loam (2), Silt loam (3), Loamy sand (4)

Effective Texture: Clay (1), Clay loam (1), Silt loam (1), Silty clay (1), Silty clay loam (1), Sand (2), Sandy loam (3), Loamy sand (3)

Depth to Mottles/Gley: 0 - 25 (2)

Organic Thickness: 0 - 5 cm (17)

Parent Material: Eolian (1), Glaciolacustrine (1), Rock (1), Saprolite (1), Swamp (1), Colluvial (2), Morainal (2), Fluvial (3), Glaciofluvial (9)

Soil Type: Shallow (1), Very Dry/Coarse (1), Very Dry/Fine (1), Dry/Fine (2), Very Dry/Sandy (6)

Humus Form FIBRIHUMIMOR (1), FIBRIMOR (4)

LFH Thickness

	Mean	Min	Max	Count
cm:	5.50	2.00	8.00	14

Successional Relationships

Due to the dry nature of this ecosite, succession to a black spruce canopy is commonly slower than the fire return interval. Therefore, pine is maintained for relatively long periods and can colonize the site and dominate the canopy in a fire edaphic climax community.

Indicator Species

Tree

BLACK SPRUCE
Picea mariana

LODGEPOLE PINE
Pinus contorta

ASPEN
Populus tremuloides

Shrub

BOG CRANBERRY
Vaccinium vitis-idaea

COMMON BEARBERRY
Arctostaphylos uva-ursi

Lichen

REINDEER LICHEN
Cladina mitis

b1 bearberry Aw-Sw-Pl (n=19)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: b bearberry/lichen (subxeric/poor)

Characteristic Species

Tree

[30.7]LODGEPOLE PINE*
Pinus contorta

[1.9]ASPEN*
Populus tremuloides

[1.9]BLACK SPRUCE*
Picea mariana

Shrub

[9.4]BOG CRANBERRY*
Vaccinium vitis-idaea

[8.4]COMMON BLUEBERRY
Vaccinium myrtilloides

[8.1]COMMON BEARBERRY*
Arctostaphylos uva-ursi

[6.6]TWINFLOWER
Linnaea borealis

[3.6]BUNCHBERRY
Cornus canadensis

[3.0]CANADA BUFFALOBERRY
Shepherdia canadensis

[3.0]COMMON LABRADOR TEA
Ledum groenlandicum

[2.4]PRICKLY ROSE
Rosa acicularis

[1.2]WHITE MEADOWSWEET
Spiraea betulifolia

Forb

[1.0]BROAD-LEAVED EVERLASTING
Antennaria neglecta

Lichen

[4.5]REINDEER LICHEN*
Cladina mitis

Moss and Liverwort

[17.5]SCHREBER'S MOSS
Pleurozium schreberi

[6.0]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

[2.6]STAIR-STEP MOSS
Hylocomium splendens

Graminoid

[3.1]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Very Xeric (very dry) (1), Xeric (dry) (2), Submesic (moderately fresh) (6), Subxeric (moderately dry) (9)

Nutrient Regime: Mesotrophic (medium) (6), Submesotrophic (poor) (12)

Elevation (range): 1130.5 (815-1510) M

Slope (%): moderate slope (1), nearly level (1), very gentle slope (1), gentle slope (2), strong slope (3), level (11)

Aspect: Northerly (1), Level (3), Westerly (3), Southerly (4)

Topographic Position:Upper Slope (2), Midslope (2), Crest (2), Level (5)

Soil Variables

Soil Drainage: Very rapidly drained (1), Moderately well drained (4), Rapidly drained (6), Well drained (7)

Soil Subgroup: DARK BROWN CHERNOZEM (1), DYSTRIC BRUNISOL (1), REGOSOL (1), GRAY LUVISOL (5), EUTRIC BRUNISOL (8)

Surface Texture: Sandy clay loam (1), Silt (1), Silty clay loam (1), Sandy loam (2), Loam (2), Silt loam (3), Loamy sand (4)

Effective Texture: Clay (1), Clay loam (1), Silt loam (1), Silty clay (1), Silty clay loam (1), Sand (2), Loamy sand (3), Sandy loam (3)

Depth to Mottles/Gley: 0 - 25 (2)

Organic Thickness: 0 - 5 cm (17)

Parent Material: Eolian (1), Glaciolacustrine (1), Rock (1), Saprolite (1), Swamp (1), Morainal (2), Colluvial (2), Fluvial (3), Glaciofluvial (9)

Soil Type: Shallow (1), Very Dry/Fine (1), Very Dry/Coarse (1), Dry/Fine (2), Very Dry/Sandy (6)

Humus Form FIBRIHUMIMOR (1), FIBRIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	5.50	2.00	8.00	14

LFj1 Pl/Bearberry/Hairy wild rye (n=12)

(Pinus contorta/Arctostaphylos uva-ursi/Elymus innovatus)

This community type occurs on coarse, well drained soils with poor nutrient regimes. These sites also tend to be dry as indicated by the predominance of hairy wild rye and bearberry. This community type occurs on a wide variety of site locations as long as the soil parent material is coarse, low in nutrients, and receives no underground seepage water. It is similar to the Pl/buffalo-berry/hairy wild rye type described by Beckingham et. al. 1996.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: b bearberry/lichen (subxeric/poor)
Ecosite Phase: b1 bearberry Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	26.9	0.0-60.0	92
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	2.1	0.0-10.0	50
ASPEN *(Populus tremuloides)*	3.8	0.0-22.0	50
LODGEPOLE PINE *(Pinus contorta)*	7.4	0.0-30.0	67
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	2.8	0.0-12.0	83
COMMON LABRADOR TEA *(Ledum groenlandicum)*	4.5	0.0-12.0	58
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	4.6	0.0-15.0	83
TWINFLOWER *(Linnaea borealis)*	7.2	0.0-22.0	83
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	8.1	0.0-62.0	67
BOG CRANBERRY *(Vaccinium vitis-idaea)*	12.3	0.0-39.0	92
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	14.1	0.0-52.0	83
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.6	0.0-5.7	58
BUNCHBERRY *(Cornus canadensis)*	1.9	0.0-10.0	67
BROAD-LEAVED EVERLASTING *(Antennaria neglecta)*	2.1	0.0-25.0	17
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	6.3	0.0-33.0	92
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	5.3	0.0-30.0	42
SCHREBER'S MOSS *(Pleurozium schreberi)*	21.6	0.0-71.0	67
Lichen			
REINDEER LICHEN *(Cladina mitis)*	6.0	0.0-55.0	33

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Very Xeric (very dry) (1), Xeric (dry) (2), Subxeric (moderately dry) (4), Submesic (moderately fresh) (4)

Nutrient Regime: Mesotrophic (medium) (4), Submesotrophic (poor) (7)

Elevation (range): 1259 (920-1510) M

Slope (%): 2.5 - 5.99 (1), 6 - 9.99 (2), 16 - 30.99 (2), 0 - 0.49 (7)

Aspect: Northerly (1), Level (3), Southerly (4)

Topographic Position: Upper Slope (1), Midslope (2), Crest (2), Level (3)

Soil Variables

Soil Drainage: Very rapidly drained (1), Rapidly drained (3), Moderately well drained (3), Well drained (4)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), REGOSOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (2), EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (3)

Surface Texture: Loamy sand (1), Sandy loam (1), Silty clay loam (1), Silt (1), Sandy clay loam (1), Silt loam (2), Loam (2)

Effective Texture: Clay (1), Clay loam (1), Loamy sand (1), Sand (1), Silty clay (1), Silty clay loam (1), Sandy loam (2)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 0 - 5 cm (10)

Parent Material: Saprolite (1), Colluvial (1), Glaciolacustrine (1), Rock (1), Morainal (2), Glaciofluvial (2), Fluvial (3)

Soil Type: Shallow (1), Very Dry/Fine (1), Dry/Fine (2), Very Dry/Sandy (3)

Humus Form FIBRIHUMIMOR (1), FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	2.00	7.00	9

LFj22 Pl/Blueberry/Lichen (n=7)

(Pinus contorta/Vaccinium myrtilloides/Cladina spp.)

This community is very similar to the Lodgepole pine/Bearberry/Hairy wildrye dominated community type but appears to be slightly moister deeper into the soil profile which favours the growth of blueberry over bearberry.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: b bearberry/lichen (subxeric/poor)
Ecosite Phase: b1 bearberry Aw-Sw-Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	22.8	0.0-40.0	86
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	3.8	0.0-15.0	43
Medium Shrub (0.5 to 2 m)			
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	1.4	0.0-7.0	43
COMMON LABRADOR TEA *(Ledum groenlandicum)*	1.5	0.0-5.0	43
PRICKLY ROSE *(Rosa acicularis)*	2.0	0.0-5.0	86
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	2.1	0.0-15.0	14
WHITE MEADOWSWEET *(Spiraea betulifolia)*	2.5	0.0-15.0	29
BLACK SPRUCE *(Picea mariana)*	3.5	0.0-15.0	43
LODGEPOLE PINE *(Pinus contorta)*	4.5	0.0-25.0	29
TWINFLOWER *(Linnaea borealis)*	6.1	1.0-15.0	100
BOG CRANBERRY *(Vaccinium vitis-idaea)*	6.5	0.0-40.0	43
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	8.7	0.0-20.0	86
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	5.4	0.0-15.0	86
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	12.1	0.0-50.0	57
SCHREBER'S MOSS *(Pleurozium schreberi)*	13.5	0.0-53.0	71
Lichen			
STUDDED LEATHER LICHEN *(Peltigera aphthosa)*	1.7	0.0-5.0	71
REINDEER LICHEN *(Cladina mitis)*	3.1	0.0-15.0	86

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (2), Subxeric (moderately dry) (5)

Nutrient Regime: Mesotrophic (medium) (2), Submesotrophic (poor) (5)

Elevation (range): 1002 (815-1490) M

Slope (%): 16 - 30.99 (1), 10 - 15.99 (1), 0.5 - 2.49 (1), 0 - 0.49 (4)

Aspect: Westerly (3)

Topographic Position: Upper Slope (1), Level (2)

Soil Variables

Soil Drainage: Moderately well drained (1), Well drained (3), Rapidly drained (3)

Soil Subgroup: DARK BROWN CHERNOZEM ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (1), DYSTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL ORTHIC (2), GRAY LUVISOL ORTHIC (2)

Surface Texture: Silt loam (1), Sandy loam (1), Loamy sand (3)

Effective Texture: Sand (1), Silt loam (1), Sandy loam (1), Loamy sand (2)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 0 - 5 cm (7)

Parent Material: Colluvial (1), Swamp (1), Eolian (1), Glaciofluvial (7)

Soil Type: Very Dry/Coarse (1), Very Dry/Sandy (3)

Humus Form FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	5.00	8.00	5

c hairy wild rye (submesic/medium) (n=102)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

This ecosite tends to be subxeric to submesic as a result of sloped, southerly aspects, relatively coarse-textured glaciofluvial or eolian parent materials, or a combination of both. The nutrient regime varies from poor to rich with richer sites being associated with higher covers of hairy wild rye and deciduous trees. This ecosite is intermediate in both moisture and nutrient regime between the bearberry/lichen ecosite (b) and the low-bush cranberry ecosite (e). As such, the hairy wild rye ecosite has species characteristic of both the bearberry/lichen ecosite, such as blueberry, bearberry, bog cranberry, and Labrador tea, and species characteristic of the low-bush cranberry ecosite, such as aspen, white spruce, cream-colored vetchling, bunch berry, wild sasparilla, dewberry, and hairy wild rye.

Successional Relationships

The pine- and aspen-dominated phases of this ecosite may, in some cases, succeed to white spruce but the process is slow due to the dry nature of this ecosite.

Indicator Species

Tree

WHITE SPRUCE
Picea glauca

LODGEPOLE PINE
Pinus contorta

ASPEN
Populus tremuloides

Shrub

PRICKLY ROSE
Rosa acicularis

CANADA BUFFALOBERRY
Shepherdia canadensis

DWARF BILBERRY
Vaccinium caespitosum

COMMON BLUEBERRY
Vaccinium myrtilloides

UNDIFFERENTIATED DRYAS
Dryas

COMMON BEARBERRY
Arctostaphylos uva-ursi

GREEN ALDER
Alnus crispa

Forb

EARLY YELLOW LOCOWEED
Oxytropis sericea

Graminoid

INTERMEDIATE OAT GRASS
Danthonia intermedia

SLENDER WHEAT GRASS
Agropyron trachycaulum

HAIRY WILD RYE
Elymus innovatus

Site Index at 50 Years

	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	17.60	0.80	36
LODGEPOLE PINE *(Pinus contorta)*	18.40	0.50	28
BLACK SPRUCE *(Picea mariana)*	9.50	0.20	3
ASPEN *(Populus tremuloides)*	14.50	0.50	28

Environmental Variables

Moisture Regime: Xeric (dry) (2), Subhygric (moderately moist) (4), Subxeric (moderately dry) (14), Submesic (moderately fresh) (21), Mesic (fresh) (37)

Nutrient Regime: Oligotrophic (very poor) (1), Submesotrophic (poor) (9), Permesotrophic (rich) (13), Mesotrophic (medium) (57)

Elevation (range): 1112.25 (780-1480) M

Slope (%): steep slope (2), very strong slope (6), gentle slope (8), strong slope (10), level (13), moderate slope (15), nearly level (18), very gentle slope (20)

Aspect: Level (10), Northerly (10), Westerly (14), Easterly (18), Southerly (28)

Topographic Position:Crest (2), Lower Slope (3), Upper Slope (11), Midslope (15), Level (15)

Soil Variables

Soil Drainage: Very rapidly drained (2), Rapidly drained (11), Moderately well drained (16), Well drained (62)

Soil Subgroup: HUMIC REGOSOL (1), MELANIC BRUNISOL (1), DYSTRIC BRUNISOL (3), GRAY LUVISOL (24), EUTRIC BRUNISOL (26)

Surface Texture: Loamy medium sand (1), Silty clay loam (1), Sand (2), Clay (3), Sandy clay loam (5), Silt loam (5), Sandy loam (6), Loamy sand (6), Loam (7)

Effective Texture: Loam (1), Loamy medium sand (1), Silty clay (1), Clay (4), Clay loam (4), Sandy clay (4), Loamy sand (5), Sand (5), Silty clay loam (5), Sandy clay loam (6)

Depth to Mottles/Gley: 0 - 25 (1), 26 - 50 (1)

Organic Thickness: 0 - 5 cm (62)

Parent Material: Colluvial (1), Residual (1), Lacustrine (2), Glaciolacustrine (6), Fluvial (7), Eolian (16), Glaciofluvial (21), Morainal (26)

Soil Type: Very Dry/Fine (1), Moist/Coarse (2), Very Dry/Coarse (3), Very Dry/Sandy (5), Dry/Fine (6), Dry/Sandy (6), Moist/Fine (10)

Humus Form RAW MODER (1), HUMIFIBRIMOR (2), FIBRIMOR (8)

LFH Thickness

	Mean	Min	Max	Count
cm:	5.50	1.00	28.00	35

c1 hairy wild rye Pl (n=22)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Tree

[37.1]LODGEPOLE PINE*
Pinus contorta

[4.1]WHITE SPRUCE
Picea glauca

[2.1]ASPEN
Populus tremuloides

Shrub

[9.5]GREEN ALDER*
Alnus crispa

[6.4]CANADA BUFFALOBERRY*
Shepherdia canadensis

[4.5]BOG CRANBERRY
Vaccinium vitis-idaea

[4.0]COMMON BEARBERRY
Arctostaphylos uva-ursi

[3.5]TWINFLOWER
Linnaea borealis

[3.5]PRICKLY ROSE
Rosa acicularis

[1.9]BUNCHBERRY
Cornus canadensis

[1.9]COMMON BLUEBERRY*
Vaccinium myrtilloides

[1.6]COMMON LABRADOR TEA
Ledum groenlandicum

[1.0]LOW-BUSH CRANBERRY
Viburnum edule

Forb

[1.7]HEART-LEAVED ARNICA
Arnica cordifolia

Moss and Liverwort

[10.4]SCHREBER'S MOSS
Pleurozium schreberi

[6.7]STAIR-STEP MOSS
Hylocomium splendens

[1.4]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Graminoid

[4.8]HAIRY WILD RYE*
Elymus innovatus

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (5), Subxeric (moderately dry) (6), Mesic (fresh) (8)

Nutrient Regime: Submesotrophic (poor) (3), Permesotrophic (rich) (4), Mesotrophic (medium) (13)

Elevation (range): 1123.33 (780-1479) M

Slope (%): strong slope (1), very strong slope (1), very gentle slope (2), gentle slope (2), nearly level (3), moderate slope (5), level (7)

Aspect: Level (2), Northerly (3), Southerly (3), Westerly (4), Easterly (4)

Topographic Position:Crest (1), Midslope (2), Upper Slope (4), Level (6)

Soil Variables

Soil Drainage: Moderately well drained (2), Rapidly drained (3), Well drained (14)

Soil Subgroup: DYSTRIC BRUNISOL (2), EUTRIC BRUNISOL (4), GRAY LUVISOL (8)

Surface Texture: Clay (1), Silt loam (1), Sandy loam (2), Sand (2), Loamy sand (2), Loam (2), Sandy clay loam (3)

Effective Texture: Clay (1), Loamy sand (1), Silty clay (1), Silty clay loam (1), Sandy clay loam (2), Sandy clay (2), Clay loam (2), Sand (3)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (16)

Parent Material: Glaciolacustrine (1), Lacustrine (1), Fluvial (2), Morainal (3), Eolian (5), Glaciofluvial (9)

Soil Type: Dry/Sandy (1), Moist/Coarse (1), Very Dry/Coarse (1), Moist/Fine (2), Very Dry/Sandy (3), Dry/Fine (4)

Humus Form RAW MODER (1), FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	3.50	1.00	7.00	12

LFj2 Pl/Canada buffaloberry/Hairy wild rye (n=15)

(Pinus contorta/Shepherdia canadensis/Elymus innovatus)

This community type occurs on fairly coarse, well drained parent material, which makes the site fairly dry with a poor nutrient regime. This community type corresponds to Beckingham's (1993) Pl - Aw/ Hylo spl - Pleu sch association. According to Beckingham (1993), this community type is thought to represent a transition from the aspen to the lodgepole pine dominated types in the Lower Foothills subregion. He also felt that the presence of white spruce in the canopy suggests succession to his Sw/ Feathermoss or Sw - Fb/ Feathermoss associations.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c1 hairy wild rye Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	3.7	0.0-30.0	33
ASPEN *(Populus tremuloides)*	4.2	0.0-50.0	33
LODGEPOLE PINE *(Pinus contorta)*	24.4	0.0-45.0	93
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	4.7	0.0-10.0	83
LODGEPOLE PINE *(Pinus contorta)*	4.9	0.0-15.0	67
Medium Shrub (0.5 to 2 m)			
DWARF BILBERRY *(Vaccinium caespitosum)*	1.6	0.0-10.0	40
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	2.8	0.0-12.0	47
COMMON LABRADOR TEA *(Ledum groenlandicum)*	3.2	0.0-20.0	53
PRICKLY ROSE *(Rosa acicularis)*	4.1	0.0-10.0	93
TWINFLOWER *(Linnaea borealis)*	5.0	0.0-11.3	80
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	8.1	0.0-60.0	60
BOG CRANBERRY *(Vaccinium vitis-idaea)*	9.0	0.0-52.0	67
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	12.8	0.0-63.0	93
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.2	0.0-5.0	73
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.6	0.0-6.0	67
Low Forb (< 30 cm)			
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	1.6	0.0-7.0	60
WILD STRAWBERRY *(Fragaria virginiana)*	1.7	0.0-5.0	73
BUNCHBERRY *(Cornus canadensis)*	3.8	0.0-15.0	80
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	9.6	0.0-35.0	93
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	2.8	0.0-30.0	40
STAIR-STEP MOSS *(Hylocomium splendens)*	11.4	0.0-55.0	60
SCHREBER'S MOSS *(Pleurozium schreberi)*	18.4	0.0-65.0	60

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (3), Submesic (moderately fresh) (4), Mesic (fresh) (5)

Nutrient Regime: Permesotrophic (rich) (2), Submesotrophic (poor) (3), Mesotrophic (medium) (8)

Elevation (range): 1101 (792-1438) M

Slope (%): 2.5 - 5.99 (1), 6 - 9.99 (1), 31 - 45.99 (1), 0.5 - 2.49 (1), 10 - 15.99 (4), 0 - 0.49 (6)

Aspect: Southerly (2), Level (2), Westerly (3), Easterly (3)

Topographic Position: Upper Slope (3), Level (4)

Soil Variables

Soil Drainage: Moderately well drained (2), Rapidly drained (2), Well drained (8)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), DYSTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL ORTHIC (2), EUTRIC BRUNISOL ELUVIATED (2), GRAY LUVISOL BRUNISOLIC (6)

Surface Texture: Sand (1), Silt loam (1), Clay (1), Loam (2), Loamy sand (2), Sandy clay loam (2), Sandy loam (2)

Effective Texture: Clay (1), Loamy sand (1), Sandy clay loam (1), Silty clay (1), Silty clay loam (1), Sandy clay (2), Sand (2), Clay loam (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (14)

Parent Material: Lacustrine (1), Glaciolacustrine (1), Fluvial (2), Morainal (3), Eolian (4), Glaciofluvial (7)

Soil Type: Dry/Sandy (1), Moist/Coarse (1), Very Dry/Sandy (2), Moist/Fine (2), Dry/Fine (4)

Humus Form FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	3.00	7.00	10

LFj23 Pl/Green alder/Hairy wild rye (n=2)

(Pinus contorta/Alnus crispa/Elymus innovatus)

This community type is very similar to the Pl/Canada buffaloberry/Hairy wildrye (LFj2) dominated community type, but this community type has a strong component of green alder. It appears this community type occurs on slightly shallower slopes with better moisture which seems to favour the growth of alder. In the absence of disturbance this community will likely succeed to white spruce.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c1 hairy wild rye Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	15.0	10.0-20.0	100
Understory Tree			
ASPEN *(Populus tremuloides)*	1.5	0.0-3.0	50
LODGEPOLE PINE *(Pinus contorta)*	25.0	0.0-50.0	50
Tall Shrub (2 to 5m)			
LODGEPOLE PINE *(Pinus contorta)*	5.0	0.0-10.0	50
GREEN ALDER *(Alnus crispa)*	19.0	5.0-25.0	100
Medium Shrub (0.5 to 2 m)			
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	1.0	0.0-2.0	50
TWINFLOWER *(Linnaea borealis)*	2.0	1.0-3.0	100
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.0	0.0-4.0	50
PRICKLY ROSE *(Rosa acicularis)*	3.0	1.0-5.0	100
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	1.0	1.0-1.0	100
Tall Forb (>= 30 cm)			
WILD SARSAPARILLA *(Aralia nudicaulis)*	1.5	0.0-3.0	50
Low Forb (< 30 cm)			
COMMON PINK WINTERGREEN *(Pyrola asarifolia)*	1.0	0.0-2.0	50
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	1.5	0.0-3.0	50
HEART-LEAVED ARNICA *(Arnica cordifolia)*	3.5	0.0-7.0	50
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	2.0	1.0-3.0	100
SCHREBER'S MOSS *(Pleurozium schreberi)*	2.5	1.0-4.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (2)

Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (1)

Elevation (range): 870 (780-960) M

Slope (%): 6 - 9.99 (1), 0.5 - 2.49 (1)

Aspect: Northerly (1), Westerly (1)

Topographic Position: Crest (1)

Soil Variables

Soil Drainage: Well drained (1), Rapidly drained (1)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), DYSTRIC BRUNISOL ORTHIC (1)

Surface Texture: Sandy clay loam (1), Sand (1)

Effective Texture: Sand (1), Sandy clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material: Eolian (1), Glaciofluvial (2)

Soil Type: Very Dry/Coarse (1), Very Dry/Sandy (1)

Humus Form RAW MODER (1)

LFH Thickness	Mean	Min	Max	Count
cm:	2.00	1.00	4.00	2

c2 hairy wild rye Aw (n=36)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Tree

[49.0]ASPEN*
Populus tremuloides

Shrub

[6.3]COMMON BLUEBERRY
Vaccinium myrtilloides

[6.0]BUNCHBERRY
Cornus canadensis

[5.2]TWINFLOWER
Linnaea borealis

[5.0]PRICKLY ROSE
Rosa acicularis

[5.0]GREEN ALDER*
Alnus crispa

[4.9]LOW-BUSH CRANBERRY
Viburnum edule

[3.4]CANADA BUFFALOBERRY*
Shepherdia canadensis

[1.7]BOG CRANBERRY
Vaccinium vitis-idaea

[1.5]COMMON BEARBERRY
Arctostaphylos uva-ursi

Forb

[5.0]WILD SARSAPARILLA
Aralia nudicaulis

[4.8]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

[3.8]COMMON FIREWEED
Epilobium angustifolium

[2.9]WILD STRAWBERRY
Fragaria virginiana

[1.3]LINDLEY'S ASTER
Aster ciliolatus

Moss and Liverwort

[4.6]STAIR-STEP MOSS
Hylocomium splendens

Graminoid

[12.5]HAIRY WILD RYE*
Elymus innovatus

[8.7]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (2), Subhygric (moderately moist) (3), Submesic (moderately fresh) (5), Mesic (fresh) (18)

Nutrient Regime: Oligotrophic (very poor) (1), Permesotrophic (rich) (5), Mesotrophic (medium) (23)

Elevation (range): 1145.75 (800-1310) M

Slope (%): level (1), very strong slope (2), strong slope (2), gentle slope (3), moderate slope (4), nearly level (8), very gentle slope (12)

Aspect: Westerly (2), Level (4), Northerly (5), Easterly (9), Southerly (11)

Topographic Position:Lower Slope (1), Level (2), Upper Slope (4), Midslope (6)

Soil Variables

Soil Drainage: Rapidly drained (2), Moderately well drained (5), Well drained (24)

Soil Subgroup: MELANIC BRUNISOL (1), GRAY LUVISOL (5), EUTRIC BRUNISOL (8)

Surface Texture: Clay (1), Loamy medium sand (1), Silt loam (2), Loamy sand (2), Loam (2)

Effective Texture: Clay (1), Clay loam (1), Loamy medium sand (1), Loamy sand (1), Sand (1), Sandy clay loam (1), Silty clay loam (2)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 0 - 5 cm (16)

Parent Material: Fluvial (1), Eolian (3), Glaciolacustrine (3), Glaciofluvial (5), Morainal (8)

Soil Type: Very Dry/Sandy (1), Dry/Sandy (2), Moist/Fine (4)

Humus Form FIBRIMOR (1), HUMIFIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	3.00	11.00	8

LFe1 Aw/Blueberry/Hairy wildrye (n=15)

(Populus tremuloides/Vaccinium myrtilloides/Elymus innovatus)

This community type is similar to Aspen/blueberry/hairy wild rye described by Beckingham et al (1996). This community type is dominated by blueberry and other shrub species (bog cranberry and Labrador tea) adapted to drier well-drained sites compared to the modal mesic/medium low-bush cranberry ecosites. This may succeed to a White Spruce dominated sites, however the transition is slow due to the dry site conditions (Beckingham et al 1996).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c2 hairy wild rye Aw

Plant Composition	Canopy Cover (%)		
	Mean	Range	Const.
Overstory Tree			
ASPEN *(Populus tremuloides)*	51.7	15.0-80.0	100
Understory Tree			
ASPEN *(Populus tremuloides)*	1.8	0.0-12.2	27
Medium Shrub (0.5 to 2 m)			
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	1.0	0.0-9.5	33
BOG CRANBERRY *(Vaccinium vitis-idaea)*	1.7	0.0-13.0	40
WILD RED RASPBERRY *(Rubus idaeus)*	2.6	0.0-14.4	53
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	3.5	0.0-35.0	40
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.6	0.0-23.1	33
COMMON LABRADOR TEA *(Ledum groenlandicum)*	5.8	0.0-20.0	60
PRICKLY ROSE *(Rosa acicularis)*	5.9	0.0-15.0	93
TWINFLOWER *(Linnaea borealis)*	9.1	0.0-58.2	80
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	13.2	0.0-40.0	80
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	1.7	0.0-6.0	67
COMMON FIREWEED *(Epilobium angustifolium)*	2.4	0.0-9.5	60
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	4.8	0.0-13.5	80
Low Forb (< 30 cm)			
COMMON PINK WINTERGREEN *(Pyrola asarifolia)*	1.9	0.0-10.0	67
BISHOP'S-CAP *(Mitella nuda)*	2.2	0.0-11.0	47
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	2.5	0.0-7.5	93
WILD STRAWBERRY *(Fragaria virginiana)*	4.8	0.0-12.4	93
BUNCHBERRY *(Cornus canadensis)*	6.6	0.0-15.6	93
Graminoid			
WHITE-GRAINED MOUNTAIN RICE GRASS *(Oryzopsis asperifolia)*	2.8	0.0-20.8	40
HAIRY WILD RYE *(Elymus innovatus)*	5.1	0.0-19.1	67
BLUEJOINT *(Calamagrostis canadensis)*	6.9	0.0-28.5	67

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (1), Submesic (moderately fresh) (2), Subhygric (moderately moist) (2), Mesic (fresh) (10)

Nutrient Regime: Oligotrophic (very poor) (1), Mesotrophic (medium) (14)

Elevation (range): 1017 (800-1173) M

Slope (%): 6 - 9.99 (2), 0.5 - 2.49 (5), 2.5 - 5.99 (5)

Aspect: Level (1), Westerly (1), Easterly (2), Southerly (3), Northerly (4)

Topographic Position: Level (1), Midslope (2)

Soil Variables

Soil Drainage: Rapidly drained (1), Moderately well drained (2), Well drained (10)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (1), EUTRIC BRUNISOL ORTHIC (1)

Surface Texture: Silt loam (1), Loamy sand (1)

Effective Texture: Sand (1), Silty clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (3)

Parent Material: Glaciofluvial (1), Glaciolacustrine (1), Fluvial (1)

Soil Type: Moist/Fine (1), Dry/Sandy (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	4.00	4.00	4.00	1

LFe2 Aw/Buffaloberry/Hairy wildrye (n=12)

(Populus tremuloides/Shepherdia canadensis/Elymus innovatus)

This community type is similar to the Aw/Bearberry type described by Beckingham (1993). It is found in conjunction with lodgepole pine on dry, well drained sites. Beckingham found that the combination of lighter textured parent material and rapid drainage due to topographic position resulted in a site type that is drier than the modal aspen type.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c2 hairy wild rye Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	1.7	0.0-10.0	33
ASPEN *(Populus tremuloides)*	45.7	0.0-88.0	83
Medium Shrub (0.5 to 2 m)			
WHITE MEADOWSWEET *(Spiraea betulifolia)*	1.1	0.0-7.0	42
LOW-BUSH CRANBERRY *(Viburnum edule)*	1.5	0.0-7.0	50
TWINFLOWER *(Linnaea borealis)*	1.9	0.0-5.0	92
ASPEN *(Populus tremuloides)*	3.6	0.0-38.0	42
SNOWBERRY *(Symphoricarpos albus)*	3.8	0.0-35.0	50
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	9.2	1.0-30.0	100
PRICKLY ROSE *(Rosa acicularis)*	9.3	0.0-29.0	91
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	2.2	0.0-10.0	83
WILD VETCH *(Vicia americana)*	2.4	0.0-13.0	83
COMMON FIREWEED *(Epilobium angustifolium)*	4.1	0.0-12.0	83
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	5.6	0.0-29.0	75
Low Forb (< 30 cm)			
NORTHERN BEDSTRAW *(Galium boreale)*	1.0	0.0-2.0	92
WILD STRAWBERRY *(Fragaria virginiana)*	1.4	0.0-4.0	83
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.1	0.0-10.0	58
BUNCHBERRY *(Cornus canadensis)*	2.2	0.0-15.0	42
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	18.7	0.0-35.0	92
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	3.1	0.0-35.0	17

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (1), Subxeric (moderately dry) (1), Mesic (fresh) (3)

Nutrient Regime: Permesotrophic (rich) (1), Mesotrophic (medium) (5)

Elevation (range): 1098 (820-1300) M

Slope (%): 31 - 45.99 (1), 10 - 15.99 (1), 0.5 - 2.49 (1), 6 - 9.99 (1), 16 - 30.99 (2), 2.5 - 5.99 (5)

Aspect: Northerly (1), Westerly (1), Level (1), Easterly (4), Southerly (4)

Topographic Position: Midslope (2)

Soil Variables

Soil Drainage: Moderately well drained (1), Rapidly drained (1), Well drained (8)

Soil Subgroup: GRAY LUVISOL GLEYED SOLONETZIC (1), MELANIC BRUNISOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (1), EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (5)

Surface Texture: Clay (1), Loam (1), Loamy sand (1), Silt loam (1), Loamy medium sand (1)

Effective Texture: Clay (1), Loamy medium sand (1), Loamy sand (1), Sandy clay loam (1), Silty clay loam (1)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 0 - 5 cm (11)

Parent Material: Glaciolacustrine (2), Eolian (3), Glaciofluvial (4), Morainal (6)

Soil Type: Dry/Sandy (1), Very Dry/Sandy (1), Moist/Fine (2)

Humus Form FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	3.00	11.00	5

LFe6 Aw/Green alder/Hairy wild rye (n=7)

(Populus tremuloides/Alnus crispa/Elymus innovatus)

This community type is very similar to the previous (Aw/Green alder (LFe5)) community type, but is found on higher elevation, slightly drier, well-drained, south facing slopes which is indicated by the presence of bearberry, and hairy wild rye. The presence of alder maybe due to an impermeable soil layer which creates higher soil moisture for alder growth.This community type is not common in the Lower Foothills subregion and was described from 7 sites in west central Alberta. Green alder dominated sites are much more common in the low-bush cranberry and bracted honeysuckle ecological sites. Green alder prefers to have some moisture at depth and the ecological conditions at this site are too dry for high alder growth.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c2 hairy wild rye Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
ASPEN *(Populus tremuloides)*	35.8	0.0-60.0	86
Understory Tree			
ASPEN *(Populus tremuloides)*	8.6	0.0-50.0	43
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	6.4	0.0-30.0	29
Medium Shrub (0.5 to 2 m)			
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	1.0	0.0-4.5	29
BOG CRANBERRY *(Vaccinium vitis-idaea)*	3.5	0.0-25.0	14
TWINFLOWER *(Linnaea borealis)*	4.6	0.0-30.0	57
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	5.7	0.0-40.0	14
GREEN ALDER *(Alnus crispa)*	8.9	0.0-17.6	86
LOW-BUSH CRANBERRY *(Viburnum edule)*	9.8	0.0-63.0	29
Tall Forb (>= 30 cm)			
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	4.0	0.0-12.3	71
COMMON FIREWEED *(Epilobium angustifolium)*	4.9	0.5-21.6	100
WILD SARSAPARILLA *(Aralia nudicaulis)*	15.2	0.0-60.3	57
Low Forb (< 30 cm)			
NORTHERN BEDSTRAW *(Galium boreale)*	1.2	0.0-4.0	71
WILD STRAWBERRY *(Fragaria virginiana)*	2.5	0.0-5.0	86
BUNCHBERRY *(Cornus canadensis)*	9.3	0.0-35.0	86
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	13.8	0.0-33.5	71
BLUEJOINT *(Calamagrostis canadensis)*	19.4	0.0-42.0	71
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	10.7	0.0-75.0	14

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (1), Submesic (moderately fresh) (2), Mesic (fresh) (3)

Nutrient Regime: Mesotrophic (medium) (3), Permesotrophic (rich) (3)

Elevation (range): 1178 (938-1310) M

Slope (%): 2.5 - 5.99 (1), 0.5 - 2.49 (1), 31 - 45.99 (1), 0 - 0.49 (1), 10 - 15.99 (3)

Aspect: Level (1), Easterly (2), Southerly (4)

Topographic Position: Midslope (1), Level (1), Upper Slope (4)

Soil Variables

Soil Drainage: Moderately well drained (1), Well drained (5)

Soil Subgroup: GRAY LUVISOL BRUNISOLIC (1)

Surface Texture: Loam (1)

Effective Texture: Clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material: Morainal (2)

Soil Type: Moist/Fine (1)

Humus Form HUMIFIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	5.00	5.00	1

c3 hairy wild rye Aw-Sw-Pl (n=29)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Tree

[16.2]ASPEN*
Populus tremuloides

[10.6]LODGEPOLE PINE*
Pinus contorta

[15.1]WHITE SPRUCE*
Picea glauca

[1.6]WHITE BIRCH
Betula papyrifera

Shrub

[8.1]GREEN ALDER*
Alnus crispa

[6.7]COMMON BEARBERRY*
Arctostaphylos uva-ursi

[4.9]BUNCHBERRY
Cornus canadensis

[4.3]CHOKE CHERRY
Prunus virginiana

[4.1]CANADA BUFFALOBERRY
Shepherdia canadensis

[2.9]TWINFLOWER
Linnaea borealis

[2.8]COMMON LABRADOR TEA
Ledum groenlandicum

[1.8]PRICKLY ROSE
Rosa acicularis

[1.6]LOW-BUSH CRANBERRY
Viburnum edule

[1.2]COMMON BLUEBERRY*
Vaccinium myrtilloides

Forb

[3.8]WILD STRAWBERRY
Fragaria virginiana

[2.6]COMMON FIREWEED
Epilobium angustifolium

[1.6]WILD SARSAPARILLA
Aralia nudicaulis

[1.1]STAR-FLOWERED SOLOMON'S-SEAL
Smilacina stellata

[1.0]EARLY BLUE VIOLET
Viola adunca

Moss and Liverwort

[3.7]SCHREBER'S MOSS
Pleurozium schreberi

[2.1]STAIR-STEP MOSS
Hylocomium splendens

Graminoid

[17.1]HAIRY WILD RYE*
Elymus innovatus

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (5), Mesic (fresh) (7), Submesic (moderately fresh) (9)

Nutrient Regime: Submesotrophic (poor) (3), Permesotrophic (rich) (4), Mesotrophic (medium) (14)

Elevation (range): 1110 (880-1480) M

Slope (%): steep slope (1), gentle slope (2), level (3), very strong slope (3), strong slope (4), nearly level (4), moderate slope (4), very gentle slope (6)

Aspect: Level (1), Northerly (2), Easterly (5), Westerly (5), Southerly (10)

Topographic Position:Crest (1), Upper Slope (2), Lower Slope (2), Level (3), Midslope (5)

Soil Variables

Soil Drainage: Very rapidly drained (1), Rapidly drained (4), Moderately well drained (7), Well drained (15)

Soil Subgroup: DYSTRIC BRUNISOL (1), HUMIC REGOSOL (1), EUTRIC BRUNISOL (10), GRAY LUVISOL (11)

Surface Texture: Clay (1), Silty clay loam (1), Silt loam (2), Sandy clay loam (2), Loamy sand (2), Loam (3), Sandy loam (4)

Effective Texture: Clay loam (1), Loam (1), Sand (1), Silty clay loam (2), Sandy clay (2), Clay (2), Loamy sand (3), Sandy clay loam (3)

Depth to Mottles/Gley: 26 - 50 (1)

Organic Thickness: 0 - 5 cm (25)

Parent Material: Colluvial (1), Lacustrine (1), Residual (1), Glaciolacustrine (2), Fluvial (3), Eolian (5), Glaciofluvial (5), Morainal (13)

Soil Type: Moist/Coarse (1), Very Dry/Fine (1), Very Dry/Sandy (1), Very Dry/Coarse (2), Dry/Fine (2), Dry/Sandy (3), Moist/Fine (4)

Humus Form HUMIFIBRIMOR (1), FIBRIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	6.50	1.00	13.00	15

LFh1 Sw-Pb/Choke cherry-Bearberry (fluvial) (n=2)

(Picea glauca-Populus balsamifera/Prunus virginiana-Arctostaphylos uva-ursi)

This community type was described on a fluvial outwash near Brule Lake and Brazeau area west of Drayton Valley on shallow, poor nutrient soils. The presence of Balsam Poplar and White Spruce indicates moisture availability, however, the dominance of bearberry suggests drier, poorer nutrient conditions at the soil surface. This species diversity indicates a fluctuating soil moisture conditions, perhaps created from periodic flooding from spring run-off.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c3 hairy wild rye Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WATER BIRCH *(Betula occidentalis)*	5.0	0.0-10.0	50
WHITE BIRCH *(Betula papyrifera)*	5.0	0.0-10.0	50
BALSAM POPLAR *(Populus balsamifera)*	12.5	0.0-25.0	50
WHITE SPRUCE *(Picea glauca)*	17.5	15.0-20.0	100
Tall Shrub (2 to 5m)			
SASKATOON *(Amelanchier alnifolia)*	2.5	0.0-5.0	50
WHITE SPRUCE *(Picea glauca)*	7.5	0.0-15.0	50
CHOKE CHERRY *(Prunus virginiana)*	13.0	0.0-26.0	50
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	1.0	0.0-2.0	50
ASPEN *(Populus tremuloides)*	7.5	0.0-15.0	50
Low Shrub (< 0.5m)			
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	9.5	3.0-16.0	100
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	3.0	0.0-6.0	50
YELLOW HEDYSARUM *(Hedysarum sulphurescens)*	3.0	2.0-4.0	100
STAR-FLOWERED SOLOMON'S-SEAL *(Smilacina stellata)*	3.5	3.0-4.0	100
Low Forb (< 30 cm)			
EARLY BLUE VIOLET *(Viola adunca)*	3.0	0.0-6.0	50
SHOWY LOCOWEED *(Oxytropis splendens)*	4.5	4.0-5.0	100
WILD STRAWBERRY *(Fragaria virginiana)*	5.0	0.0-10.0	50
Graminoid			
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	2.0	0.0-4.0	50
ROCKY MOUNTAIN FESCUE *(Festuca saximontana)*	2.5	0.0-5.0	50
HAIRY WILD RYE *(Elymus innovatus)*	3.0	0.0-6.0	50
SEDGE SPECIES *(Carex)*	6.0	1.0-11.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 1050 (1050-1050) M

Slope (%): 0 - 0.49 (1), 0.5 - 2.49 (1)

Aspect: Southerly (1)

Topographic Position: Level (1)

Soil Variables

Soil Drainage: Rapidly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Fluvial (1)

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFh14 Aw-Sw-Pl/Green alder/Hairy wild rye (n=6)

(Populus tremuloides-Picea glauca-Pinus contorta/Alnus crispa/Elymus innovatus)

This community type is not common in the Lower Foothills subregion and was described from only 6 sites in west central Alberta. Green alder dominated sites are much more common in the low bush cranberry and bracted honeysuckle dominated ecological sites. Green alder prefers to have some moisture at depth and the ecological conditions within this ecological site are too dry for high alder growth.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c3 hairy wild rye Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	2.6	0.0-8.0	50
ASPEN *(Populus tremuloides)*	18.8	5.0-35.0	100
LODGEPOLE PINE *(Pinus contorta)*	20.0	10.0-40.0	100
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	2.6	0.0-8.0	67
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	13.5	0.0-50.0	83
Medium Shrub (0.5 to 2 m)			
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	3.8	0.0-15.0	50
LOW-BUSH CRANBERRY *(Viburnum edule)*	4.8	1.0-8.0	100
TWINFLOWER *(Linnaea borealis)*	5.8	0.0-15.0	83
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	6.6	0.0-30.0	33
COMMON LABRADOR TEA *(Ledum groenlandicum)*	8.6	0.0-45.0	67
GREEN ALDER *(Alnus crispa)*	10.8	0.0-30.0	83
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	1.5	0.0-4.0	67
Tall Forb (>= 30 cm)			
WILD SARSAPARILLA *(Aralia nudicaulis)*	4.8	0.0-20.0	50
COMMON FIREWEED *(Epilobium angustifolium)*	6.6	0.0-20.0	67
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	2.6	0.0-5.0	83
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.6	0.0-15.0	33
STIFF CLUB-MOSS *(Lycopodium annotinum)*	4.3	0.0-25.0	33
BUNCHBERRY *(Cornus canadensis)*	13.0	0.0-30.0	83
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	21.8	4.0-50.0	100
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	11.3	0.0-30.0	83

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (1), Mesic (fresh) (2), Submesic (moderately fresh) (3)

Nutrient Regime: Permesotrophic (rich) (1), Submesotrophic (poor) (2), Mesotrophic (medium) (3)

Elevation (range): 1077 (914-1230) M

Slope (%): 10 - 15.99 (1), 0 - 0.49 (1), 6 - 9.99 (1), 31 - 45.99 (1), 16 - 30.99 (1), 0.5 - 2.49 (1)

Aspect: Southerly (1), Westerly (1), Northerly (2)

Topographic Position: Upper Slope (1), Midslope (1), Crest (1)

Soil Variables

Soil Drainage: Moderately well drained (3), Well drained (3)

Soil Subgroup: DYSTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL BRUNISOLIC (1), EUTRIC BRUNISOL ORTHIC (3)

Surface Texture: Loamy sand (1), Loam (1), Sandy loam (3)

Effective Texture: Sandy clay loam (1), Silty clay loam (2), Loamy sand (2)

Depth to Mottles/Gley: 26 - 50 (1)

Organic Thickness: 0 - 5 cm (6)

Parent Material: Glaciolacustrine (1), Residual (1), Eolian (2), Morainal (2), Glaciofluvial (3)

Soil Type: Moist/Fine (1), Dry/Sandy (1), Dry/Fine (1), Very Dry/Sandy (1)

Humus Form FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	9.00	5.00	13.00	5

LFh2 Aw-Sw-Pl/Canada buffaloberry/Hairy wildrye (n=21)

(Populus tremuloides-Picea glauca-Pinus contorta/Shepherdia canadensis/Elymus innovatus)

This community type resembles the Aw-Sw-Pl/Buffalo-berry community type described by Beckingham (1994) and was described as part of the low-bush cranberry ecosite in Beckingham et al (1996). It has the driest and the poorest nutrients of any community type within the mesic ecosites and was therefore was placed within the submesic hairy wildrye ecological site within this classification.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c3 hairy wild rye Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	11.0	0.0-34.0	71
LODGEPOLE PINE *(Pinus contorta)*	12.0	0.0-37.0	71
ASPEN *(Populus tremuloides)*	22.5	1.0-61.0	100
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	2.4	0.0-15.0	33
WHITE SPRUCE *(Picea glauca)*	4.5	0.0-42.0	33
Medium Shrub (0.5 to 2 m)			
SASKATOON *(Amelanchier alnifolia)*	1.0	0.0-18.0	14
GROUND JUNIPER *(Juniperus communis)*	1.8	0.0-28.0	29
BOG CRANBERRY *(Vaccinium vitis-idaea)*	2.4	0.0-30.0	33
TWINFLOWER *(Linnaea borealis)*	3.1	0.0-18.0	71
PRICKLY ROSE *(Rosa acicularis)*	4.6	0.0-13.0	91
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	5.8	0.0-20.0	91
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	10.9	0.0-50.0	86
Tall Forb (>= 30 cm)			
WILD VETCH *(Vicia americana)*	1.1	0.0-5.0	62
COMMON FIREWEED *(Epilobium angustifolium)*	1.4	0.0-8.0	57
LINDLEY'S ASTER *(Aster ciliolatus)*	1.7	0.0-10.0	57
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.5	0.0-8.0	81
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	1.9	0.0-18.0	43
WILD STRAWBERRY *(Fragaria virginiana)*	3.8	0.0-15.0	95
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	26.7	0.0-80.0	95
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	6.4	0.0-30.0	57

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (4), Submesic (moderately fresh) (5), Mesic (fresh) (5)

Nutrient Regime: Submesotrophic (poor) (1), Permesotrophic (rich) (3), Mesotrophic (medium) (10)

Elevation (range): 1203 (880-1480) M

Slope (%): 6 - 9.99 (1), 46 - 70.99 (1), 0 - 0.49 (1), 31 - 45.99 (2), 0.5 - 2.49 (2), 10 - 15.99 (3), 16 - 30.99 (3), 2.5 - 5.99 (6)

Aspect: Level (1), Westerly (4), Easterly (5), Southerly (8)

Topographic Position: Upper Slope (1), Lower Slope (2), Level (2), Midslope (4)

Soil Variables

Soil Drainage: Very rapidly drained (1), Rapidly drained (3), Moderately well drained (4), Well drained (12)

Soil Subgroup: HUMIC REGOSOL ORTHIC (1), GRAY LUVISOL ORTHIC (1), GRAY LUVISOL GLEYED (1), EUTRIC BRUNISOL ORTHIC (6), GRAY LUVISOL BRUNISOLIC (8)

Surface Texture: Sandy loam (1), Loamy sand (1), Silty clay loam (1), Clay (1), Silt loam (2), Sandy clay loam (2), Loam (2)

Effective Texture: Clay loam (1), Loam (1), Loamy sand (1), Sand (1), Sandy clay loam (2), Sandy clay (2), Clay (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (18)

Parent Material: Lacustrine (1), Colluvial (1), Glaciolacustrine (1), Fluvial (2), Glaciofluvial (2), Eolian (3), Morainal (11)

Soil Type: Very Dry/Fine (1), Moist/Coarse (1), Dry/Fine (1), Very Dry/Coarse (2), Dry/Sandy (2), Moist/Fine (3)

Humus Form HUMIFIBRIMOR (1), FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	4.00	1.00	9.00	10

c4 hairy wild rye Sw (n=8)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Tree

[27.1]WHITE SPRUCE*
Picea glauca

[2.6]ASPEN
Populus tremuloides

[2.1]LODGEPOLE PINE
Pinus contorta

Shrub

[3.5]CANADA BUFFALOBERRY*
Shepherdia canadensis

[2.8]COMMON BEARBERRY*
Arctostaphylos uva-ursi

[2.2]PRICKLY ROSE
Rosa acicularis

[1.5]UNDIFFERENTIATED DRYAS*
Dryas

[1.3]LOW-BUSH CRANBERRY
Viburnum edule

Forb

[3.5]UNDIFFERENTIATED LOCOWEED
Oxytropis

[3.4]SHOWY ASTER
Aster conspicuus

[2.6]WILD STRAWBERRY
Fragaria virginiana

[2.5]UNDIFFERENTIATED GOLDENROD
Solidago

Moss and Liverwort

[8.6]STAIR-STEP MOSS
Hylocomium splendens

[8.0]N/A
Thuidium abietinum

[1.6]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[12.4]HAIRY WILD RYE*
Elymus innovatus

Environmental Variables

Moisture Regime: Mesic (fresh) (3)

Nutrient Regime: Mesotrophic (medium) (3)

Elevation (range): 1126.33 (976-1377) M

Slope (%): level (1), nearly level (1), strong slope (2), moderate slope (2)

Aspect: Westerly (1), Southerly (2), Level (2)

Topographic Position:Level (2)

Soil Variables

Soil Drainage: Rapidly drained (1), Well drained (6)

Soil Subgroup: EUTRIC BRUNISOL (4)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (5)

Parent Material: Fluvial (1), Morainal (2), Glaciofluvial (2), Eolian (3)

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	9.00	4.00	28.00	2

LFj29 Sw/Yellow mountain avens (fluvial) (n=1)

(Picea glauca/Dryas drummondiana)

This community type is not common in the Lower Foothills subregion but can be found on gravelly floodplains along rivers and streams. This type can be dominated by balsam poplar (LFh1) with an understory of spruce in the early successional stages. Yellow mountain avens is a common pioneer species on gravelly river bars and rocky slopes up into the alpine tundra (MacKinnon et al., 1992). As this community succeeds towards a mature forest, yellow mountain avens will decline in cover. The forage production on this community type is very low. The excessively drained surface soil horizon limits the growth of grasses, forbs and shrubs.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c4 hairy wild rye Sw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	15.0	15.0-15.0	100
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	3.0	3.0-3.0	100
Tall Shrub (2 to 5m)			
WHITE SPRUCE *(Picea glauca)*	3.0	3.0-3.0	100
Medium Shrub (0.5 to 2 m)			
BALSAM POPLAR *(Populus balsamifera)*	1.0	1.0-1.0	100
WHITE SPRUCE *(Picea glauca)*	3.0	3.0-3.0	100
UNDIFFERENTIATED DRYAS *(Dryas)*	3.0	3.0-3.0	100
Tall Forb (>= 30 cm)			
UNDIFFERENTIATED GOLDENROD *(Solidago)*	5.0	5.0-5.0	100
Low Forb (< 30 cm)			
COMMON YARROW *(Achillea millefolium)*	1.0	1.0-1.0	100
ASTER SPECIES *(Aster)*	1.0	1.0-1.0	100
WILD STRAWBERRY *(Fragaria virginiana)*	4.0	4.0-4.0	100
UNDIFFERENTIATED LOCOWEED *(Oxytropis)*	7.0	7.0-7.0	100
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	1.0	1.0-1.0	100
UNDIFFERENTIATED BROMUS *(Bromus)*	1.0	1.0-1.0	100
WHEAT GRASS SPECIES *(Agropyron)*	1.0	1.0-1.0	100
SEDGE SPECIES *(Carex)*	1.0	1.0-1.0	100
Not Applicable			
UNDIFFERENTIATED TARAXACUM *(Taraxacum)*	1.0	1.0-1.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime:

Nutrient Regime:

Elevation (range): 1130 (1130-1130) M

Slope (%): 0 - 0.49 (1)

Aspect:

Topographic Position:

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Fluvial (1)

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFj3 Sw/Canada buffaloberry/Hairy wildrye (n=5)

(Picea glauca/Shepherdia canadensis/Elymus innovatus)

This community type was recorded around Hinton, close to the borders of the Montane and Upper Foothills subregions. It is a fairly dry type, as indicated by the high abundance of buffalo-berry and bearberry. It may also be somewhat windswept and desiccated.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c4 hairy wild rye Sw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	4.2	0.0-20.0	40
ASPEN *(Populus tremuloides)*	5.2	0.0-26.0	20
WHITE SPRUCE *(Picea glauca)*	30.2	1.0-60.0	100
Medium Shrub (0.5 to 2 m)			
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.6	0.0-10.0	80
PRICKLY ROSE *(Rosa acicularis)*	4.4	1.0-13.0	100
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	5.7	0.0-26.5	60
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	7.1	0.7-20.0	100
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	1.0	1.0-1.3	100
NORTHERN HEDYSARUM *(Hedysarum boreale)*	1.1	0.0-5.9	20
COMMON FIREWEED *(Epilobium angustifolium)*	1.2	0.0-4.0	60
SHOWY ASTER *(Aster conspicuus)*	6.8	0.0-20.0	80
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.2	1.0-2.1	100
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.2	0.0-4.0	60
Graminoid			
ROUGH FESCUE *(Festuca scabrella)*	1.4	0.0-7.0	20
HAIRY WILD RYE *(Elymus innovatus)*	23.8	0.0-45.0	80
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	3.2	0.0-10.0	60
N/A *(Thuidium abietinum)*	16.0	0.0-80.0	20
STAIR-STEP MOSS *(Hylocomium splendens)*	17.2	0.0-75.0	60

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 1211 (1070-1377) M

Slope (%): 10 - 15.99 (2), 16 - 30.99 (2)

Aspect: Southerly (1), Westerly (1), Level (2)

Topographic Position: Level (1)

Soil Variables

Soil Drainage: Rapidly drained (1), Well drained (4)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL ORTHIC (3)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Morainal (2), Glaciofluvial (2), Eolian (3)

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

c5 hairy wild rye shrubland (n=1)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Tree

[3.0]ASPEN
Populus tremuloides

Shrub

[29.0]PRICKLY ROSE*
Rosa acicularis

[17.0]DWARF BILBERRY*
Vaccinium caespitosum

[10.0]CANADA BUFFALOBERRY*
Shepherdia canadensis

[3.0]SALIX SPECIES
Salix

Forb

[15.0]WILD STRAWBERRY
Fragaria virginiana

[7.0]COMMON DANDELION
Taraxacum officinale

[6.0]COMMON YARROW
Achillea millefolium

[1.0]LINDLEY'S ASTER
Aster ciliolatus

Moss and Liverwort

[44.0]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[8.0]HAIRY WILD RYE*
Elymus innovatus

[5.0]PURPLE OAT GRASS
Schizachne purpurascens

[1.0]BLUEJOINT
Calamagrostis canadensis

[1.0]FRINGED BROME
Bromus ciliatus

Environmental Variables

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Submesotrophic (poor) (1)

Elevation (range): 914 (914-914) M

Slope (%):

Aspect:

Topographic Position:

Soil Variables

Soil Drainage: Moderately well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFc1 Rose-Dwarf bilberry/Feather moss (n=1)

(Rosa acicularis-Vaccinium caespitosum/Pleurozium schreberi)

This community type occurs in small isolated openings within the aspen dominated forests of the Saddle Hills northwest of Grande Prairie. These sites appear to have gravelly, well drained soils which inhibit the growth of trees and allow shrubs such as rose and dwarf bilberry to dominate.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c5 hairy wild rye shrubland

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
ASPEN *(Populus tremuloides)*	3.0	3.0-3.0	100
Medium Shrub (0.5 to 2 m)			
SALIX SPECIES *(Salix)*	3.0	3.0-3.0	100
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	10.0	10.0-10.0	100
PRICKLY ROSE *(Rosa acicularis)*	29.0	29.0-29.0	100
Low Shrub (< 0.5m)			
DWARF BILBERRY *(Vaccinium caespitosum)*	17.0	17.0-17.0	100
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	1.0	1.0-1.0	100
Low Forb (< 30 cm)			
COMMON YARROW *(Achillea millefolium)*	6.0	6.0-6.0	100
COMMON DANDELION *(Taraxacum officinale)*	7.0	7.0-7.0	100
WILD STRAWBERRY *(Fragaria virginiana)*	15.0	15.0-15.0	100
Graminoid			
FRINGED BROME *(Bromus ciliatus)*	1.0	1.0-1.0	100
BLUEJOINT *(Calamagrostis canadensis)*	1.0	1.0-1.0	100
PURPLE OAT GRASS *(Schizachne purpurascens)*	5.0	5.0-5.0	100
HAIRY WILD RYE *(Elymus innovatus)*	8.0	8.0-8.0	100
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	44.0	44.0-44.0	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Submesotrophic (poor) (1)

Elevation (range): 914 (914-914) M

Slope (%):

Aspect:

Topographic Position:

Soil Variables

Soil Drainage: Moderately well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

c6 intermediate oatgrass grasslands (n=3)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Tree

[3.3]ASPEN
Populus tremuloides

Shrub

[39.0]COMMON BEARBERRY*
Arctostaphylos uva-ursi

[3.7]PRICKLY ROSE
Rosa acicularis

[3.7]SHRUBBY CINQUEFOIL
Potentilla fruticosa

[3.4]PIN CHERRY
Prunus pensylvanica

[1.6]SASKATOON
Amelanchier alnifolia

Forb

[6.9]WILD STRAWBERRY
Fragaria virginiana

[6.1]EARLY YELLOW LOCOWEED*
Oxytropis sericea

[2.5]NORTHERN BEDSTRAW
Galium boreale

[2.0]VEINY MEADOW RUE
Thalictrum venulosum

[1.9]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

[1.8]SMOOTH ASTER
Aster laevis

[1.7]ALPINE GOLDENROD
Solidago multiradiata

[1.3]GRACEFUL CINQUEFOIL
Potentilla gracilis

Graminoid

[9.8]INTERMEDIATE OAT GRASS*
Danthonia intermedia

[5.8]HAIRY WILD RYE*
Elymus innovatus

[5.3]SEDGE SPECIES
Carex

[3.5]SLENDER WHEAT GRASS*
Agropyron trachycaulum

[3.3]N/A
Festuca altaica

[2.4]PARRY OAT GRASS*
Danthonia parryi

[1.1]KENTUCKY BLUEGRASS
Poa pratensis

[1.0]PURPLE OAT GRASS
Schizachne purpurascens

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (1), Subxeric (moderately dry) (1), Xeric (dry) (1)

Nutrient Regime: Submesotrophic (poor) (1), Mesotrophic (medium) (2)

Elevation (range): 1176 (914-1365) M

Slope (%): nearly level (1), steep slope (1), strong slope (1)

Aspect: Southerly (1), Westerly (2)

Topographic Position:Upper Slope (1), Midslope (2)

Soil Variables

Soil Drainage: Moderately well drained (1), Rapidly drained (1), Very rapidly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFb3 Intermediate oat grass-Sedge/Bearberry (n=3)

(Danthonia intermedia-Carex spp./Arctostaphylos uva-ursi)

Dry, gravelly or stony soils support this moderately productive grassland that is dominated by Intermediate oatgrass. Small pockets of this community type occur throughout the Lower Foothills subregion. This community type was described in the Saddle hills northwest of Grande Prairie and in Coalcamp and Lower Fallen Timber west of Sundre. This community is located on steep, south facing slopes, small hillcrests and level areas with poorly developed soils. These sites are well-drained with subxeric to subhygric soils. The soils of this community type are not as well developed with poorer nutrients than the Rough fescue-Hairy wildrye reference community described within the rough fescue ecological site. In the Subalpine subregion, these Intermediate oatgrass dominated grasslands are often associated with bog sedge (Willoughby and Alexander 2006). The dry site conditions limit the amount of forage available for domestic livestock and on the steeper slopes livestock access is restricted.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c6 intermediate oatgrass grasslands

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Medium Shrub (0.5 to 2 m)			
SASKATOON *(Amelanchier alnifolia)*	1.6	0.0-4.0	67
ASPEN *(Populus tremuloides)*	3.3	0.0-10.0	33
PIN CHERRY *(Prunus pensylvanica)*	3.4	0.0-10.2	33
SHRUBBY CINQUEFOIL *(Potentilla fruticosa)*	3.7	0.0-11.3	33
PRICKLY ROSE *(Rosa acicularis)*	3.7	0.0-7.0	67
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	39.0	21.0-56.0	100
Tall Forb (>= 30 cm)			
GRACEFUL CINQUEFOIL *(Potentilla gracilis)*	1.3	0.0-3.9	33
SMOOTH ASTER *(Aster laevis)*	1.8	0.0-4.7	67
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.9	0.0-5.0	67
VEINY MEADOW RUE *(Thalictrum venulosum)*	2.0	0.0-5.0	67
Low Forb (< 30 cm)			
ALPINE GOLDENROD *(Solidago multiradiata)*	1.7	0.0-5.2	33
COMMON YARROW *(Achillea millefolium)*	2.0	0.0-5.0	67
NORTHERN BEDSTRAW *(Galium boreale)*	2.5	0.0-5.0	67
EARLY YELLOW LOCOWEED *(Oxytropis sericea)*	6.1	0.0-18.3	33
WILD STRAWBERRY *(Fragaria virginiana)*	6.9	5.5-8.0	100
Graminoid			
PURPLE OAT GRASS *(Schizachne purpurascens)*	1.0	0.0-3.0	33
KENTUCKY BLUEGRASS *(Poa pratensis)*	1.1	0.0-2.0	67
PARRY OAT GRASS *(Danthonia parryi)*	2.4	0.0-7.3	33
N/A *(Festuca altaica)*	3.3	0.0-9.9	33
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	3.5	2.0-7.2	100
SEDGE SPECIES *(Carex)*	5.3	0.0-14.0	67
HAIRY WILD RYE *(Elymus innovatus)*	5.8	0.1-14.0	100
INTERMEDIATE OAT GRASS *(Danthonia intermedia)*	9.8	0.0-11.0	66

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Subxeric (moderately dry) (1), Xeric (dry) (1), Subhygric (moderately moist) (1)

Nutrient Regime: Submesotrophic (poor) (1), Mesotrophic (medium) (2)

Elevation (range): 1176 (914-1365) M

Slope (%): 16 - 30.99 (1), 46 - 70.99 (1), 0.5 - 2.49 (1)

Aspect: Southerly (1), Westerly (2)

Topographic Position: Upper Slope (1), Midslope (2)

Soil Variables

Soil Drainage: Rapidly drained (1), Very rapidly drained (1), Moderately well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

c7 hairy wild rye tame (n=3)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)

Characteristic Species

Forb

[22.3]WHITE CLOVER
Trifolium repens

[3.3]COMMON DANDELION
Taraxacum officinale

[2.6]WILD STRAWBERRY
Fragaria virginiana

[1.0]COMMON YARROW
Achillea millefolium

Graminoid

[13.5]CREEPING RED FESCUE
Festuca rubra

[8.0]HAIRY WILD RYE
Elymus innovatus

[6.9]SLENDER WHEAT GRASS
Agropyron trachycaulum

[3.6]TIMOTHY
Phleum pratense

[3.0]SEDGE SPECIES
Carex

[2.9]TUFTED HAIR GRASS
Deschampsia cespitosa

[1.6]KENTUCKY BLUEGRASS
Poa pratensis

[1.0]PURPLE OAT GRASS
Schizachne purpurascens

Environmental Variables

Moisture Regime: Xeric (dry) (1), Submesic (moderately fresh) (2)

Nutrient Regime: Submesotrophic (poor) (1), Mesotrophic (medium) (2)

Elevation (range): 1044 (940-1243) M

Slope (%): gentle slope (1), level (1), nearly level (1)

Aspect: Level (1), Southerly (1)

Topographic Position:Level (2)

Soil Variables

Soil Drainage: Well drained (3)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFa7 Hairy wild rye-Slender wheatgrass-Creeping red fescue/Clover (n=3)

(Elymus innovatus-Agropyron trachycaulum-Festuca rubra/Trifolium spp.)

This pasture community type has been modified from the original seeded mixture. After the original seeding (Creeping Red Fescue - Timothy - Clover) the pasture was grazed and has been slowly invaded by native species (Hairy wildrye, slender wheatgrass). These old native dominated tame pastures are not as productive as newly seeded sites that are dominated by agronomic species and some pasture renovation should be considered.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: c hairy wild rye (submesic/medium)
Ecosite Phase: c7 hairy wild rye tame

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Tall Shrub (2 to 5m)			
WHITE SPRUCE *(Picea glauca)*	0.1	0.0-0.3	33
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	0.0	0.0-0.1	33
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	0.4	0.0-1.3	33
Low Forb (< 30 cm)			
COMMON YARROW *(Achillea millefolium)*	1.0	0.0-3.0	33
WILD STRAWBERRY *(Fragaria virginiana)*	2.6	0.0-8.0	33
COMMON DANDELION *(Taraxacum officinale)*	3.3	0.0-9.0	67
WHITE CLOVER *(Trifolium repens)*	22.3	8.0-30.0	100
Graminoid			
PURPLE OAT GRASS *(Schizachne purpurascens)*	1.0	0.0-3.0	33
KENTUCKY BLUEGRASS *(Poa pratensis)*	1.6	0.0-3.0	67
TUFTED HAIR GRASS *(Deschampsia cespitosa)*	2.9	0.0-8.7	33
SEDGE SPECIES *(Carex)*	3.0	0.0-9.0	33
TIMOTHY *(Phleum pratense)*	3.6	0.0-9.0	67
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	6.9	0.0-20.0	67
HAIRY WILD RYE *(Elymus innovatus)*	8.0	0.0-24.0	33
CREEPING RED FESCUE *(Festuca rubra)*	13.5	0.0-22.5	67

Environmental Variables

Ecological Status Score: 0-7

Moisture Regime: Xeric (dry) (1), Submesic (moderately fresh) (2)

Nutrient Regime: Submesotrophic (poor) (1), Mesotrophic (medium) (2)

Elevation (range): 1044 (940-1243) M

Slope (%): 0.5 - 2.49 (1), 0 - 0.49 (1), 6 - 9.99 (1)

Aspect: Southerly (1), Level (1)

Topographic Position: Level (2)

Soil Variables

Soil Drainage: Well drained (3)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

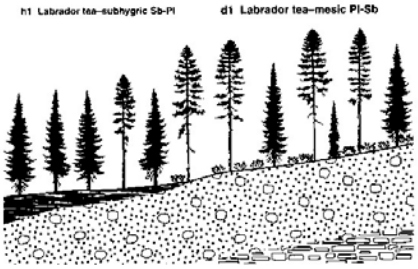
d Labrador tea - mesic (mesic/poor) (n=181)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

This ecosite tends to have a submesic to mesic, nutrient-poor to medium substrate. Labrador tea and bog cranberry are indicative of the relatively acidic surface soil conditions. It occurs in upland (midslope and upper slope) or level topographic positions on morainal or glaciofluvial parent materials. There is commonly a two-tiered even-aged canopy where the faster growing lodgepole pine comprise the higher layer and the slower growing black spruce form a secondary canopy below the pine. While the Labrador tea-mesic ecosite (d) has plant community types similar to the Labrador tea-subhygric ecosite (h), the subhygric ecosite (h) tends to occur in lower topographic positions, commonly has mottles near the soil surface, has a thicker organic layer, and tends to be dominated by black spruce rather than pine. Based on site index data, the green alder-dominated plant community type of the Labrador tea-mesic ecosite tends to be more productive than the Labrador tea or feather moss plant community types.



Successional Relationships

Successionally mature stands that develop on this ecosite may be dominated by black spruce. Residual pine occurring in the climax community are generally very old. The successionally mature stage is rare due to high fire frequency.

Indicator Species

Tree

WHITE SPRUCE
Picea glauca

BLACK SPRUCE
Picea mariana

LODGEPOLE PINE
Pinus contorta

ASPEN
Populus tremuloides

Shrub

COMMON LABRADOR TEA
Ledum groenlandicum

COMMON BLUEBERRY
Vaccinium myrtilloides

BOG CRANBERRY
Vaccinium vitis-idaea

GREEN ALDER
Alnus crispa

Moss and Liverwort

STAIR-STEP MOSS
Hylocomium splendens

SCHREBER'S MOSS
Pleurozium schreberi

Site Index at 50 Years	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	12.60	1.80	10
LODGEPOLE PINE *(Pinus contorta)*	15.30	0.20	277
BLACK SPRUCE *(Picea mariana)*	12.80	0.60	32
BALSAM FIR *(Abies balsamea)*	11.10	0.90	9
ASPEN *(Populus tremuloides)*	15.90	1.20	10

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (4), Subhygric (moderately moist) (27), Submesic (moderately fresh) (40), Mesic (fresh) (102)

Nutrient Regime: Permesotrophic (rich) (2), Submesotrophic (poor) (72), Mesotrophic (medium) (95)

Elevation (range): 1101.6 (740-1490) M

Slope (%): strong slope (6), moderate slope (17), gentle slope (32), nearly level (36), very gentle slope (42), level (45)

Aspect: Southerly (16), Easterly (24), Level (26), Westerly (39), Northerly (46)

Topographic Position:Crest (2), Lower Slope (7), Upper Slope (13), Midslope (28), Level (38)

Soil Variables

Soil Drainage: Imperfectly drained (3), Rapidly drained (9), Well drained (56), Moderately well drained (104)

Soil Subgroup: DARK GRAY CHERNOZEM (1), SOMBRIC BRUNISOL (1), MELANIC BRUNISOL (2), EUTRIC BRUNISOL (17), DYSTRIC BRUNISOL (19), GRAY LUVISOL (123)

Surface Texture: Coarse sandy loam (1), Loamy medium sand (1), Sandy clay (1), Loamy fine sand (2), Silty clay (4), Silt (5), Fine sandy loam (5), Clay (6), Sand (6), Sandy clay loam (6), Clay loam (10), Silty clay loam (11), Loamy sand (12), Sandy loam (13), Silt loam (33), Loam (34)

Effective Texture: Loamy medium sand (1), Silt (1), Silt loam (1), Loamy fine sand (2), Fine Sandy Clay Loam (2), Heavy clay (2), Loam (3), Loamy sand (4), Sand (5), Sandy loam (6), Sandy clay (7), Silty clay (10), Sandy clay loam (12), Silty clay loam (19), Clay (35), Clay loam (40)

Depth to Mottles/Gley: 51 - 100 (4), 26 - 50 (10), 0 - 25 (17)

Organic Thickness: 0 - 5 cm (175)

Parent Material: Residual (1), Colluvial (2), Fluvioeolian (3), Saprolite (3), Rock (6), Lacustrine (7), Eolian (13), Fluvial (19), Glaciolacustrine (26), Glaciofluvial (34), Morainal (86)

Soil Type: Very Dry/Coarse (1), Very Dry/Fine (1), Wet/Mineral (1), Very Dry/Sandy (2), Dry/Coarse (2), Moist/Coarse (2), Dry/Silty-Loamy (3), Moist/Silty-Loamy (4), Moist/Sandy (5), Dry/Sandy (6), Dry/Fine (15), Moist/Fine (95)

Humus Form RAW MODER (3), MOR (5), FIBRIHUMIMOR (8), FIBRIMOR (23)

LFH Thickness	Mean	Min	Max	Count
cm:	7.40	1.00	28.00	149

d1 Labrador tea-mesic Pl-Sb (n=147)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)

Characteristic Species

Tree

[33.4]LODGEPOLE PINE*
Pinus contorta

[14.9]BLACK SPRUCE
Picea mariana

Shrub

[23.9]COMMON LABRADOR TEA*
Ledum groenlandicum

[9.0]BOG CRANBERRY*
Vaccinium vitis-idaea

[6.6]BUNCHBERRY
Cornus canadensis

[6.0]COMMON BLUEBERRY
Vaccinium myrtilloides

[3.7]GREEN ALDER*
Alnus crispa

[3.2]TWINFLOWER
Linnaea borealis

[1.6]PRICKLY ROSE
Rosa acicularis

Moss and Liverwort

[39.2]SCHREBER'S MOSS*
Pleurozium schreberi

[16.7]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

[15.3]STAIR-STEP MOSS
Hylocomium splendens

Graminoid

[1.0]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (3), Subhygric (moderately moist) (19), Submesic (moderately fresh) (33), Mesic (fresh) (83)

Nutrient Regime: Submesotrophic (poor) (63), Mesotrophic (medium) (72)

Elevation (range): 1044 (740-1490) M

Slope (%): strong slope (4), moderate slope (10), gentle slope (25), nearly level (33), very gentle slope (35), level (37)

Aspect: Southerly (14), Easterly (18), Level (18), Westerly (32), Northerly (36)

Topographic Position:Crest (1), Lower Slope (4), Upper Slope (12), Midslope (18), Level (30)

Soil Variables

Soil Drainage: Rapidly drained (7), Well drained (50), Moderately well drained (81)

Soil Subgroup: DARK GRAY CHERNOZEM (1), SOMBRIC BRUNISOL (1), MELANIC BRUNISOL (2), EUTRIC BRUNISOL (15), DYSTRIC BRUNISOL (18), GRAY LUVISOL (97)

Surface Texture: Coarse sandy loam (1), Loamy medium sand (1), Loamy fine sand (2), Clay (3), Fine sandy loam (3), Silty clay (3), Sandy clay loam (5), Silt (5), Sand (6), Clay loam (9), Silty clay loam (10), Sandy loam (10), Loamy sand (11), Loam (24), Silt loam (30)

Effective Texture: Fine Sandy Clay Loam (1), Loamy medium sand (1), Silt (1), Silt loam (1), Loamy fine sand (2), Heavy clay (2), Loam (3), Sandy loam (4), Loamy sand (4), Sand (5), Sandy clay (6), Silty clay (7), Sandy clay loam (10), Silty clay loam (18), Clay (26), Clay loam (32)

Depth to Mottles/Gley: 51 - 100 (3), 26 - 50 (9), 0 - 25 (14)

Organic Thickness: 0 - 5 cm (146)

Parent Material: Colluvial (1), Fluvioeolian (3), Rock (6), Fluvial (7), Lacustrine (7), Eolian (12), Glaciolacustrine (21), Glaciofluvial (29), Morainal (79)

Soil Type: Moist/Coarse (1), Wet/Mineral (1), Very Dry/Sandy (2), Dry/Coarse (2), Dry/Silty-Loamy (3), Moist/Silty-Loamy (4), Moist/Sandy (5), Dry/Sandy (6), Dry/Fine (13), Moist/Fine (85)

Humus Form RAW MODER (2), MOR (5), FIBRIHUMIMOR (7), FIBRIMOR (10)

LFH Thickness	Mean	Min	Max	Count
cm:	6.50	2.00	15.00	122

LFj4 Pl-Sb/Labrador tea/Feather moss (n=130)

(Pinus contorta-Picea mariana/Ledum groenlandicum/Pleurozium schreberi)

This community occurs in mid to upper slope postions and generally has a two tiered canopy composed of Lodgepole pine and black spruce. In the absence of disturbance this community will continue to succeed to black spruce. This community type combines the Pl-Sb/Labrador tea/Schreber's moss (c1.1) and Pl-Sb/Schreber's moss (c1.3) community types from the West-central field guide (Beckingham et al. 1996).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)
Ecosite Phase: d1 Labrador tea-mesic Pl-Sb

Plant Composition

	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	6.4	0.0-53.0	39
LODGEPOLE PINE *(Pinus contorta)*	27.4	0.0-85.0	95
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	2.9	0.0-40.0	42
BLACK SPRUCE *(Picea mariana)*	7.8	0.0-45.0	65
Tall Shrub (2 to 5m)			
BLACK SPRUCE *(Picea mariana)*	2.5	0.0-50.0	44
Medium Shrub (0.5 to 2 m)			
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	1.1	0.0-35.0	25
PRICKLY ROSE *(Rosa acicularis)*	1.7	0.0-12.0	72
BLACK SPRUCE *(Picea mariana)*	2.9	0.0-82.0	55
TWINFLOWER *(Linnaea borealis)*	3.5	0.0-72.0	79
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	5.7	0.0-50.0	85
BOG CRANBERRY *(Vaccinium vitis-idaea)*	6.8	0.0-52.0	76
COMMON LABRADOR TEA *(Ledum groenlandicum)*	18.1	0.0-80.0	93
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.0	0.0-8.0	59
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	5.8	0.0-45.0	92
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	1.0	0.0-8.0	49
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	13.9	0.0-75.0	75
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	17.6	0.0-75.0	81
SCHREBER'S MOSS *(Pleurozium schreberi)*	35.3	0.0-90.0	83

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (3), Subhygric (moderately moist) (17), Submesic (moderately fresh) (29), Mesic (fresh) (73)

Nutrient Regime: Submesotrophic (poor) (57), Mesotrophic (medium) (62)

Elevation (range): 1002 (740-1400) M

Slope (%): 16 - 30.99 (3), 10 - 15.99 (10), 6 - 9.99 (21), 0.5 - 2.49 (30), 2.5 - 5.99 (30), 0 - 0.49 (33)

Aspect: Southerly (12), Level (15), Easterly (17), Westerly (25), Northerly (34)

Topographic Position: Lower Slope (4), Upper Slope (11), Midslope (17), Level (29)

Soil Variables

Soil Drainage: Rapidly drained (6), Well drained (43), Moderately well drained (72)

Soil Subgroup: SOMBRIC BRUNISOL ORTHIC (1), GRAY LUVISOL PODZOLIC (1), EUTRIC BRUNISOL GLEYED (1), DYSTRIC BRUNISOL ORTHIC (1), DYSTRIC BRUNISOL GLEYED ELUVIATED (1), EUTRIC BRUNISOL GLEYED ELUVIATED (1), GRAY LUVISOL GLEYED DARK (1), EUTRIC BRUNISOL ORTHIC (2), MELANIC BRUNISOL ORTHIC (2), GRAY LUVISOL GLEYED BRUNISOLIC (3), GRAY LUVISOL GLEYED (3), EUTRIC BRUNISOL ELUVIATED (9), GRAY LUVISOL DARK (11), DYSTRIC BRUNISOL ELUVIATED (12), GRAY LUVISOL ORTHIC (24), GRAY LUVISOL BRUNISOLIC (45)

Surface Texture: Loamy medium sand (1), Coarse sandy loam (1), Loamy fine sand (2), Fine sandy loam (3), Silty clay (3), Clay (3), Sandy clay loam (5), Silt (5), Sand (5), Silty clay loam (9), Sandy loam (9), Clay loam (9), Loamy sand (9), Loam (20), Silt loam (27)

Effective Texture: Loamy medium sand (1), Silt (1), Silt loam (1), Fine Sandy Clay Loam (1), Loamy fine sand (2), Loam (2), Heavy clay (2), Loamy sand (3), Sandy loam (4), Sand (4), Sandy clay (6), Silty clay (7), Sandy clay loam (8), Silty clay loam (18), Clay loam (25), Clay (26)

Depth to Mottles/Gley: 51 - 100 (3), 26 - 50 (8), 0 - 25 (13)

Organic Thickness: 0 - 5 cm (129)

Parent Material: Colluvial (1), Fluvioeolian (3), Rock (5), Lacustrine (6), Fluvial (7), Eolian (11), Glaciolacustrine (18), Glaciofluvial (26), Morainal (69)

Soil Type: Very Dry/Sandy (1), Moist/Coarse (1), Wet/Mineral (1), Dry/Coarse (2), Moist/Silty-Loamy (3), Dry/Silty-Loamy (3), Moist/Sandy (4), Dry/Sandy (6), Dry/Fine (12), Moist/Fine (77)

Humus Form RAW MODER (2), MOR (5), FIBRIHUMIMOR (7), FIBRIMOR (9)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	2.00	15.00	111

LFj5 Pl-Sb/Green alder-Labrador tea/Feather moss (n=17)

(Pinus contorta-Picea mariana/Alnus crispa-Ledum groenlandicum/Pleurozium schreberi)

This community occurs in mid to upper slope postions and generally has a two tiered canopy composed of Lodgepole pine and black spruce. This community type was described from the West-central field guide (Beckingham et al. 1996) and is transitional to the mesic/medium low-bush cranberry ecological site, but the presence of black spruce and Labrador tea indicate the slightly poorer nutrient regime. In the absence of disturbance this community will continue to succeed to black spruce.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)
Ecosite Phase: d1 Labrador tea-mesic Pl-Sb

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	3.0	0.0-29.0	29
LODGEPOLE PINE *(Pinus contorta)*	31.8	15.0-55.0	100
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	4.8	0.0-35.0	65
BLACK SPRUCE *(Picea mariana)*	6.1	0.0-29.0	59
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	5.8	0.0-40.0	41
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	1.5	0.0-4.0	82
GREEN ALDER *(Alnus crispa)*	1.7	0.0-15.0	24
BLACK SPRUCE *(Picea mariana)*	1.8	0.0-12.0	53
TWINFLOWER *(Linnaea borealis)*	3.0	0.0-12.0	88
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	6.4	0.0-30.0	82
BOG CRANBERRY *(Vaccinium vitis-idaea)*	11.3	0.0-35.0	82
COMMON LABRADOR TEA *(Ledum groenlandicum)*	29.8	0.0-55.0	94
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.1	0.0-4.0	71
Low Forb (< 30 cm)			
STIFF CLUB-MOSS *(Lycopodium annotinum)*	1.7	0.0-10.0	59
BUNCHBERRY *(Cornus canadensis)*	7.4	0.0-20.0	94
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	1.0	0.0-5.0	41
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	15.9	0.0-60.0	88
STAIR-STEP MOSS *(Hylocomium splendens)*	16.7	0.0-70.0	88
SCHREBER'S MOSS *(Pleurozium schreberi)*	43.1	0.0-70.0	94

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (2), Submesic (moderately fresh) (4), Mesic (fresh) (10)

Nutrient Regime: Submesotrophic (poor) (6), Mesotrophic (medium) (10)

Elevation (range): 1086 (823-1490) M

Slope (%): 16 - 30.99 (1), 0.5 - 2.49 (3), 0 - 0.49 (4), 6 - 9.99 (4), 2.5 - 5.99 (5)

Aspect: Easterly (1), Southerly (2), Northerly (2), Level (3), Westerly (7)

Topographic Position: Midslope (1), Level (1), Upper Slope (1), Crest (1)

Soil Variables

Soil Drainage: Rapidly drained (1), Well drained (7), Moderately well drained (9)

Soil Subgroup: DARK GRAY CHERNOZEM ORTHIC (1), GRAY LUVISOL ORTHIC (2), EUTRIC BRUNISOL ELUVIATED (2), DYSTRIC BRUNISOL ELUVIATED (4), GRAY LUVISOL BRUNISOLIC (7)

Surface Texture: Sandy loam (1), Silty clay loam (1), Sand (1), Loamy sand (2), Silt loam (3), Loam (4)

Effective Texture: Loam (1), Loamy sand (1), Sand (1), Sandy clay loam (2), Clay loam (7)

Depth to Mottles/Gley: 0 - 25 (1), 26 - 50 (1)

Organic Thickness: 0 - 5 cm (17)

Parent Material: Rock (1), Lacustrine (1), Eolian (1), Glaciofluvial (3), Glaciolacustrine (3), Morainal (10)

Soil Type: Dry/Fine (1), Moist/Silty-Loamy (1), Very Dry/Sandy (1), Moist/Sandy (1), Moist/Fine (8)

Humus Form FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	2.00	12.00	11

d2 Labrador tea-mesic Pl (n=19)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)

Characteristic Species

Tree

[34.6]LODGEPOLE PINE*
Pinus contorta

[5.6]BLACK SPRUCE
Picea mariana

[4.9]WHITE SPRUCE
Picea glauca

Shrub

[22.3]BOG CRANBERRY*
Vaccinium vitis-idaea

[17.1]COMMON LABRADOR TEA*
Ledum groenlandicum

[8.0]TWINFLOWER
Linnaea borealis

[6.9]COMMON BLUEBERRY
Vaccinium myrtilloides

[4.7]BUNCHBERRY
Cornus canadensis

[2.6]LOW-BUSH CRANBERRY
Viburnum edule

[2.1]PRICKLY ROSE
Rosa acicularis

Moss and Liverwort

[43.0]SCHREBER'S MOSS*
Pleurozium schreberi

[17.7]STAIR-STEP MOSS
Hylocomium splendens

Graminoid

[2.1]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (1), Subxeric (moderately dry) (1), Subhygric (moderately moist) (5), Mesic (fresh) (12)

Nutrient Regime: Submesotrophic (poor) (7), Mesotrophic (medium) (10)

Elevation (range): 1200 (950-1490) M

Slope (%): nearly level (1), gentle slope (3), very gentle slope (4), moderate slope (4), level (6)

Aspect: Southerly (1), Easterly (3), Northerly (3), Westerly (5), Level (6)

Topographic Position:Lower Slope (1), Midslope (6), Level (6)

Soil Variables

Soil Drainage: Imperfectly drained (3), Well drained (4), Moderately well drained (12)

Soil Subgroup: EUTRIC BRUNISOL (1), GRAY LUVISOL (17)

Surface Texture: Clay loam (1), Fine sandy loam (1), Sandy clay (1), Sandy clay loam (1), Sandy loam (1), Silty clay (1), Silty clay loam (1), Silt loam (2), Clay (2), Loam (7)

Effective Texture: Sandy clay loam (1), Sandy loam (1), Silty clay loam (1), Silty clay (3), Clay (5), Clay loam (7)

Depth to Mottles/Gley: 0 - 25 (2)

Organic Thickness: 0 - 5 cm (18)

Parent Material: Colluvial (1), Glaciolacustrine (1), Residual (1), Morainal (2), Glaciofluvial (2), Saprolite (3), Fluvial (12)

Soil Type: Very Dry/Coarse (1), Moist/Fine (7)

Humus Form FIBRIHUMIMOR (1), RAW MODER (1), FIBRIMOR (10)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	12.00	18

LFj6 Pl/Labrador tea-Bog cranberry (n=19)

(Pinus contorta/Ledum groenlandicum-Vaccinium vitis-idaea)

This community type often occurs on higher land near bogs. This community type is similar to the Pl/Labrador tea/Feather moss (c1.1) and Pl/Bog cranberry (c1.2) plant communites described by Archibald et al. 1996 in Southwestern Alberta. It also combines plant community j7 Pl/Labrador tea-Bearberry from Lawrence et al. 2005. Soils in this community type tend to be acidic as indicated by the abundance of Labrador tea and bog cranberry. White and black spruce are a major part of the understory and it is expected they will become dominant as this community type succeeds towards climax.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)
Ecosite Phase: d2 Labrador tea-mesic Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	2.7	0.0-15.0	37
BLACK SPRUCE *(Picea mariana)*	3.9	0.0-30.0	53
LODGEPOLE PINE *(Pinus contorta)*	31.4	7.0-65.0	100
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	1.7	0.0-20.0	37
WHITE SPRUCE *(Picea glauca)*	2.2	0.0-18.0	32
LODGEPOLE PINE *(Pinus contorta)*	3.2	0.0-30.0	58
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	2.1	0.0-12.0	79
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.6	0.0-12.0	32
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	6.9	0.0-52.0	68
TWINFLOWER *(Linnaea borealis)*	8.0	0.0-52.0	95
COMMON LABRADOR TEA *(Ledum groenlandicum)*	17.1	0.0-70.0	84
BOG CRANBERRY *(Vaccinium vitis-idaea)*	22.3	0.0-72.0	95
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	4.7	1.0-21.7	100
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	2.1	0.0-8.0	74
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	17.7	0.0-45.0	84
SCHREBER'S MOSS *(Pleurozium schreberi)*	43.0	0.0-71.0	95

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (1), Submesic (moderately fresh) (1), Subhygric (moderately moist) (5), Mesic (fresh) (12)

Nutrient Regime: Submesotrophic (poor) (7), Mesotrophic (medium) (10)

Elevation (range): 1200 (950-1490) M

Slope (%): 0.5 - 2.49 (1), 6 - 9.99 (3), 2.5 - 5.99 (4), 10 - 15.99 (4), 0 - 0.49 (6)

Aspect: Southerly (1), Northerly (3), Easterly (3), Westerly (5), Level (6)

Topographic Position: Lower Slope (1), Midslope (6), Level (6)

Soil Variables

Soil Drainage: Imperfectly drained (3), Well drained (4), Moderately well drained (12)

Soil Subgroup: GRAY LUVISOL GLEYED BRUNISOLIC (1), EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL DARK (2), GRAY LUVISOL ORTHIC (4), GRAY LUVISOL BRUNISOLIC (10)

Surface Texture: Sandy clay (1), Silty clay loam (1), Silty clay (1), Clay loam (1), Sandy clay loam (1), Sandy loam (1), Fine sandy loam (1), Silt loam (2), Clay (2), Loam (7)

Effective Texture: Sandy clay loam (1), Silty clay loam (1), Sandy loam (1), Silty clay (3), Clay (5), Clay loam (7)

Depth to Mottles/Gley: 0 - 25 (2)

Organic Thickness: 0 - 5 cm (18)

Parent Material: Colluvial (1), Residual (1), Glaciolacustrine (1), Glaciofluvial (2), Morainal (2), Saprolite (3), Fluvial (12)

Soil Type: Very Dry/Coarse (1), Moist/Fine (7)

Humus Form RAW MODER (1), FIBRIHUMIMOR (1), FIBRIMOR (10)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	12.00	18

d3 Labrador tea-mesic Aw-Sw-Pl (n=15)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)

Characteristic Species

Tree

[16.9]LODGEPOLE PINE
Pinus contorta

[13.6]ASPEN*
Populus tremuloides

[8.8]BLACK SPRUCE
Picea mariana

[6.5]WHITE SPRUCE*
Picea glauca

Shrub

[19.5]COMMON LABRADOR TEA
Ledum groenlandicum

[10.5]BOG CRANBERRY
Vaccinium vitis-idaea

[8.5]BUNCHBERRY
Cornus canadensis

[7.0]TWINFLOWER
Linnaea borealis

[4.8]COMMON BLUEBERRY*
Vaccinium myrtilloides

[4.0]PRICKLY ROSE
Rosa acicularis

Forb

[2.3]COMMON FIREWEED
Epilobium angustifolium

Moss and Liverwort

[30.2]SCHREBER'S MOSS
Pleurozium schreberi

[15.5]STAIR-STEP MOSS*
Hylocomium splendens

[8.7]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Graminoid

[8.8]BLUEJOINT
Calamagrostis canadensis

[2.7]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (3), Submesic (moderately fresh) (6), Mesic (fresh) (7)

Nutrient Regime: Submesotrophic (poor) (2), Permesotrophic (rich) (2), Mesotrophic (medium) (13)

Elevation (range): 1110 (792-1381) M

Slope (%): strong slope (2), nearly level (2), level (2), moderate slope (3), very gentle slope (3), gentle slope (4)

Aspect: Southerly (1), Westerly (2), Level (2), Easterly (3), Northerly (7)

Topographic Position:Crest (1), Upper Slope (1), Lower Slope (2), Level (2), Midslope (4)

Soil Variables

Soil Drainage: Well drained (2), Rapidly drained (2), Moderately well drained (11)

Soil Subgroup: DYSTRIC BRUNISOL (1), EUTRIC BRUNISOL (1), GRAY LUVISOL (9)

Surface Texture: Clay (1), Fine sandy loam (1), Loamy sand (1), Silt loam (1), Sandy loam (2), Loam (3)

Effective Texture: Clay loam (1), Fine Sandy Clay Loam (1), Sandy clay (1), Sandy clay loam (1), Sandy loam (1), Clay (4)

Depth to Mottles/Gley: 0 - 25 (1), 26 - 50 (1), 51 - 100 (1)

Organic Thickness: 0 - 5 cm (11)

Parent Material: Eolian (1), Glaciofluvial (3), Glaciolacustrine (4), Morainal (5)

Soil Type: Moist/Coarse (1), Very Dry/Fine (1), Dry/Fine (2), Moist/Fine (3)

Humus Form FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	8.50	4.00	28.00	9

LFh15 Aw-Sw-Pl/Labrador tea/Feather moss (n=12)

(Pinus contorta-Picea glauca-Populus tremuloides/Ledum groenlandicum/Pleurozium schreberi)

This community type corresponds to Beckingham's (1994) Pl-Aw-Sw/Shrub ecosite phase and is part of the Labrador tea -mesic ecosite (Archibald et al 1996). It is similar to Lawrence et al (2005) h3 community type. It is fairly dry and low in nutrients and has more acidic soils relative to the modal for the Lower Foothills.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: d Labrador tea - mesic (mesic/poor)
Ecosite Phase: d3 Labrador tea-mesic Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	4.6	0.0-32.0	50
ASPEN *(Populus tremuloides)*	11.0	1.0-30.0	100
LODGEPOLE PINE *(Pinus contorta)*	15.5	1.0-40.0	100
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	1.4	0.0-5.0	42
WHITE SPRUCE *(Picea glauca)*	1.9	0.0-7.0	50
ASPEN *(Populus tremuloides)*	2.6	0.0-15.0	58
BLACK SPRUCE *(Picea mariana)*	5.5	0.0-30.0	42
Tall Shrub (2 to 5m)			
BLACK SPRUCE *(Picea mariana)*	3.3	0.0-7.0	88
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	4.0	1.0-12.0	100
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	4.8	0.0-15.0	83
TWINFLOWER *(Linnaea borealis)*	7.0	1.0-15.0	100
BOG CRANBERRY *(Vaccinium vitis-idaea)*	10.5	0.0-40.0	83
COMMON LABRADOR TEA *(Ledum groenlandicum)*	19.5	1.0-70.0	100
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	2.3	0.0-6.0	92
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.5	0.0-8.0	58
BUNCHBERRY *(Cornus canadensis)*	8.5	1.0-30.0	100
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	2.7	0.0-6.0	67
BLUEJOINT *(Calamagrostis canadensis)*	8.8	0.0-50.0	75
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	8.7	0.0-30.0	58
STAIR-STEP MOSS *(Hylocomium splendens)*	15.5	0.0-50.0	83
SCHREBER'S MOSS *(Pleurozium schreberi)*	30.2	0.0-60.0	83

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (3), Mesic (fresh) (4), Submesic (moderately fresh) (4)

Nutrient Regime: Permesotrophic (rich) (2), Submesotrophic (poor) (2), Mesotrophic (medium) (8)

Elevation (range): 1105 (910-1310) M

Slope (%): 16 - 30.99 (1), 10 - 15.99 (1), 0.5 - 2.49 (2), 0 - 0.49 (2), 6 - 9.99 (3), 2.5 - 5.99 (3)

Aspect: Southerly (1), Level (1), Westerly (2), Easterly (3), Northerly (4)

Topographic Position: Upper Slope (1), Crest (1), Lower Slope (1), Level (2), Midslope (3)

Soil Variables

Soil Drainage: Well drained (1), Rapidly drained (2), Moderately well drained (7)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), GRAY LUVISOL GLEYED (1), DYSTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL GLEYED (1), GRAY LUVISOL BRUNISOLIC (7)

Surface Texture: Loamy sand (1), Fine sandy loam (1), Silt loam (1), Clay (1), Sandy loam (2), Loam (3)

Effective Texture: Clay loam (1), Sandy clay (1), Sandy clay loam (1), Sandy loam (1), Fine Sandy Clay Loam (1), Clay (4)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (1), 0 - 25 (1)

Organic Thickness: 0 - 5 cm (11)

Parent Material: Eolian (1), Glaciofluvial (3), Glaciolacustrine (4), Morainal (5)

Soil Type: Very Dry/Fine (1), Moist/Coarse (1), Dry/Fine (2), Moist/Fine (3)

Humus Form FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	5.00	14.00	9

e low-bush cranberry (mesic/medium) (n=828)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

This is the reference ecosite for the Lower Foothills because it commonly has a mesic moisture regime and a medium nutrient regime. Generally, these sites have moderately fine to fine-textured till or glaciolacustrine parent materials.

Successional Relationships

Pioneer deciduous tree species such as aspen, balsam poplar, and white birch are replaced by white spruce and balsam fir as these sites develop successionally. Along with a change in canopy composition is a change in understory structure and understory species composition and abundance. Generally, as a stand successionally matures, the coniferous canopy cover increases, and understory species structure and diversity declines. This results in stands with low cover of shrub, forb, and grass species and high moss cover.

Indicator Species

Tree

WHITE SPRUCE
Picea glauca

LODGEPOLE PINE
Pinus contorta

ASPEN
Populus tremuloides

Shrub

WHITE MEADOWSWEET
Spiraea betulifolia

SNOWBERRY (BUCKBRUSH)
Symphoricarpos occidentalis

PRICKLY ROSE
Rosa acicularis

CANADA BUFFALOBERRY
Shepherdia canadensis

LOW-BUSH CRANBERRY
Viburnum edule

BEAKED HAZELNUT
Corylus cornuta

GREEN ALDER
Alnus crispa

SASKATOON
Amelanchier alnifolia

Forb

WILD SARSAPARILLA
Aralia nudicaulis

Moss and Liverwort

SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

BLUEJOINT
Calamagrostis canadensis

Site Index at 50 Years	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	17.10	0.20	462
LODGEPOLE PINE *(Pinus contorta)*	17.70	0.20	339
BLACK SPRUCE *(Picea mariana)*	14.50	1.80	7
BALSAM POPLAR *(Populus balsamifera)*	14.90	0.60	31
BALSAM FIR *(Abies balsamea)*	14.70	1.10	9
ASPEN *(Populus tremuloides)*	17.70	0.20	345

Environmental Variables

Moisture Regime; Subxeric (moderately dry) (23), Submesic (moderately fresh) (100), Subhygric (moderately moist) (134), Mesic (fresh) (592)

Nutrient Regime: Eutrophic (very rich) (5), Submesotrophic (poor) (38), Permesotrophic (rich) (168), Mesotrophic (medium) (641)

Elevation (range): 1083.28 (527-1580) M

Slope strong slope (56), moderate slope (94), gentle slope (98), level (117), nearly level (164), very gentle slope (215)

Aspect: Level (85), Easterly (132), Westerly (134), Northerly (147), Southerly (194)

Topographic Position:Depression (6), Toe (14), Crest (33), Lower Slope (60), Upper Slope (102), Level (132), Midslope (205)

Soil Variables

Soil Drainage: Rapidly drained (47), Imperfectly drained (70), Moderately well drained (360), Well drained (375)

Soil Subgroup: HUMIC REGOSOL (1), DARK BROWN CHERNOZEM (2), MELANIC BRUNISOL (3), REGOSOL (9), LUVIC GLEYSOL (13), DYSTRIC BRUNISOL (15), EUTRIC BRUNISOL (72), GRAY LUVISOL (385)

Surface Texture: Fine sandy loam (8), Loamy sand (13), Sand (17), Silty clay (19), Silt (21), Clay (21), Sandy clay loam (25), Silty clay loam (38), Clay loam (40), Sandy loam (65), Loam (75), Silt loam (119)

Effective Texture: Fine sand (1), Silt (2), Loam (6), Loamy sand (8), Silt loam (10), Heavy clay (12), Sandy loam (15), Sand (17), Sandy clay (32), Sandy clay loam (40), Silty clay loam (42), Silty clay (47), Clay loam (115), Clay (129)

Depth to Mottles/Gley: 51 - 100 (4), 26 - 50 (14), 0 - 25 (37)

Parent Material: Fluvioeolian (1), Fluviolacustrine (2), Anthropogenic (2), Swamp (2), Saprolite (7), Residual (7), Lacustromoraine (9), Colluvial (13), Lacustrine (15), Fluvial (34), Rock (35), Eolian (46), Glaciofluvial (61), Glaciolacustrine (68), Morainal (370)

Soil Type: Very Dry/Silty-Loamy (1), Wet/Mineral (2), Very Dry/Sandy (3), Dry/Coarse (3), Dry/Silty-Loamy (3), Moist/Peaty (4), Dry/Sandy (4), Moist/Coarse (9), Moist/Sandy (18), Moist/Silty-Loamy (23), Dry/Fine (31), Moist/Fine (339)

Humus Form MULL-LIKE MODER (3), HUMIMOR (3), RHIZOMULL (5), MODER (11), RAW MODER (20), FIBRIHUMIMOR (42), HUMIFIBRIMOR (43), FIBRIMOR (62)

LFH Thickness	Mean	Min	Max	Count
cm:	5.93	1.00	36.00	474

e1 low-bush cranberry Pl (n=125)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[38.4]LODGEPOLE PINE*
Pinus contorta

[3.8]WHITE SPRUCE
Picea glauca

Shrub

[16.1]GREEN ALDER*
Alnus crispa

[6.2]BUNCHBERRY
Cornus canadensis

[4.1]TWINFLOWER
Linnaea borealis

[3.2]PRICKLY ROSE
Rosa acicularis

[2.9]LOW-BUSH CRANBERRY*
Viburnum edule

[2.3]COMMON LABRADOR TEA
Ledum groenlandicum

[1.5]COMMON BLUEBERRY
Vaccinium myrtilloides

[1.5]BOG CRANBERRY
Vaccinium vitis-idaea

[1.0]CANADA BUFFALOBERRY*
Shepherdia canadensis

Forb

[2.2]COMMON FIREWEED
Epilobium angustifolium

[1.4]WILD SARSAPARILLA
Aralia nudicaulis

Moss and Liverwort

[25.1]SCHREBER'S MOSS*
Pleurozium schreberi

[16.1]STAIR-STEP MOSS
Hylocomium splendens

[9.0]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Graminoid

[2.2]HAIRY WILD RYE
Elymus innovatus

[1.9]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (6), Submesic (moderately fresh) (19), Subhygric (moderately moist) (25), Mesic (fresh) (67)

Nutrient Regime: Permesotrophic (rich) (13), Submesotrophic (poor) (17), Mesotrophic (medium) (80)

Elevation (range): 1246.25 (755-1580) M

Slope (%): very strong slope (2), gentle slope (7), strong slope (11), moderate slope (17), nearly level (21), level (23), very gentle slope (38)

Aspect: Level (18), Easterly (19), Westerly (24), Southerly (24), Northerly (26)

Topographic Position:Crest (3), Toe (3), Lower Slope (11), Upper Slope (14), Level (17), Midslope (28)

Soil Variables

Soil Drainage: Poorly drained (2), Rapidly drained (5), Imperfectly drained (12), Moderately well drained (49), Well drained (51)

Soil Subgroup: BROWN CHERNOZEM (1), DARK BROWN CHERNOZEM (1), MELANIC BRUNISOL (1), DYSTRIC BRUNISOL (4), EUTRIC BRUNISOL (15), GRAY LUVISOL (65)

Surface Texture: Medium sand (1), Sand (1), Sandy clay (1), Silty clay loam (2), Silt (2), Loamy sand (3), Silty clay (3), Clay (5), Sandy clay loam (5), Sandy loam (8), Clay loam (8), Loam (18), Silt loam (29)

Effective Texture: Heavy clay (1), Silt loam (1), Sandy loam (2), Sandy clay (2), Sand (2), Loam (3), Sandy clay loam (3), Loamy sand (4), Silty clay (7), Silty clay loam (9), Clay (25), Clay loam (27)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (6), 0 - 25 (13)

Organic Thickness: 0 - 5 cm (102)

Parent Material: Saprolite (1), Swamp (2), Lacustromoraine (2), Lacustrine (2), Residual (3), Glaciolacustrine (6), Fluvial (9), Colluvial (9), Eolian (11), Rock (13), Glaciofluvial (14), Morainal (53)

Soil Type: Wet/Mineral (1), Very Dry/Sandy (2), Moist/Peaty (2), Moist/Sandy (3), Dry/Fine (5), Moist/Silty-Loamy (7), Moist/Fine (42)

Humus Form FIBRIC PEATYMOR (1), MODER (1), RAW MODER (2), FIBRIHUMIMOR (8), HUMIFIBRIMOR (10), FIBRIMOR (22)

LFH Thickness	Mean	Min	Max	Count
cm:	6.50	1.00	25.00	86

LFj8 Pl/Green alder (n=40)

(Pinus contorta/Alnus crispa)

This community type corresponds to the Pl-Aw/Alnus cri association of Beckingham (1993). It seems to be fairly moist and nutrient rich as indicated by the rich forb layer and high cover of green alder. According to Beckingham (1993) his Sw/Alnu cri/feathermoss association is the expected climax type. This community type seems to form on slopes that have coarse soils and underground seepage. The underground seepage makes this community type fairly moist and nutrient rich. The high amount of moisture allows green alder and wild sarsaparilla to proliferate.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e1 low-bush cranberry Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	2.0	0.0-20.0	35
LODGEPOLE PINE *(Pinus contorta)*	33.5	0.0-65.0	98
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	3.6	0.0-25.0	63
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	14.2	0.0-70.0	55
Medium Shrub (0.5 to 2 m)			
COMMON LABRADOR TEA *(Ledum groenlandicum)*	1.6	0.0-12.0	45
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	1.7	0.0-12.0	40
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.9	0.0-18.0	63
PRICKLY ROSE *(Rosa acicularis)*	3.0	0.0-12.0	88
TWINFLOWER *(Linnaea borealis)*	3.2	0.0-12.0	95
GREEN ALDER *(Alnus crispa)*	18.1	0.0-65.0	85
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	2.3	0.0-10.0	83
WILD SARSAPARILLA *(Aralia nudicaulis)*	2.8	0.0-26.0	35
Low Forb (< 30 cm)			
HEART-LEAVED ARNICA *(Arnica cordifolia)*	1.2	0.0-6.0	63
BUNCHBERRY *(Cornus canadensis)*	7.1	0.0-34.0	78
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	1.4	0.0-14.0	58
HAIRY WILD RYE *(Elymus innovatus)*	2.6	0.0-22.0	58
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	7.9	0.0-30.0	80
STAIR-STEP MOSS *(Hylocomium splendens)*	16.2	0.0-63.0	78
SCHREBER'S MOSS *(Pleurozium schreberi)*	18.9	0.0-80.0	88

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (1), Subhygric (moderately moist) (8), Mesic (fresh) (29)

Nutrient Regime: Submesotrophic (poor) (4), Permesotrophic (rich) (4), Mesotrophic (medium) (30)

Elevation (range): 1231 (772-1410) M

Slope (%): 31 - 45.99 (2), 6 - 9.99 (2), 16 - 30.99 (4), 0 - 0.49 (6), 0.5 - 2.49 (7), 10 - 15.99 (9), 2.5 - 5.99 (10)

Aspect: Level (2), Easterly (4), Westerly (9), Southerly (9), Northerly (11)

Topographic Position: Lower Slope (1), Level (2), Upper Slope (6), Midslope (11)

Soil Variables

Soil Drainage: Rapidly drained (1), Imperfectly drained (5), Well drained (14), Moderately well drained (19)

Soil Subgroup: MELANIC BRUNISOL ELUVIATED (1), GRAY LUVISOL PODZOLIC (1), DYSTRIC BRUNISOL ORTHIC (1), GRAY LUVISOL GLEYED (1), GRAY LUVISOL DARK (1), DYSTRIC BRUNISOL ELUVIATED (2), GRAY LUVISOL GLEYED BRUNISOLIC (2), EUTRIC BRUNISOL ORTHIC (3), EUTRIC BRUNISOL ELUVIATED (3), GRAY LUVISOL BRUNISOLIC (9), GRAY LUVISOL ORTHIC (11)

Surface Texture: Silty clay (1), Sandy clay (1), Sandy clay loam (3), Clay loam (3), Loamy sand (3), Sandy loam (3), Loam (9), Silt loam (13)

Effective Texture: Loam (1), Silt loam (1), Sandy loam (1), Sandy clay (2), Loamy sand (3), Sandy clay loam (3), Silty clay loam (4), Silty clay (4), Clay (4), Clay loam (13)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (1), 0 - 25 (7)

Organic Thickness: 0 - 5 cm (40)

Parent Material: Residual (1), Saprolite (1), Swamp (2), Fluvial (2), Glaciofluvial (3), Eolian (3), Glaciolacustrine (3), Colluvial (5), Rock (8), Morainal (26)

Soil Type: Dry/Fine (1), Wet/Mineral (1), Moist/Silty-Loamy (2), Moist/Sandy (2), Moist/Fine (18)

Humus Form RAW MODER (1), FIBRIHUMIMOR (3), HUMIFIBRIMOR (6), FIBRIMOR (7)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	2.00	13.00	35

LFj9 Pl/Low-bush cranberry/Feather moss (n=64)

(Pinus contorta/Viburnum edule/Pleurozium schreberi)

This community type can be dominated by low-bush cranberry or feather moss in the understory. It is a combination of Beckingham et al (1996) Pl/Low bush cranberry (e1.2) and Pl/Feather moss community types (e1.3) and one plot from plant community j10 Pl-Sw/Twinflower (Lawrence et al 2005). This community type contains mature lodgepole pine trees.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e1 low-bush cranberry Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	3.7	0.0-30.0	33
LODGEPOLE PINE *(Pinus contorta)*	32.4	0.0-65.0	98
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	1.5	0.0-27.0	20
WHITE SPRUCE *(Picea glauca)*	2.0	0.0-20.0	34
LODGEPOLE PINE *(Pinus contorta)*	5.5	0.0-50.0	64
Medium Shrub (0.5 to 2 m)			
WHITE MEADOWSWEET *(Spiraea betulifolia)*	1.5	0.0-12.0	41
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	2.1	0.0-22.0	34
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.9	0.0-35.0	38
COMMON LABRADOR TEA *(Ledum groenlandicum)*	3.0	0.0-25.0	58
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	3.0	0.0-32.0	50
BOG CRANBERRY *(Vaccinium vitis-idaea)*	3.1	0.0-30.0	52
PRICKLY ROSE *(Rosa acicularis)*	3.5	0.0-15.0	69
TWINFLOWER *(Linnaea borealis)*	5.1	0.0-18.0	97
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	2.2	0.0-25.0	66
Low Forb (< 30 cm)			
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	1.1	0.0-18.0	55
BUNCHBERRY *(Cornus canadensis)*	5.3	0.0-39.3	94
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	1.9	0.0-18.0	70
BLUEJOINT *(Calamagrostis canadensis)*	2.5	0.0-40.0	28
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	10.2	0.0-60.0	75
STAIR-STEP MOSS *(Hylocomium splendens)*	16.0	0.0-60.0	83
SCHREBER'S MOSS *(Pleurozium schreberi)*	31.3	0.0-95.0	88

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (3), Submesic (moderately fresh) (13), Subhygric (moderately moist) (17), Mesic (fresh) (30)

Nutrient Regime: Permesotrophic (rich) (7), Submesotrophic (poor) (12), Mesotrophic (medium) (36)

Elevation (range): 1170 (755-1580) M

Slope (%): 10 - 15.99 (4), 16 - 30.99 (5), 6 - 9.99 (5), 0.5 - 2.49 (13), 0 - 0.49 (13), 2.5 - 5.99 (24)

Aspect: Easterly (10), Southerly (11), Level (12), Northerly (14), Westerly (14)

Topographic Position: Crest (3), Lower Slope (4), Upper Slope (8), Level (9), Midslope (15)

Soil Variables

Soil Drainage: Poorly drained (2), Rapidly drained (3), Imperfectly drained (7), Moderately well drained (24), Well drained (27)

Soil Subgroup: GRAY LUVISOL GLEYED DARK (1), GRAY LUVISOL GLEYED (1), EUTRIC BRUNISOL GLEYED (1), BROWN CHERNOZEM GLEYED (1), DYSTRIC BRUNISOL ELUVIATED (1), DARK BROWN CHERNOZEM ELUVIATED (1), EUTRIC BRUNISOL ORTHIC (3), GRAY LUVISOL DARK (3), GRAY LUVISOL GLEYED BRUNISOLIC (3), EUTRIC BRUNISOL ELUVIATED (5), GRAY LUVISOL BRUNISOLIC (15), GRAY LUVISOL ORTHIC (16)

Surface Texture: Medium sand (1), Sand (1), Silty clay loam (2), Silty clay (2), Silt (2), Sandy clay loam (2), Clay (5), Sandy loam (5), Clay loam (5), Loam (9), Silt loam (15)

Effective Texture: Heavy clay (1), Loamy sand (1), Sandy loam (1), Silty clay (2), Sand (2), Loam (2), Silty clay loam (5), Clay loam (14), Clay (21)

Depth to Mottles/Gley: 26 - 50 (5), 0 - 25 (6)

Organic Thickness: 0 - 5 cm (61)

Parent Material: Lacustromoraine (2), Lacustrine (2), Residual (2), Glaciolacustrine (3), Colluvial (4), Rock (5), Fluvial (7), Eolian (8), Glaciofluvial (11), Morainal (26)

Soil Type: Moist/Sandy (1), Very Dry/Sandy (2), Moist/Peaty (2), Moist/Silty-Loamy (4), Dry/Fine (4), Moist/Fine (24)

Humus Form MODER (1), RAW MODER (1), FIBRIC PEATYMOR (1), HUMIFIBRIMOR (4), FIBRIHUMIMOR (5), FIBRIMOR (15)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	1.00	25.00	49

e2 low-bush cranberry Aw (n=427)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[47.5]ASPEN*
Populus tremuloides

[4.2]BALSAM POPLAR
Populus balsamifera

Shrub

[11.1]PRICKLY ROSE*
Rosa acicularis

[6.7]BUNCHBERRY
Cornus canadensis

[4.4]LOW-BUSH CRANBERRY*
Viburnum edule

[4.3]GREEN ALDER*
Alnus crispa

[4.2]BEAKED HAZELNUT*
Corylus cornuta

[3.5]SNOWBERRY (BUCKBRUSH)*
Symphoricarpos occidentalis

[2.9]DEWBERRY
Rubus pubescens

[2.5]CANADA BUFFALOBERRY*
Shepherdia canadensis

[1.9]SASKATOON*
Amelanchier alnifolia

[1.9]WHITE MEADOWSWEET*
Spiraea betulifolia

Forb

[5.1]WILD SARSAPARILLA*
Aralia nudicaulis

[3.7]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

[3.1]COMMON FIREWEED
Epilobium angustifolium

[2.8]WILD STRAWBERRY
Fragaria virginiana

[2.0]LINDLEY'S ASTER
Aster ciliolatus

[1.9]TALL LUNGWORT
Mertensia paniculata

Graminoid

[5.5]BLUEJOINT*
Calamagrostis canadensis

[4.4]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Xeric (dry) (2), Subxeric (moderately dry) (12), Subhygric (moderately moist) (49), Submesic (moderately fresh) (49), Mesic (fresh) (318)

Nutrient Regime: Eutrophic (very rich) (1), Submesotrophic (poor) (10), Permesotrophic (rich) (84), Mesotrophic (medium) (339)

Elevation (range): 1020.75 (527-1410) M

Slope (%): very strong slope (3), steep slope (4), strong slope (23), level (39), moderate slope (42), gentle slope (44), nearly level (77), very gentle slope (108)

Aspect: Level (29), Northerly (57), Westerly (60), Easterly (63), Southerly (106)

Topographic Position:Depression (3), Toe (4), Crest (15), Lower Slope (29), Upper Slope (52), Level (59), Midslope (106)

Soil Variables

Soil Drainage: Imperfectly drained (21), Rapidly drained (32), Moderately well drained (177), Well drained (203)

Soil Subgroup: DARK BROWN CHERNOZEM (1), GRAY BROWN LUVISOL (1), HUMIC REGOSOL (1), LUVIC GLEYSOL (2), DYSTRIC BRUNISOL (3), REGOSOL (5), EUTRIC BRUNISOL (30), GRAY LUVISOL (161)

Surface Texture: Fine sand (1), Medium sand (1), Sandy clay (1), Loamy sand (5), Fine sandy loam (6), Clay (7), Silty clay (10), Sandy clay loam (11), Silt (11), Sand (12), Silty clay loam (17), Clay loam (17), Loam (26), Sandy loam (34), Silt loam (35)

Effective Texture: Fine sand (1), Silt (1), Silt loam (2), Heavy clay (2), Sandy loam (4), Loamy sand (4), Sand (12), Sandy clay (13), Silty clay loam (14), Silty clay (18), Sandy clay loam (25), Clay loam (43), Clay (55)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (2), 0 - 25 (5)

Organic Thickness: 0 - 5 cm (211)

Parent Material: Colluvial (1), Fluvioeolian (1), Fluviolacustrine (1), Saprolite (2), Residual (2), Anthropogenic (2), Lacustrine (6), Eolian (10), Rock (10), Fluvial (12), Glaciolacustrine (28), Glaciofluvial (28), Morainal (162)

Soil Type: Dry/Silty-Loamy (1), Moist/Peaty (1), Very Dry/Sandy (1), Very Dry/Silty-Loamy (1), Moist/Coarse (2), Dry/Sandy (2), Dry/Coarse (2), Moist/Silty-Loamy (3), Moist/Sandy (14), Dry/Fine (18), Moist/Fine (147)

Humus Form MULL-LIKE MODER (1), TYPICAL MODER (2), HUMIMOR (3), RHIZOMULL (3), MODER (5), RAW MODER (9), HUMIFIBRIMOR (14), FIBRIHUMIMOR (16), FIBRIMOR (22)

LFH Thickness	Mean	Min	Max	Count
cm:	5.69	1.00	36.00	194

LFe11 Aw/Beaked hazelnut/Wild sarsparilla (n=10)

(Populus tremuloides/Corylus cornuta/Aralia nudicaulis)

This community type is rare throughout the Lower Foothills subregion and is very similar to the abundant Aw/Corylus-Rose/ Wild sarsaparilla (Downing and Karpuk 1992) and Aw/beaked hazelnut (Beckingham and Archibald 1996) community types both described in the Dry Mixedwood subregion. This type appears to occupy wetter and slightly better nutrient microsites and have a microclimate resembling the Dry Mixedwood subregion. Corns and Annas (1986) felt that wild sarsaparilla grows under moist, nutrient rich conditions; wild sarsaparilla is also sensitive to disturbance and grazing may cause the tall forb layer to become sparse.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	7.6	0.0-30.0	60
ASPEN *(Populus tremuloides)*	46.7	20.0-97.0	100
Tall Shrub (2 to 5m)			
BEAKED HAZELNUT *(Corylus cornuta)*	3.0	0.0-30.0	10
GREEN ALDER *(Alnus crispa)*	5.0	0.0-50.0	10
Medium Shrub (0.5 to 2 m)			
RED-OSIER DOGWOOD *(Cornus stolonifera)*	1.8	0.0-14.0	30
WHITE MEADOWSWEET *(Spiraea betulifolia)*	1.9	0.0-8.0	30
SNOWBERRY (BUCKBRUSH) *(Symphoricarpos occidentalis)*	2.2	0.0-9.1	60
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.0	0.0-8.0	80
WILD RED RASPBERRY *(Rubus idaeus)*	4.6	0.0-16.0	80
PRICKLY ROSE *(Rosa acicularis)*	12.8	0.0-30.0	90
BEAKED HAZELNUT *(Corylus cornuta)*	26.7	0.0-64.0	90
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	1.8	0.0-3.3	90
Tall Forb (>= 30 cm)			
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.8	0.0-6.2	80
TALL LUNGWORT *(Mertensia paniculata)*	2.2	0.0-7.7	70
WILD SARSAPARILLA *(Aralia nudicaulis)*	7.7	1.0-21.5	100
Low Forb (< 30 cm)			
COMMON PINK WINTERGREEN *(Pyrola asarifolia)*	2.1	0.0-8.1	70
WESTERN CANADA VIOLET *(Viola canadensis)*	2.5	0.0-8.8	60
BUNCHBERRY *(Cornus canadensis)*	4.6	0.0-12.2	90
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	4.2	1.0-13.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (2), Mesic (fresh) (2), Subhygric (moderately moist) (6)

Nutrient Regime: Permesotrophic (rich) (5), Mesotrophic (medium) (5)

Elevation (range): 893 (577-1212) M

Slope (%): 2.5 - 5.99 (2), 10 - 15.99 (2), 0 - 0.49 (2), 0.5 - 2.49 (2)

Aspect: Level (2), Westerly (2), Southerly (3)

Topographic Position: Upper Slope (1), Depression (1), Crest (2), Midslope (5)

Soil Variables

Soil Drainage: Imperfectly drained (1), Rapidly drained (1), Well drained (3), Moderately well drained (5)

Soil Subgroup: GRAY LUVISOL GLEYED (1), GRAY LUVISOL BRUNISOLIC (1), GRAY LUVISOL ORTHIC (1)

Surface Texture: Fine sandy loam (1), Sandy loam (2)

Effective Texture: Silty clay (1), Clay (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (3)

Parent Material: Eolian (1), Morainal (4)

Soil Type: Moist/Fine (1), Dry/Fine (2)

Humus Form FIBRIMOR (1), HUMIMOR (1), HUMIFIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	7.00	9.00	3

LFe3 Aw/Canada buffaloberry-White meadowsweet (n=33)

(Populus tremuloides/Sheperdia canadensis-Spiraea betulifolia)

This aspen community type can be dominated by an understory of buffalo-berry or white meadowsweet. This community type combines the Aw/White meadowsweet (e10), Aw/Buffalo berry (e3) (Lawrence et al. 2005) and the Aw/Buffalo berry (e2.1) community described by Beckingham et al. (1996) in West-Central Alberta. Beckingham (1994) found this type had vegetative affinities with the Aw/Rose-Low Bush Cranberry/Tall Forb type due to the common mesic substrate characteristics, but the buffalo-berry type was slightly drier, acidic (pH 5.3) and nutrient poor. White meadowsweet is also characteristic of drier site conditions in deciduous and coniferous forests and can also be found on dry, rocky slopes (MacKinnon et al 1992).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
ASPEN *(Populus tremuloides)*	52.6	8.0-99.9	100
Understory Tree			
ASPEN *(Populus tremuloides)*	1.7	0.0-20.0	24
Medium Shrub (0.5 to 2 m)			
SASKATOON *(Amelanchier alnifolia)*	1.0	0.0-8.0	30
LOW-BUSH CRANBERRY *(Viburnum edule)*	4.5	0.0-19.7	76
TWINFLOWER *(Linnaea borealis)*	6.0	0.0-30.0	85
WHITE MEADOWSWEET *(Spiraea betulifolia)*	6.6	0.0-34.5	52
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	12.2	0.0-34.0	82
PRICKLY ROSE *(Rosa acicularis)*	12.3	2.0-30.0	100
Tall Forb (>= 30 cm)			
WILD VETCH *(Vicia americana)*	1.8	0.0-5.9	88
SHOWY ASTER *(Aster conspicuus)*	2.6	0.0-20.0	49
LINDLEY'S ASTER *(Aster ciliolatus)*	3.0	0.0-13.0	82
WILD SARSAPARILLA *(Aralia nudicaulis)*	3.6	0.0-17.0	46
COMMON FIREWEED *(Epilobium angustifolium)*	4.1	0.0-26.3	76
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	5.5	0.5-11.2	100
Low Forb (< 30 cm)			
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	2.3	0.0-9.0	85
HEART-LEAVED ARNICA *(Arnica cordifolia)*	2.4	0.0-21.4	61
WILD STRAWBERRY *(Fragaria virginiana)*	5.2	0.0-17.0	97
BUNCHBERRY *(Cornus canadensis)*	10.9	0.0-30.3	97
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	4.0	0.0-14.7	82
HAIRY WILD RYE *(Elymus innovatus)*	7.1	0.0-26.0	76

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (3), Subhygric (moderately moist) (4), Submesic (moderately fresh) (4), Mesic (fresh) (22)

Nutrient Regime: Permesotrophic (rich) (4), Mesotrophic (medium) (29)

Elevation (range): 990 (701-1150) M

Slope (%): 10 - 15.99 (1), 46 - 70.99 (1), 16 - 30.99 (1), 6 - 9.99 (2), 0 - 0.49 (5), 0.5 - 2.49 (5), 2.5 - 5.99 (9)

Aspect: Northerly (2), Easterly (2), Level (3), Westerly (6), Southerly (9)

Topographic Position: Lower Slope (1), Crest (2), Midslope (4), Upper Slope (4), Level (7)

Soil Variables

Soil Drainage: Imperfectly drained (1), Rapidly drained (2), Moderately well drained (10), Well drained (20)

Soil Subgroup: REGOSOL ORTHIC (1), GRAY LUVISOL GLEYED (1), EUTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL ORTHIC (2), GRAY LUVISOL ORTHIC (4), GRAY LUVISOL BRUNISOLIC (4)

Surface Texture: Loam (1), Clay (1), Sandy loam (2), Silty clay loam (2), Silt loam (2), Silt (2), Silty clay (2)

Effective Texture: Silt loam (1), Silty clay (2), Sandy clay loam (2), Clay loam (3), Clay (4)

Depth to Mottles/Gley: 26 - 50 (1)

Organic Thickness: 0 - 5 cm (13)

Parent Material: Rock (1), Colluvial (1), Glaciolacustrine (3), Glaciofluvial (7), Morainal (7)

Soil Type: Very Dry/Silty-Loamy (1), Moist/Silty-Loamy (1), Dry/Fine (2), Moist/Fine (8)

Humus Form RHIZOMULL (1), MODER (1), FIBRIHUMIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	3.00	12.00	12

LFe4 Aw/Saskatoon (n=8)

(Populus tremuloides/Amelanchier alnifolia)

This community type is found on well-drained sites with a medium nutrient regime as indicated by the abundance of rose and snowberry. When saskatoon dominates the understory, it usually occurs on south and west-facing slopes (Willoughby et al 2005), although in the Lower Foothills it seems to occur on fluvial terraces or slopes. Saskatoon provides important browse for wild ungulates.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE BIRCH *(Betula papyrifera)*	2.5	0.0-20.0	13
ASPEN *(Populus tremuloides)*	38.7	2.0-70.0	100
Tall Shrub (2 to 5m)			
BEAKED WILLOW *(Salix bebbiana)*	2.3	0.0-15.0	25
Medium Shrub (0.5 to 2 m)			
LOW-BUSH CRANBERRY *(Viburnum edule)*	1.3	0.0-5.0	38
ASPEN *(Populus tremuloides)*	2.6	0.0-15.0	50
SNOWBERRY (BUCKBRUSH) *(Symphoricarpos occidentalis)*	3.6	0.0-10.0	88
PRICKLY ROSE *(Rosa acicularis)*	11.8	0.0-25.0	88
SASKATOON *(Amelanchier alnifolia)*	12.9	6.9-18.0	100
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	6.8	0.2-15.0	100
Tall Forb (>= 30 cm)			
WILD SARSAPARILLA *(Aralia nudicaulis)*	1.2	0.0-5.0	25
LINDLEY'S ASTER *(Aster ciliolatus)*	1.5	0.0-9.0	38
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.4	0.0-5.0	75
TALL LUNGWORT *(Mertensia paniculata)*	2.8	0.0-8.0	75
COMMON FIREWEED *(Epilobium angustifolium)*	4.1	0.0-28.0	63
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	3.4	0.0-12.0	63
WILD STRAWBERRY *(Fragaria virginiana)*	4.3	1.0-10.0	100
Graminoid			
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	2.5	0.0-20.0	13
HAIRY WILD RYE *(Elymus innovatus)*	3.2	0.0-15.0	50
BLUEJOINT *(Calamagrostis canadensis)*	5.0	0.0-15.0	75

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (1), Submesic (moderately fresh) (1), Mesic (fresh) (4)

Nutrient Regime: Permesotrophic (rich) (3), Mesotrophic (medium) (4)

Elevation (range): 1028 (800-1219) M

Slope (%): 0 - 0.49 (1), 6 - 9.99 (1), 2.5 - 5.99 (2), 0.5 - 2.49 (3)

Aspect: Westerly (1), Northerly (2), Level (2), Easterly (2)

Topographic Position: Upper Slope (1), Lower Slope (1), Level (2)

Soil Variables

Soil Drainage: Moderately well drained (2), Well drained (5)

Soil Subgroup: REGOSOL CUMULIC (1), GRAY LUVISOL ORTHIC (1), EUTRIC BRUNISOL ORTHIC (2)

Surface Texture: Silt loam (1), Sandy loam (3)

Effective Texture: Clay (1), Loamy sand (1), Sand (1), Sandy loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (5)

Parent Material: Rock (1), Anthropogenic (1), Glaciofluvial (2), Morainal (2)

Soil Type: Dry/Coarse (1), Moist/Fine (1), Moist/Sandy (2)

Humus Form HUMIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	4.00	3.00	7.00	4

LFe5 Aw/Green alder (n=88)

(Populus tremuloides/Alnus crispa)

This community type is generally found at low to mid slope elevations on sites with northerly aspects. It tends to be dominated by green alder in the tall shrub layer and rose & raspberry in the low shrub layer. Wild sarsaparilla dominates the forb layer. EMA (1993) described a similar community type (Aw(Pb)/Green Alder/Wild Sarsaparilla) throughout the Low Boreal Cordilleran ecoregion. They found this type on well drained Orthic Grey Luvisols and Eutric Brunisols (Balsam poplar occurred as a codominant in the overstory on imperfectly drained, luvisolic Gleysols). Wild sarsaparilla is well adapted to undisturbed, moist to shaded forests with medium to rich nutrient regimes (MacKinnon et al 1992). The absence of wild sarsaparilla, even though a similar moisture regime is present, may indicate a difference in soil nutrient levels or an intolerance to light-moderate grazing regimes.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	2.6	0.0-25.0	40
ASPEN *(Populus tremuloides)*	40.0	1.0-99.9	100
Understory Tree			
ASPEN *(Populus tremuloides)*	2.9	0.0-35.0	38
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	19.2	0.0-75.0	83
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.3	0.0-20.0	49
TWINFLOWER *(Linnaea borealis)*	3.7	0.0-27.5	84
WILD RED RASPBERRY *(Rubus idaeus)*	4.7	0.0-30.3	66
GREEN ALDER *(Alnus crispa)*	6.2	0.0-60.0	42
LOW-BUSH CRANBERRY *(Viburnum edule)*	6.3	0.0-30.0	85
PRICKLY ROSE *(Rosa acicularis)*	8.7	0.0-31.5	99
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	3.4	0.0-20.0	82
Tall Forb (>= 30 cm)			
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.3	0.0-16.5	80
TALL LUNGWORT *(Mertensia paniculata)*	2.4	0.0-20.0	61
LINDLEY'S ASTER *(Aster ciliolatus)*	3.0	0.0-21.4	76
COMMON FIREWEED *(Epilobium angustifolium)*	4.4	0.0-26.0	86
WILD SARSAPARILLA *(Aralia nudicaulis)*	11.6	0.0-50.0	78
Low Forb (< 30 cm)			
HEART-LEAVED ARNICA *(Arnica cordifolia)*	2.6	0.0-30.0	53
BUNCHBERRY *(Cornus canadensis)*	6.3	0.0-25.0	90
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	4.6	0.0-32.5	58
BLUEJOINT *(Calamagrostis canadensis)*	7.9	0.0-40.0	81

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (3), Submesic (moderately fresh) (7), Mesic (fresh) (73)

Nutrient Regime: Submesotrophic (poor) (3), Permesotrophic (rich) (20), Mesotrophic (medium) (60)

Elevation (range): 1076 (600-1275) M

Slope (%): 46 - 70.99 (1), 10 - 15.99 (7), 16 - 30.99 (7), 0 - 0.49 (7), 6 - 9.99 (11), 0.5 - 2.49 (14), 2.5 - 5.99 (22)

Aspect: Level (8), Westerly (11), Easterly (11), Northerly (12), Southerly (22)

Topographic Position: Depression (1), Crest (1), Lower Slope (1), Upper Slope (8), Level (9), Midslope (18)

Soil Variables

Soil Drainage: Imperfectly drained (2), Rapidly drained (3), Well drained (37), Moderately well drained (40)

Soil Subgroup: DARK BROWN CHERNOZEM ELUVIATED (1), GRAY LUVISOL DARK (1), HUMIC REGOSOL ORTHIC (1), DYSTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (4), EUTRIC BRUNISOL ORTHIC (6), GRAY LUVISOL BRUNISOLIC (13), GRAY LUVISOL ORTHIC (22)

Surface Texture: Silty clay (1), Loamy sand (1), Sandy clay loam (2), Sand (2), Clay loam (3), Loam (3), Silty clay loam (5), Silt (5), Silt loam (9), Sandy loam (16)

Effective Texture: Sand (1), Loamy sand (2), Sandy clay (3), Silty clay (3), Sandy loam (3), Silty clay loam (5), Sandy clay loam (6), Clay loam (10), Clay (14)

Depth to Mottles/Gley: 51 - 100 (1)

Organic Thickness: 0 - 5 cm (53)

Parent Material: Fluvioeolian (1), Anthropogenic (1), Saprolite (1), Eolian (2), Rock (3), Fluvial (5), Glaciofluvial (7), Glaciolacustrine (11), Morainal (38)

Soil Type: Dry/Coarse (1), Moist/Peaty (1), Moist/Coarse (2), Moist/Sandy (3), Dry/Fine (5), Moist/Fine (35)

Humus Form RHIZOMULL (1), RAW MODER (2), TYPICAL MODER (2), FIBRIMOR (3), HUMIFIBRIMOR (4), FIBRIHUMIMOR (6)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	3.00	18.00	47

LFe7 Aw/Rose-Low bush cranberry/Tall forbs (n=168)

(Populus tremuloides/Rosa acicularis-Viburnum edule/Tall forbs)

This community type appears to be the modal aspen type on mesic well to moderately well drained, nutrient medium to rich, undisturbed sites. Beckingham et al (1996) described a similar community types (Aw/Low Bush Cranberry and Aw/Rose). This community type is also similar to the Aw/Rose/Strawberry community type, but a high cover of tall growing forbs (e.g. wild sarsaparilla, fireweed, showy aster and vetchling) distinguishes this type from the low forb type. Presently it is unclear why there is a difference in the forb layers between the tall and low forb types. Corns and Annas (1986) felt that wild sarsaparilla grows under moist, nutrient rich conditions; which may help to explain the difference between the two types. Wild sarsaparilla is also sensitive to disturbance and grazing may cause the tall forb layer to become sparse. Those Aw/Rose-Low-bush Cranberry/Tall forb community types without wild sarsaparilla, but with plenty of fireweed may exist on slightly drier sites with poorer nutrient regimes than those abundant in wild sarsaparilla. Later seral stages will likely succeed to a mixed Aw-Sw/rose/forb type and climax to a Sw/moss dominated community.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	4.3	0.0-52.0	44
ASPEN *(Populus tremuloides)*	45.0	0.0-99.9	97
Understory Tree			
ASPEN *(Populus tremuloides)*	2.5	0.0-20.0	39
Medium Shrub (0.5 to 2 m)			
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	1.7	0.0-16.0	38
WHITE MEADOWSWEET *(Spiraea betulifolia)*	2.6	0.0-35.0	39
WILD RED RASPBERRY *(Rubus idaeus)*	3.9	0.0-40.0	58
LOW-BUSH CRANBERRY *(Viburnum edule)*	7.4	0.0-88.0	81
PRICKLY ROSE *(Rosa acicularis)*	11.9	1.0-55.1	100
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	3.4	0.0-45.0	79
Tall Forb (>= 30 cm)			
SHOWY ASTER *(Aster conspicuus)*	2.1	0.0-32.0	48
LINDLEY'S ASTER *(Aster ciliolatus)*	2.9	0.0-35.0	67
TALL LUNGWORT *(Mertensia paniculata)*	3.0	0.0-30.0	71
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	4.6	0.0-35.0	88
COMMON FIREWEED *(Epilobium angustifolium)*	7.4	0.0-42.7	84
WILD SARSAPARILLA *(Aralia nudicaulis)*	9.7	0.0-76.6	64
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.0	0.0-12.0	67
WILD STRAWBERRY *(Fragaria virginiana)*	3.6	0.0-30.0	83
BUNCHBERRY *(Cornus canadensis)*	7.0	0.0-33.0	89
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	4.9	0.0-70.0	55
BLUEJOINT *(Calamagrostis canadensis)*	9.7	0.0-70.0	85

Environmental Variables

Ecological Status Score: 20-25

Moisture Regime: Subxeric (moderately dry) (4), Subhygric (moderately moist) (10), Submesic (moderately fresh) (15), Mesic (fresh) (137)

Nutrient Regime: Submesotrophic (poor) (4), Permesotrophic (rich) (37), Mesotrophic (medium) (128)

Elevation (range): 963 (671-1410) M

Slope (%): 46 - 70.99 (1), 31 - 45.99 (2), 16 - 30.99 (7), 0 - 0.49 (12), 10 - 15.99 (21), 6 - 9.99 (25), 0.5 - 2.49 (34), 2.5 - 5.99 (46)

Aspect: Level (7), Westerly (29), Northerly (30), Easterly (33), Southerly (42)

Topographic Position: Toe (3), Crest (7), Lower Slope (12), Level (19), Upper Slope (22), Midslope (54)

Soil Variables

Soil Drainage: Rapidly drained (10), Imperfectly drained (10), Moderately well drained (74), Well drained (75)

Soil Subgroup: GRAY BROWN LUVISOL BRUNISOLIC (1), EUTRIC BRUNISOL GLEYED ELUVIATED (1), GRAY LUVISOL GLEYED DARK (1), LUVIC GLEYSOL ORTHIC (2), DYSTRIC BRUNISOL ELUVIATED (2), REGOSOL ORTHIC (2), EUTRIC BRUNISOL ORTHIC (4), GRAY LUVISOL DARK (4), GRAY LUVISOL SOLONETZIC (4), GRAY LUVISOL GLEYED (5), EUTRIC BRUNISOL ELUVIATED (10), GRAY LUVISOL BRUNISOLIC (21), GRAY LUVISOL ORTHIC (55)

Surface Texture: Sandy clay (1), Fine sand (1), Medium sand (1), Silty clay (2), Loamy sand (4), Fine sandy loam (4), Silt (4), Clay (5), Silty clay loam (6), Sandy clay loam (8), Sand (9), Sandy loam (10), Clay loam (13), Silt loam (19), Loam (19)

Effective Texture: Fine sand (1), Loamy sand (1), Silt (1), Heavy clay (2), Silty clay (5), Silty clay loam (8), Sandy clay (8), Sand (10), Sandy clay loam (17), Clay (26), Clay loam (27)

Depth to Mottles/Gley: 0 - 25 (2)

Organic Thickness: 0 - 5 cm (114)

Parent Material: Fluviolacustrine (1), Residual (1), Saprolite (1), Rock (4), Lacustrine (5), Eolian (6), Fluvial (7), Glaciolacustrine (9), Glaciofluvial (11), Morainal (90)

Soil Type: Very Dry/Sandy (1), Moist/Silty-Loamy (2), Dry/Sandy (2), Dry/Fine (6), Moist/Sandy (9), Moist/Fine (84)

Humus Form RHIZOMULL (1), MULL-LIKE MODER (1), HUMIMOR (1), MODER (3), HUMIFIBRIMOR (4), FIBRIHUMIMOR (5), RAW MODER (7), FIBRIMOR (11)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	36.00	105

LFe8 Aw/Rose-Twinflower (n=28)

(Populus tremuloides/Rosa acicularis-Linnaea borealis)

This community type occupies mesic, well drained sites, with medium nutrient regimes. It is similar to the Aw/Rose type described by Beckingham et al. (1996) and the Aw/Rose-Low-bush cranberry/Tall Forbs (LFe7) community type described previously, but it appears to be found on slightly drier sites that have poorer nutrient regimes (buffalo-berry). It is felt that this community type may be at a later successional stage (Sw) as the tall forbs are predmominantly by low forbs such as bunchberry, strawberry, and common pink wintergreen. This will succeed to a mixed Aw-Sw/Rose/Forb and eventually to a Sw/Moss community type. This community type may also be formed after light to moderate grazing an Aw/Rose-Low-bush cranberry/Tall Forbs community type. Moderate grazing appears to favour the growth of lower growing forbs

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	2.1	0.0-15.0	54
BALSAM POPLAR *(Populus balsamifera)*	3.1	0.0-20.0	50
ASPEN *(Populus tremuloides)*	58.9	30.0-98.0	100
Medium Shrub (0.5 to 2 m)			
DWARF BILBERRY *(Vaccinium caespitosum)*	1.8	0.0-12.0	32
WHITE MEADOWSWEET *(Spiraea betulifolia)*	2.2	0.0-17.7	54
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	3.8	0.0-37.0	54
LOW-BUSH CRANBERRY *(Viburnum edule)*	4.9	0.0-22.0	89
TWINFLOWER *(Linnaea borealis)*	8.2	0.0-31.6	96
PRICKLY ROSE *(Rosa acicularis)*	11.6	1.0-35.7	100
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	2.4	0.0-7.0	79
Tall Forb (>= 30 cm)			
WILD SARSAPARILLA *(Aralia nudicaulis)*	2.3	0.0-15.4	36
COMMON FIREWEED *(Epilobium angustifolium)*	2.3	0.0-10.1	68
LINDLEY'S ASTER *(Aster ciliolatus)*	2.4	0.0-10.0	68
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	5.0	0.0-37.4	93
Low Forb (< 30 cm)			
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	2.1	0.0-10.1	89
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.7	0.0-14.4	75
COMMON PINK WINTERGREEN *(Pyrola asarifolia)*	3.1	0.0-8.9	96
WILD STRAWBERRY *(Fragaria virginiana)*	3.5	0.0-8.5	89
BUNCHBERRY *(Cornus canadensis)*	12.9	0.0-65.0	96
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	4.7	0.0-26.0	82
HAIRY WILD RYE *(Elymus innovatus)*	6.6	0.0-18.6	89

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (1), Submesic (moderately fresh) (5), Subhygric (moderately moist) (6), Mesic (fresh) (18)

Nutrient Regime: Submesotrophic (poor) (2), Permesotrophic (rich) (5), Mesotrophic (medium) (23)

Elevation (range): 943 (650-1189) M

Slope (%): 16 - 30.99 (1), 31 - 45.99 (1), 10 - 15.99 (3), 0.5 - 2.49 (3), 0 - 0.49 (4), 2.5 - 5.99 (7)

Aspect: Level (1), Westerly (3), Northerly (3), Easterly (3), Southerly (4)

Topographic Position: Upper Slope (3), Level (4), Midslope (6)

Soil Variables

Soil Drainage: Imperfectly drained (1), Rapidly drained (3), Moderately well drained (11), Well drained (15)

Soil Subgroup: GRAY LUVISOL GLEYED SOLONETZIC (2), GRAY LUVISOL GLEYED (2), GRAY LUVISOL ORTHIC (2)

Surface Texture: Silt loam (1), Loam (1), Sandy clay loam (1), Silty clay loam (2)

Effective Texture: Clay loam (1), Sandy clay (1), Silty clay loam (1), Clay (2)

Depth to Mottles/Gley: 0 - 25 (3)

Organic Thickness: 0 - 5 cm (6)

Parent Material: Lacustrine (1), Glaciofluvial (1), Morainal (5)

Soil Type: Dry/Fine (1), Moist/Fine (4)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	4.00	6.00	5

LFe9 Aw-Pb/Snowberry (n=11)

(Populus tremuloides-Populus balsamifera/Symphoricarpos occidentalis)

Snowberry is well adapted to well drained sites and has been found to be common on gravelly flood plains and south facing slopes overlooking rivers and streams throughout the Boreal Forest (Willoughby et al. 2005). This community type was found on the south facing banks of the McLeod River. The soils were fine textured fluvial deposits which may account for the high cover of low bush cranberry. On the wetter edge of this community type balsam poplar may dominate the site.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e2 low-bush cranberry Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	12.3	0.0-80.0	46
ASPEN *(Populus tremuloides)*	51.2	0.0-90.0	91
Understory Tree			
ASPEN *(Populus tremuloides)*	3.5	0.0-15.0	36
BALSAM POPLAR *(Populus balsamifera)*	3.7	0.0-40.0	18
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	1.3	0.0-13.3	18
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.9	0.0-27.5	55
SNOWBERRY (BUCKBRUSH) *(Symphoricarpos occidentalis)*	8.5	0.0-43.5	36
PRICKLY ROSE *(Rosa acicularis)*	8.8	0.0-22.0	73
SNOWBERRY *(Symphoricarpos albus)*	10.9	0.0-34.6	55
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	2.7	0.0-22.2	46
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	1.6	0.0-7.6	46
WILD VETCH *(Vicia americana)*	1.8	0.0-6.2	82
TALL LUNGWORT *(Mertensia paniculata)*	3.4	0.0-9.9	91
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	4.9	1.0-14.5	100
Low Forb (< 30 cm)			
BISHOP'S-CAP *(Mitella nuda)*	1.3	0.0-11.2	46
BUNCHBERRY *(Cornus canadensis)*	2.2	0.0-8.0	73
WILD STRAWBERRY *(Fragaria virginiana)*	3.2	0.0-8.0	82
WESTERN CANADA VIOLET *(Viola canadensis)*	3.9	0.0-25.3	82
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	3.5	0.0-9.0	73
HAIRY WILD RYE *(Elymus innovatus)*	4.5	0.0-27.0	82

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (2), Subhygric (moderately moist) (2), Mesic (fresh) (7)

Nutrient Regime: Permesotrophic (rich) (2), Mesotrophic (medium) (9)

Elevation (range): 1058 (777-1250) M

Slope (%): 6 - 9.99 (1), 0.5 - 2.49 (1), 16 - 30.99 (1), 10 - 15.99 (2), 2.5 - 5.99 (3)

Aspect: Level (1), Northerly (2), Easterly (2), Southerly (3)

Topographic Position: Crest (1), Upper Slope (1), Lower Slope (1), Midslope (2), Level (2)

Soil Variables

Soil Drainage: Moderately well drained (5), Well drained (6)

Soil Subgroup: GRAY LUVISOL ORTHIC (4)

Surface Texture: Clay loam (1), Sand (1), Fine sandy loam (1), Silty clay (1)

Effective Texture: Clay loam (1), Sandy clay (1), Clay (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Eolian (1), Morainal (3)

Soil Type: Dry/Fine (1), Moist/Fine (3)

Humus Form HUMIFIBRIMOR (1), FIBRIHUMIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	5.00	8.00	4

e3 low-bush cranberry Aw-Sw-Pl (n=183)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[27.0]ASPEN
Populus tremuloides

[13.9]WHITE SPRUCE*
Picea glauca

[9.0]LODGEPOLE PINE*
Pinus contorta

[3.0]JACK PINE
Pinus banksiana

[1.1]BALSAM FIR
Abies balsamea

Shrub

[7.8]PRICKLY ROSE
Rosa acicularis

[6.2]BUNCHBERRY*
Cornus canadensis

[4.4]GREEN ALDER*
Alnus crispa

[3.5]LOW-BUSH CRANBERRY
Viburnum edule

[3.4]SNOWBERRY (BUCKBRUSH)
Symphoricarpos occidentalis

[3.1]TWINFLOWER
Linnaea borealis

[2.8]CANADA BUFFALOBERRY
Shepherdia canadensis

Forb

[3.8]WILD SARSAPARILLA
Aralia nudicaulis

[2.6]COMMON FIREWEED
Epilobium angustifolium

[2.2]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

[2.1]WILD STRAWBERRY
Fragaria virginiana

Moss and Liverwort

[12.6]STAIR-STEP MOSS
Hylocomium splendens

[5.3]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[3.7]HAIRY WILD RYE
Elymus innovatus

[3.6]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (3), Submesic (moderately fresh) (17), Subhygric (moderately moist) (38), Mesic (fresh) (136)

Nutrient Regime: Eutrophic (very rich) (3), Submesotrophic (poor) (6), Permesotrophic (rich) (41), Mesotrophic (medium) (146)

Elevation (range): 1120.62 (603-1572) M

Slope (%): very strong slope (2), strong slope (14), moderate slope (24), level (27), gentle slope (36), nearly level (37), very gentle slope (47)

Aspect: Level (19), Easterly (31), Westerly (36), Northerly (41), Southerly (41)

Topographic Position:Depression (2), Crest (10), Lower Slope (10), Upper Slope (28), Level (30), Midslope (49)

Soil Variables

Soil Drainage: Poorly drained (2), Rapidly drained (4), Imperfectly drained (25), Moderately well drained (79), Well drained (85)

Soil Subgroup: REGOSOL (1), DYSTRIC BRUNISOL (5), LUVIC GLEYSOL (9), EUTRIC BRUNISOL (20), GRAY LUVISOL (123)

Surface Texture: Fine sandy loam (1), Very Fine Sandy Clay (1), Heavy clay (3), Sand (3), Sandy clay (3), Silty clay (3), Very fine sandy loam (3), Loamy sand (4), Sandy clay loam (5), Silt (7), Clay (8), Clay loam (9), Silty clay loam (15), Sandy loam (16), Loam (28), Silt loam (38)

Effective Texture: Loam (2), Sand (3), Sandy loam (5), Silt loam (5), Heavy clay (6), Sandy clay loam (11), Sandy clay (12), Silty clay loam (14), Silty clay (15), Clay loam (33), Clay (41)

Depth to Mottles/Gley: 51 - 100 (2), 26 - 50 (3), 0 - 25 (14)

Organic Thickness: 0 - 5 cm (164)

Parent Material: Colluvial (1), Fluviolacustrine (1), Saprolite (1), Residual (2), Lacustromoraine (5), Lacustrine (6), Fluvial (6), Rock (9), Glaciofluvial (16), Eolian (21), Glaciolacustrine (26), Morainal (121)

Soil Type: Moist/Sandy (1), Very Dry/Fine (1), Dry/Silty-Loamy (2), Dry/Sandy (2), Moist/Coarse (5), Dry/Fine (6), Moist/Silty-Loamy (7), Moist/Fine (116)

Humus Form MULL-LIKE MODER (2), RHIZOMULL (2), MODER (4), RAW MODER (7), FIBRIHUMIMOR (11), FIBRIMOR (12), HUMIFIBRIMOR (14)

LFH Thickness	Mean	Min	Max	Count
cm:	7.20	1.00	16.00	145

LFh10 Aw-Sw-Pl/Feather moss (n=25)

(Populus tremuloides-Picea glauca-Pinus contorta/Pleurozium schreberi)

This community type combines both the fir/feather moss (e3.5) and feather moss (e3.6) of Beckingham et al. (1996) described in West-Central Alberta.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e3 low-bush cranberry Aw-Sw-Pl

Plant Composition

	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	7.3	0.0-75.0	48
WHITE SPRUCE *(Picea glauca)*	12.8	0.0-42.0	72
ASPEN *(Populus tremuloides)*	20.6	0.0-65.0	88
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	10.8	0.0-55.0	72
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.2	0.0-8.0	80
BOG CRANBERRY *(Vaccinium vitis-idaea)*	2.2	0.0-20.0	36
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.4	0.0-8.0	84
PRICKLY ROSE *(Rosa acicularis)*	3.1	0.0-15.0	88
TWINFLOWER *(Linnaea borealis)*	3.4	0.0-12.0	92
BALSAM FIR *(Abies balsamea)*	5.7	0.0-40.0	52
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	1.6	0.0-6.0	60
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.9	0.0-12.0	68
WILD SARSAPARILLA *(Aralia nudicaulis)*	4.2	0.0-52.0	40
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.5	0.0-5.0	72
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.7	0.0-12.0	96
BUNCHBERRY *(Cornus canadensis)*	8.0	0.0-25.0	88
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	4.2	0.0-30.0	80
Moss			
UNDIFFERENTIATED MOSS - ALL GENERA *(Moss)*	2.0	0.0-50.0	4
SCHREBER'S MOSS *(Pleurozium schreberi)*	16.9	0.0-60.0	80
STAIR-STEP MOSS *(Hylocomium splendens)*	32.4	0.0-83.0	84

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (10), Mesic (fresh) (14)

Nutrient Regime: Permesotrophic (rich) (3), Mesotrophic (medium) (22)

Elevation (range): 953 (610-1450) M

Slope (%): 16 - 30.99 (1), 6 - 9.99 (2), 0 - 0.49 (3), 10 - 15.99 (3), 2.5 - 5.99 (5), 0.5 - 2.49 (11)

Aspect: Level (1), Easterly (3), Southerly (4), Westerly (5), Northerly (7)

Topographic Position: Lower Slope (1), Crest (3), Upper Slope (4), Level (5), Midslope (7)

Soil Variables

Soil Drainage: Poorly drained (2), Well drained (4), Moderately well drained (9), Imperfectly drained (10)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL GLEYED BRUNISOLIC (1), GRAY LUVISOL SOLONETZIC (1), EUTRIC BRUNISOL ORTHIC (1), LUVIC GLEYSOL ORTHIC (2), DYSTRIC BRUNISOL ELUVIATED (2), GRAY LUVISOL BRUNISOLIC (4), GRAY LUVISOL ORTHIC (4), GRAY LUVISOL GLEYED (6)

Surface Texture: Very fine sandy loam (1), Very Fine Sandy Clay (1), Clay loam (1), Silty clay loam (1), Fine sandy loam (1), Loam (1), Sandy clay loam (2), Sandy loam (2), Heavy clay (2), Clay (2), Silt loam (6)

Effective Texture: Sandy clay (1), Sandy clay loam (1), Silty clay loam (1), Silt loam (1), Sandy loam (1), Heavy clay (2), Silty clay (4), Clay loam (4), Clay (5)

Depth to Mottles/Gley: 0 - 25 (7)

Organic Thickness: 0 - 5 cm (24)

Parent Material: Fluvial (1), Saprolite (1), Colluvial (1), Eolian (2), Glaciolacustrine (3), Lacustrine (3), Morainal (19)

Soil Type: Moist/Coarse (1), Moist/Silty-Loamy (2), Moist/Fine (17)

Humus Form MODER (1), FIBRIMOR (3), FIBRIHUMIMOR (3), HUMIFIBRIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	1.00	14.00	20

LFh11 Aw-Pl-Sw/Snowberry (n=2)

(Populus tremuloides-Pinus contorta-Picea glauca/Symphoricarpos occidentalis)

This community type was found north of Hinton along the south facing banks of the Athabasca River. Upper slopes consisted of drier Sw-Pl stands, with higher moisture down slope towards the river flat as indicated by the predominance of snowberry. The presence of aspen will eventually revert to a predominantly white spruce stand created by the moisture, which will lower understory species diversity and production.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e3 low-bush cranberry Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	10.0	0.0-20.0	50
WHITE SPRUCE *(Picea glauca)*	12.5	10.0-15.0	100
JACK PINE *(Pinus banksiana)*	15.0	15.0-15.0	100
ASPEN *(Populus tremuloides)*	35.0	35.0-35.0	100
Medium Shrub (0.5 to 2 m)			
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	3.5	1.0-6.0	100
SNOWBERRY (BUCKBRUSH) *(Symphoricarpos occidentalis)*	17.0	6.0-28.0	100
PRICKLY ROSE *(Rosa acicularis)*	19.0	18.0-20.0	100
Low Shrub (< 0.5m)			
TWINFLOWER *(Linnaea borealis)*	1.0	1.0-1.0	100
DEWBERRY *(Rubus pubescens)*	1.0	0.0-2.0	50
Tall Forb (>= 30 cm)			
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.0	0.0-4.0	50
LINDLEY'S ASTER *(Aster ciliolatus)*	4.0	1.0-7.0	100
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	2.5	2.0-3.0	100
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	2.5	0.0-5.0	50
Graminoid			
KENTUCKY BLUEGRASS *(Poa pratensis)*	2.5	0.0-5.0	50
PURPLE OAT GRASS *(Schizachne purpurascens)*	5.0	0.0-10.0	50
HAIRY WILD RYE *(Elymus innovatus)*	6.5	0.0-13.0	50

Environmental Variables

Ecological Status Score: 20-25

Moisture Regime: Mesic (fresh) (2)

Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (1)

Elevation (range): 930 (910-950) M

Slope (%): 16 - 30.99 (1)

Aspect: Southerly (1)

Topographic Position: Lower Slope (1), Level (1)

Soil Variables

Soil Drainage: Well drained (2)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	8.00	8.00	1

LFh5 Aw-Pl-Sw/Canada buffaloberry (n=21)

(Populus tremuloides-Pinus contorta-Picea glauca/Sheperdia canadensis)

This community type is similar to Aw-Sw-Pl/buffalo-berry/hairy wild rye described by Beckingham et al (1996) and also includes Lawrence et al (2005) Aw-Sw/Buffaloberry (h4) community type. The prominence of aspen indicates that it is relative early succession as lodgepole pine and later white spruce will begin to dominate in later succession stands. The diversity of shrubs has restricted the herbaceous growth to low forbs with little grass cover. This community type does not produce very much palatable forage in its present state and is expected to produce less as white spruce exerts more dominance over the site.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e3 low-bush cranberry Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	6.0	0.0-30.0	43
WHITE SPRUCE *(Picea glauca)*	6.6	0.0-20.0	52
ASPEN *(Populus tremuloides)*	31.2	0.0-60.0	95
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	5.1	0.0-25.0	62
Medium Shrub (0.5 to 2 m)			
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	2.0	0.0-20.0	29
ASPEN *(Populus tremuloides)*	2.5	0.0-40.0	33
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.9	0.0-10.0	76
TWINFLOWER *(Linnaea borealis)*	4.0	0.0-10.0	81
PRICKLY ROSE *(Rosa acicularis)*	5.5	0.0-25.0	86
CANADA BUFFALOBERRY *(Shepherdia canadensis)*	10.9	0.0-35.0	95
Tall Forb (>= 30 cm)			
SHOWY ASTER *(Aster conspicuus)*	1.5	0.0-7.0	62
LINDLEY'S ASTER *(Aster ciliolatus)*	1.7	0.0-5.0	62
COMMON FIREWEED *(Epilobium angustifolium)*	3.7	0.0-15.0	86
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	4.6	0.0-13.0	95
Low Forb (< 30 cm)			
HEART-LEAVED ARNICA *(Arnica cordifolia)*	1.4	0.0-6.0	57
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.8	0.0-10.0	71
COMMON PINK WINTERGREEN *(Pyrola asarifolia)*	3.0	0.0-15.0	86
WILD STRAWBERRY *(Fragaria virginiana)*	4.7	0.0-20.0	95
BUNCHBERRY *(Cornus canadensis)*	8.2	0.0-29.0	86
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	4.0	0.0-15.0	81
BLUEJOINT *(Calamagrostis canadensis)*	5.0	0.0-35.0	62
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	9.3	0.0-80.0	71

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (3), Subhygric (moderately moist) (4), Mesic (fresh) (16)

Nutrient Regime: Submesotrophic (poor) (1), Permesotrophic (rich) (3), Mesotrophic (medium) (19)

Elevation (range): 973 (603-1360) M

Slope (%): 0 - 0.49 (2), 6 - 9.99 (3), 10 - 15.99 (4), 0.5 - 2.49 (4), 2.5 - 5.99 (8)

Aspect: Level (2), Westerly (3), Northerly (3), Easterly (3), Southerly (8)

Topographic Position: Upper Slope (1), Lower Slope (1), Midslope (3), Crest (3), Level (6)

Soil Variables

Soil Drainage: Imperfectly drained (1), Well drained (11), Moderately well drained (11)

Soil Subgroup: GRAY LUVISOL GLEYED (1), EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (2), GRAY LUVISOL ORTHIC (5), GRAY LUVISOL BRUNISOLIC (9)

Surface Texture: Sandy clay (1), Clay (1), Clay loam (1), Sand (1), Sandy clay loam (2), Silt (2), Loam (2), Sandy loam (2), Silty clay (2), Silt loam (3)

Effective Texture: Sand (1), Silt loam (1), Silty clay loam (2), Silty clay (2), Sandy clay (2), Clay (2), Sandy clay loam (3), Clay loam (4)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 0 - 5 cm (19)

Parent Material: Glaciolacustrine (1), Rock (1), Fluviolacustrine (1), Fluvial (1), Glaciofluvial (2), Lacustromoraine (2), Eolian (6), Morainal (16)

Soil Type: Dry/Fine (1), Moist/Silty-Loamy (1), Dry/Sandy (1), Dry/Silty-Loamy (1), Moist/Fine (13)

Humus Form RHIZOMULL (1), MODER (1), FIBRIHUMIMOR (2), HUMIFIBRIMOR (2), FIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	2.00	10.00	17

LFh6 Aw-Sw-Pl/Green alder (n=51)

(Populus tremuloides-Picea glauca-Pinus contorta/Alnus crispa)

This community type occurs on fairly coarse, moderately well drained parent material. It corresponds to Aw-Sw-Pl/green alder (Beckingham et al 1996) and is thought to represent a transition from the modal aspen to the dry lodgepole pine dominated types in the Upper Foothills Subregion. Beckingham also felt that the presence of white spruce in the canopy suggests succession to Sw/ Feathermoss or Sw - Fb/ Feathermoss associations if white spruce density is high or a Sw/ Vibu edu/ Feathermoss association if white spruce density is low. The presence of green alder indicates a slightly higher moisture availability, compared to the modal, likely created by an impermeable soil layer. This community type also includes community h7 Aw-Pb-Sw/alder from Lawrence et al 2005.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e3 low-bush cranberry Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	8.3	0.0-45.0	55
LODGEPOLE PINE *(Pinus contorta)*	14.9	0.0-40.0	69
ASPEN *(Populus tremuloides)*	22.9	0.0-65.0	92
Understory Tree			
ASPEN *(Populus tremuloides)*	2.4	0.0-23.0	45
WHITE SPRUCE *(Picea glauca)*	3.3	0.0-25.0	47
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	11.6	0.0-90.0	55
Medium Shrub (0.5 to 2 m)			
TWINFLOWER *(Linnaea borealis)*	3.2	0.0-15.0	84
LOW-BUSH CRANBERRY *(Viburnum edule)*	4.2	0.0-26.0	80
PRICKLY ROSE *(Rosa acicularis)*	4.8	0.0-25.0	94
GREEN ALDER *(Alnus crispa)*	10.7	0.0-52.0	75
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	3.7	0.0-20.0	78
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	3.2	0.0-15.0	88
WILD SARSAPARILLA *(Aralia nudicaulis)*	7.9	0.0-60.0	51
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.6	0.0-10.0	67
HEART-LEAVED ARNICA *(Arnica cordifolia)*	2.2	0.0-10.0	73
STIFF CLUB-MOSS *(Lycopodium annotinum)*	2.5	0.0-75.0	35
BUNCHBERRY *(Cornus canadensis)*	7.5	0.0-25.0	92
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	3.8	0.0-25.0	71
HAIRY WILD RYE *(Elymus innovatus)*	4.6	0.0-36.7	65
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	11.2	0.0-91.0	57

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (4), Subhygric (moderately moist) (10), Mesic (fresh) (39)

Nutrient Regime: Submesotrophic (poor) (3), Permesotrophic (rich) (21), Mesotrophic (medium) (31)

Elevation (range): 1147 (729-1425) M

Slope (%): 31 - 45.99 (1), 16 - 30.99 (5), 10 - 15.99 (6), 0 - 0.49 (7), 0.5 - 2.49 (8), 2.5 - 5.99 (11), 6 - 9.99 (15)

Aspect: Level (6), Southerly (8), Westerly (9), Easterly (12), Northerly (15)

Topographic Position: Crest (1), Depression (1), Level (4), Lower Slope (4), Upper Slope (10), Midslope (11)

Soil Variables

Soil Drainage: Rapidly drained (2), Imperfectly drained (6), Well drained (22), Moderately well drained (23)

Soil Subgroup: EUTRIC BRUNISOL ORTHIC (1), GRAY LUVISOL GLEYED (1), DYSTRIC BRUNISOL ORTHIC (2), GRAY LUVISOL GLEYED DARK (2), GRAY LUVISOL DARK (3), LUVIC GLEYSOL ORTHIC (3), EUTRIC BRUNISOL ELUVIATED (6), GRAY LUVISOL BRUNISOLIC (14), GRAY LUVISOL ORTHIC (14)

Surface Texture: Loamy sand (1), Sandy clay (1), Very fine sandy loam (1), Sand (2), Clay loam (3), Clay (3), Silt (3), Silty clay loam (5), Silt loam (6), Sandy loam (6), Loam (10)

Effective Texture: Heavy clay (1), Loam (1), Sand (1), Sandy loam (2), Silt loam (2), Silty clay (2), Sandy clay loam (2), Silty clay loam (4), Clay loam (11), Clay (15)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (2), 0 - 25 (3)

Organic Thickness: 0 - 5 cm (47)

Parent Material: Residual (1), Lacustrine (1), Fluvial (3), Eolian (3), Rock (3), Glaciolacustrine (4), Glaciofluvial (8), Morainal (33)

Soil Type: Dry/Silty-Loamy (1), Dry/Sandy (1), Moist/Silty-Loamy (2), Moist/Coarse (2), Dry/Fine (2), Moist/Fine (28)

Humus Form MODER (1), RAW MODER (1), FIBRIHUMIMOR (1), HUMIFIBRIMOR (2), MULL-LIKE MODER (2), FIBRIMOR (5)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	16.00	41

LFh9 Aw-Sw-Pl/Low-bush cranberry-Rose (n=79)

(Populus tremuloides-Picea glauca-Pinus contorta/Viburnum edule-Rosa acicularis)

This plant community is a combination of Beckingham et al (1996) plant community e3.3 low bush cranberry and e3.4 prickly rose plant community types. It also combines Lawrence et al (2005) plant communities h8,h9 and h10. This community type is similar to the Aw/Rose/tall forb community type, but is successionally more advanced. As spruce and pine succeeds into the canopy, it reduces the amount of light reaching the forest floor inhibiting the growth of shrubs, tall forbs and grass. Grazing can also reduce the tall forb component as low-growing forbs (strawberry, common pink wintergreen) will increase, and with continual grazing revert to clover and Kentucky bluegrass (LFi1 Aw-Sw/clover --- characterized by lower forage production). Under natural succession this community will eventually revert to a Sw/moss on mesic/medium sites and Sw/horsetail/moss on higher moisture-nutrient sites.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e3 low-bush cranberry Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	7.0	0.0-35.0	47
WHITE SPRUCE *(Picea glauca)*	10.7	0.0-50.0	72
ASPEN *(Populus tremuloides)*	25.4	0.0-75.0	95
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.9	0.0-25.0	57
TWINFLOWER *(Linnaea borealis)*	5.2	0.0-27.1	80
PRICKLY ROSE *(Rosa acicularis)*	7.0	0.0-30.0	96
LOW-BUSH CRANBERRY *(Viburnum edule)*	8.0	0.0-37.0	87
Tall Forb (>= 30 cm)			
TALL LUNGWORT *(Mertensia paniculata)*	2.1	0.0-20.0	66
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.9	0.0-35.0	84
COMMON FIREWEED *(Epilobium angustifolium)*	4.3	0.0-35.0	82
WILD SARSAPARILLA *(Aralia nudicaulis)*	7.0	0.0-40.0	53
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.9	0.0-10.0	81
WILD LILY-OF-THE-VALLEY *(Maianthemum canadense)*	2.0	0.0-64.0	75
HEART-LEAVED ARNICA *(Arnica cordifolia)*	2.1	0.0-64.0	43
BUNCHBERRY *(Cornus canadensis)*	7.3	0.0-45.0	84
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	3.7	0.0-30.0	60
BLUEJOINT *(Calamagrostis canadensis)*	5.2	0.0-30.0	72
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	9.7	0.0-70.0	76
STAIR-STEP MOSS *(Hylocomium splendens)*	10.2	0.0-50.0	68

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subxeric (moderately dry) (1), Submesic (moderately fresh) (6), Subhygric (moderately moist) (13), Mesic (fresh) (63)

Nutrient Regime: Submesotrophic (poor) (2), Eutrophic (very rich) (3), Permesotrophic (rich) (12), Mesotrophic (medium) (65)

Elevation (range): 1072 (716-1375) M

Slope (%): 31 - 45.99 (1), 16 - 30.99 (6), 10 - 15.99 (9), 0.5 - 2.49 (13), 0 - 0.49 (13), 6 - 9.99 (16), 2.5 - 5.99 (23)

Aspect: Level (8), Easterly (11), Northerly (16), Southerly (18), Westerly (19)

Topographic Position: Depression (1), Crest (3), Lower Slope (3), Level (11), Upper Slope (12), Midslope (26)

Soil Variables

Soil Drainage: Rapidly drained (2), Imperfectly drained (8), Moderately well drained (35), Well drained (38)

Soil Subgroup: DYSTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL DARK (1), REGOSOL ORTHIC (1), GRAY LUVISOL PODZOLIC (1), GRAY LUVISOL GLEYED BRUNISOLIC (1), EUTRIC BRUNISOL GLEYED (1), EUTRIC BRUNISOL ELUVIATED (3), GRAY LUVISOL GLEYED (3), EUTRIC BRUNISOL ORTHIC (3), LUVIC GLEYSOL ORTHIC (4), GRAY LUVISOL BRUNISOLIC (24), GRAY LUVISOL ORTHIC (28)

Surface Texture: Sandy clay loam (1), Very fine sandy loam (1), Heavy clay (1), Sandy clay (1), Silty clay (1), Clay (2), Silt (2), Loamy sand (3), Clay loam (4), Sandy loam (6), Silty clay loam (9), Loam (15), Silt loam (23)

Effective Texture: Loam (1), Sand (1), Silt loam (1), Sandy loam (2), Heavy clay (3), Sandy clay loam (5), Silty clay (7), Silty clay loam (7), Sandy clay (9), Clay loam (14), Clay (19)

Depth to Mottles/Gley: 26 - 50 (1), 51 - 100 (1), 0 - 25 (3)

Organic Thickness: 0 - 5 cm (74)

Parent Material: Residual (1), Fluvial (1), Lacustrine (2), Lacustromoraine (3), Rock (5), Glaciofluvial (6), Eolian (10), Glaciolacustrine (18), Morainal (53)

Soil Type: Very Dry/Fine (1), Moist/Sandy (1), Moist/Silty-Loamy (2), Moist/Coarse (2), Dry/Fine (3), Moist/Fine (58)

Humus Form RHIZOMULL (1), MODER (1), FIBRIMOR (2), FIBRIHUMIMOR (5), HUMIFIBRIMOR (6), RAW MODER (6)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	15.00	66

e4 low-bush cranberry Sw (n=55)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[29.8]WHITE SPRUCE
Picea glauca

[3.2]BALSAM FIR*
Abies balsamea

[3.0]LODGEPOLE PINE
Pinus contorta

Shrub

[8.9]GREEN ALDER
Alnus crispa

[5.2]BUNCHBERRY
Cornus canadensis

[4.8]TWINFLOWER
Linnaea borealis

[4.5]LOW-BUSH CRANBERRY
Viburnum edule

[3.8]COMMON LABRADOR TEA
Ledum groenlandicum

[3.2]PRICKLY ROSE
Rosa acicularis

[1.4]BOG CRANBERRY
Vaccinium vitis-idaea

Forb

[3.2]WILD SARSAPARILLA
Aralia nudicaulis

[2.2]TALL LUNGWORT
Mertensia paniculata

[2.1]SHOWY ASTER
Aster conspicuus

Moss and Liverwort

[26.2]STAIR-STEP MOSS
Hylocomium splendens

[13.2]SCHREBER'S MOSS
Pleurozium schreberi

[12.6]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Graminoid

[1.8]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (5), Subhygric (moderately moist) (13), Mesic (fresh) (31)

Nutrient Regime: Submesotrophic (poor) (3), Permesotrophic (rich) (12), Mesotrophic (medium) (34)

Elevation (range): 1104 (660-1562) M

Slope (%): very steep slope (1), very strong slope (1), strong slope (2), moderate slope (7), gentle slope (9), very gentle slope (10), level (11), nearly level (12)

Aspect: Level (3), Westerly (10), Northerly (10), Easterly (10), Southerly (11)

Topographic Position:Toe (1), Upper Slope (4), Lower Slope (4), Crest (4), Level (7), Midslope (8)

Soil Variables

Soil Drainage: Rapidly drained (1), Imperfectly drained (5), Well drained (16), Moderately well drained (26)

Soil Subgroup: MELANIC BRUNISOL (2), LUVIC GLEYSOL (2), DYSTRIC BRUNISOL (3), REGOSOL (3), EUTRIC BRUNISOL (6), GRAY LUVISOL (32)

Surface Texture: Clay (1), Loamy sand (1), Sandy clay (1), Sand (1), Silt (1), Loam (2), Silty clay (3), Silty clay loam (4), Sandy clay loam (4), Sandy loam (6), Clay loam (6), Silt loam (15)

Effective Texture: Loam (1), Sandy clay loam (1), Silt (1), Silt loam (2), Heavy clay (3), Sandy loam (3), Sandy clay (5), Silty clay (5), Silty clay loam (5), Clay (7), Clay loam (11)

Depth to Mottles/Gley: 26 - 50 (3), 0 - 25 (5)

Organic Thickness: 0 - 5 cm (55)

Parent Material: Lacustrine (1), Lacustromoraine (2), Colluvial (2), Glaciofluvial (3), Rock (3), Saprolite (3), Eolian (4), Fluvial (7), Glaciolacustrine (7), Morainal (29)

Soil Type: Dry/Coarse (1), Moist/Peaty (1), Shallow (1), Moist/Coarse (2), Dry/Fine (2), Moist/Silty-Loamy (6), Moist/Fine (31)

Humus Form MOR (1), RAW MODER (2), FIBRIMOR (5), HUMIFIBRIMOR (5), FIBRIHUMIMOR (7)

LFH Thickness	Mean	Min	Max	Count
cm:	7.67	1.00	17.00	44

LFj31 Sw/Green alder (n=12)

(Picea glauca/Alnus crispa)

This community type seems to form on slopes that have coarse soils and underground seepage. The underground seepage makes this community type fairly moist and nutrient rich. The high amount of moisture allows green alder to proliferate.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e4 low-bush cranberry Sw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
ASPEN *(Populus tremuloides)*	3.0	0.0-20.0	25
WHITE SPRUCE *(Picea glauca)*	21.8	0.0-40.0	83
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	2.3	0.0-15.0	42
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	7.8	0.0-38.0	50
Medium Shrub (0.5 to 2 m)			
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	2.0	0.0-12.0	17
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.0	0.0-12.0	50
PRICKLY ROSE *(Rosa acicularis)*	3.0	0.0-12.0	75
SUBALPINE FIR *(Abies lasiocarpa)*	3.1	0.0-20.0	25
BALSAM FIR *(Abies balsamea)*	3.3	0.0-22.0	33
TWINFLOWER *(Linnaea borealis)*	4.2	0.0-13.0	83
BOG CRANBERRY *(Vaccinium vitis-idaea)*	4.2	0.0-20.0	50
GREEN ALDER *(Alnus crispa)*	19.0	0.0-50.0	83
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	4.5	0.0-25.0	83
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	2.5	0.0-15.0	67
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	9.5	0.0-40.0	58
STAIR-STEP MOSS *(Hylocomium splendens)*	10.8	0.0-35.0	50
SCHREBER'S MOSS *(Pleurozium schreberi)*	15.2	0.0-40.0	67

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Mesic (fresh) (8)

Nutrient Regime: Submesotrophic (poor) (1), Permesotrophic (rich) (2), Mesotrophic (medium) (5)

Elevation (range): 1171 (910-1562) M

Slope (%): 2.5 - 5.99 (1), 10 - 15.99 (1), 6 - 9.99 (2), 0 - 0.49 (4), 0.5 - 2.49 (4)

Aspect: Level (1), Westerly (1), Easterly (1), Southerly (2), Northerly (4)

Topographic Position: Level (1), Midslope (1)

Soil Variables

Soil Drainage: Well drained (1), Moderately well drained (6)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), LUVIC GLEYSOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (2), EUTRIC BRUNISOL ORTHIC (2), GRAY LUVISOL GLEYED BRUNISOLIC (2)

Surface Texture: Sandy clay loam (1), Clay (1), Loam (1), Loamy sand (1), Silty clay (2), Silt loam (2)

Effective Texture: Clay (1), Clay loam (1), Silty clay (1), Silty clay loam (2), Sandy clay (3)

Depth to Mottles/Gley: 0 - 25 (1), 26 - 50 (2)

Organic Thickness: 0 - 5 cm (12)

Parent Material: Glaciofluvial (1), Saprolite (1), Rock (2), Fluvial (2), Morainal (4)

Soil Type: Moist/Silty-Loamy (1), Moist/Fine (6)

Humus Form HUMIFIBRIMOR (1), FIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	2.00	11.00	8

LFj12 Sw/Feather moss (n=36)

(Picea glauca/Pleurozium schreberi)

This site represents a successionally mature white spruce stand. It is equivalent to Beckingham's et al. (1996) Sw/Feather moss (e3.5) and Sw/fir/feather moss (e3.4) community types in West-Central Alberta. As these stands mature and the canopy becomes more closed, the amount of understory vegetation decreases until most of the shrub, forb, and grass layers have been eliminated and only shade- tolerant forbs and mosses remain.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e4 low-bush cranberry Sw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	2.8	0.0-25.0	39
WHITE SPRUCE *(Picea glauca)*	27.3	0.0-70.0	92
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	8.4	0.0-63.0	58
Medium Shrub (0.5 to 2 m)			
COMMON BEARBERRY *(Arctostaphylos uva-ursi)*	1.7	0.0-30.0	8
PRICKLY ROSE *(Rosa acicularis)*	2.5	0.0-13.0	83
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.1	0.0-32.0	64
TWINFLOWER *(Linnaea borealis)*	5.5	0.0-29.0	94
BALSAM FIR *(Abies balsamea)*	6.3	0.0-82.0	31
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	2.5	0.0-42.0	67
Tall Forb (>= 30 cm)			
SHOWY ASTER *(Aster conspicuus)*	1.3	0.0-25.0	33
TALL LUNGWORT *(Mertensia paniculata)*	1.4	0.0-18.0	50
WILD SARSAPARILLA *(Aralia nudicaulis)*	2.6	0.0-30.0	36
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.1	0.0-10.0	64
BUNCHBERRY *(Cornus canadensis)*	3.5	0.0-18.0	86
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	1.8	0.0-20.0	47
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	8.2	0.0-60.0	64
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	13.6	0.0-65.0	78
STAIR-STEP MOSS *(Hylocomium splendens)*	31.3	0.0-85.0	83

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (3), Subhygric (moderately moist) (11), Mesic (fresh) (20)

Nutrient Regime: Submesotrophic (poor) (2), Permesotrophic (rich) (8), Mesotrophic (medium) (24)

Elevation (range): 1038 (660-1560) M

Slope (%): 71 - 100.99 (1), 31 - 45.99 (1), 16 - 30.99 (2), 10 - 15.99 (5), 0.5 - 2.49 (6), 6 - 9.99 (6), 0 - 0.49 (6), 2.5 - 5.99 (7)

Aspect: Level (2), Northerly (3), Easterly (7), Southerly (8), Westerly (9)

Topographic Position: Toe (1), Crest (2), Lower Slope (3), Upper Slope (4), Level (5), Midslope (7)

Soil Variables

Soil Drainage: Rapidly drained (1), Imperfectly drained (5), Well drained (13), Moderately well drained (15)

Soil Subgroup: GRAY LUVISOL GLEYED DARK (1), DYSTRIC BRUNISOL GLEYED ELUVIATED (1), DYSTRIC BRUNISOL ORTHIC (1), MELANIC BRUNISOL GLEYED (1), REGOSOL GLEYED CUMULIC (1), MELANIC BRUNISOL ELUVIATED (1), GRAY LUVISOL DARK (1), EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL PODZOLIC (1), LUVIC GLEYSOL ORTHIC (1), EUTRIC BRUNISOL ORTHIC (2), REGOSOL CUMULIC (2), GRAY LUVISOL GLEYED BRUNISOLIC (3), GRAY LUVISOL BRUNISOLIC (5), GRAY LUVISOL ORTHIC (11)

Surface Texture: Sandy clay (1), Loam (1), Sand (1), Silt (1), Silty clay (1), Sandy clay loam (3), Sandy loam (4), Silty clay loam (4), Clay loam (5), Silt loam (10)

Effective Texture: Loam (1), Sandy clay loam (1), Silt (1), Silty clay loam (1), Silt loam (1), Sandy loam (2), Sandy clay (2), Heavy clay (3), Silty clay (3), Clay (6), Clay loam (9)

Depth to Mottles/Gley: 26 - 50 (1), 0 - 25 (4)

Organic Thickness: 0 - 5 cm (36)

Parent Material: Saprolite (1), Lacustrine (1), Rock (1), Lacustromoraine (1), Glaciofluvial (2), Eolian (2), Colluvial (2), Fluvial (4), Glaciolacustrine (6), Morainal (19)

Soil Type: Shallow (1), Moist/Coarse (1), Dry/Coarse (1), Moist/Peaty (1), Dry/Fine (2), Moist/Silty-Loamy (3), Moist/Fine (22)

Humus Form MOR (1), RAW MODER (2), FIBRIMOR (3), HUMIFIBRIMOR (3), FIBRIHUMIMOR (7)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	17.00	31

LFj30 Sw/Low-bush cranberry-Rose (n=7)

(Picea glauca/Viburnum edule-Rosa acicularis)

This community type combines the low-bush cranberry (e4.2) and rose (e4.3) community types described by Beckingham et al. (1996) in West-Central Alberta. This community type is common on mesic/medium sites with little disturbance. In the continued absence of disturbance these sites will often succeed to subalpine fir.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e4 low-bush cranberry Sw

Plant Composition

	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
ASPEN *(Populus tremuloides)*	2.0	0.0-8.0	43
LODGEPOLE PINE *(Pinus contorta)*	6.4	0.0-25.0	71
WHITE SPRUCE *(Picea glauca)*	25.7	0.0-50.0	86
Understory Tree			
SUBALPINE FIR *(Abies lasiocarpa)*	3.0	0.0-15.0	29
WHITE SPRUCE *(Picea glauca)*	4.2	0.0-15.0	57
Medium Shrub (0.5 to 2 m)			
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	3.7	0.0-15.0	43
PRICKLY ROSE *(Rosa acicularis)*	4.1	0.0-10.0	71
TWINFLOWER *(Linnaea borealis)*	4.8	0.0-12.0	71
LOW-BUSH CRANBERRY *(Viburnum edule)*	8.5	0.0-20.0	71
COMMON LABRADOR TEA *(Ledum groenlandicum)*	11.4	0.0-50.0	29
Tall Forb (>= 30 cm)			
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.0	0.0-8.0	43
COMMON FIREWEED *(Epilobium angustifolium)*	2.7	0.0-10.0	71
SHOWY ASTER *(Aster conspicuus)*	5.1	0.0-20.0	43
TALL LUNGWORT *(Mertensia paniculata)*	5.2	0.0-15.0	71
WILD SARSAPARILLA *(Aralia nudicaulis)*	7.2	0.0-40.0	43
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.8	0.0-5.0	71
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	3.1	0.0-10.0	86
BUNCHBERRY *(Cornus canadensis)*	7.8	0.0-25.0	86
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	3.0	0.0-10.0	43
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	14.7	0.0-50.0	86
SCHREBER'S MOSS *(Pleurozium schreberi)*	16.4	2.0-40.0	100
STAIR-STEP MOSS *(Hylocomium splendens)*	36.7	15.0-60.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (2), Subhygric (moderately moist) (2), Mesic (fresh) (3)

Nutrient Regime: Permesotrophic (rich) (2), Mesotrophic (medium) (5)

Elevation (range): 1103 (823-1440) M

Slope (%): 0 - 0.49 (1), 10 - 15.99 (1), 6 - 9.99 (1), 2.5 - 5.99 (2), 0.5 - 2.49 (2)

Aspect: Southerly (1), Easterly (2), Northerly (3)

Topographic Position: Level (1), Lower Slope (1), Crest (2)

Soil Variables

Soil Drainage: Well drained (2), Moderately well drained (5)

Soil Subgroup: DYSTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL ORTHIC (1), GRAY LUVISOL ORTHIC (2), GRAY LUVISOL BRUNISOLIC (3)

Surface Texture: Clay loam (1), Sandy loam (2), Silt loam (3)

Effective Texture: Clay loam (1), Silty clay (1), Silt loam (1), Sandy loam (1), Silty clay loam (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (7)

Parent Material: Fluvial (1), Glaciolacustrine (1), Lacustromoraine (1), Saprolite (1), Eolian (2), Morainal (6)

Soil Type: Moist/Coarse (1), Moist/Silty-Loamy (2), Moist/Fine (3)

Humus Form HUMIFIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	9.00	6.00	13.00	5

e5 low-bush cranberry shrubland (n=5)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)

Characteristic Species

Tree

[7.3]ASPEN
Populus tremuloides

Shrub

[19.9]BEAKED HAZELNUT*
Corylus cornuta

[4.3]PRICKLY ROSE
Rosa acicularis

[3.3]WILD RED RASPBERRY
Rubus idaeus

[2.0]RED-OSIER DOGWOOD
Cornus stolonifera

[1.6]SNOWBERRY
Symphoricarpos albus

[1.6]SASKATOON
Amelanchier alnifolia

Forb

[19.6]WILD SARSAPARILLA*
Aralia nudicaulis

[5.3]SHOWY ASTER
Aster conspicuus

[3.6]TALL LUNGWORT
Mertensia paniculata

[3.6]SPREADING DOGBANE
Apocynum androsaemifolium

[3.0]COMMON FIREWEED
Epilobium angustifolium

[3.0]WESTERN CANADA VIOLET
Viola canadensis

[1.6]LINDLEY'S ASTER
Aster ciliolatus

Graminoid

[4.3]BLUEJOINT
Calamagrostis canadensis

[4.0]FRINGED BROME
Bromus ciliatus

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (2), Mesic (fresh) (3)

Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (4)

Elevation (range): 941.67 (879-1050) M

Slope (%): moderate slope (1), nearly level (1), strong slope (3)

Aspect: Easterly (1), Southerly (1), Westerly (1), Level (2)

Topographic Position:Upper Slope (1), Midslope (4)

Soil Variables

Soil Drainage: Rapidly drained (1), Well drained (2), Moderately well drained (2)

Soil Subgroup: GRAY LUVISOL (1)

Surface Texture: Silt loam (1)

Effective Texture: Clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Morainal (1)

Soil Type: Moist/Fine (1)

Humus Form MODER (1)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	6.00	6.00	1

LFc3 Hazelnut/Wild sarsaparilla (n=3)

(Corylus cornuta/Aralia nudicaulis)

This community type occurs in small isolated openings within the aspen dominated forests near Whitecourt Mountain southwest of Whitecourt. These sites occur on south and west facing slopes. These sites were probably created after a fire burned through the area and the higher insolation has limited tree growth. On moister, lower slope positions cow parsnip can dominate this community type. These sites are moderately productive. Succession in the absence of disturbance will be to aspen.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e5 low-bush cranberry shrubland

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
ASPEN *(Populus tremuloides)*	7.3	6.0-10.0	100
Medium Shrub (0.5 to 2 m)			
COMMON WILD ROSE *(Rosa woodsii)*	1.3	0.0-4.0	33
SASKATOON *(Amelanchier alnifolia)*	1.6	0.0-5.0	33
SNOWBERRY *(Symphoricarpos albus)*	1.6	0.0-5.0	33
RED-OSIER DOGWOOD *(Cornus stolonifera)*	2.0	0.0-6.0	33
WILD RED RASPBERRY *(Rubus idaeus)*	3.3	0.0-10.0	33
PRICKLY ROSE *(Rosa acicularis)*	4.3	4.0-5.0	100
BEAKED HAZELNUT *(Corylus cornuta)*	19.9	2.0-55.0	100
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	1.6	0.0-4.0	67
COMMON FIREWEED *(Epilobium angustifolium)*	3.0	1.0-7.0	100
SPREADING DOGBANE *(Apocynum androsaemifolium)*	3.6	0.0-11.0	33
TALL LUNGWORT *(Mertensia paniculata)*	3.6	1.0-7.0	100
SHOWY ASTER *(Aster conspicuus)*	5.3	1.0-9.0	100
WILD SARSAPARILLA *(Aralia nudicaulis)*	19.6	16.0-25.0	100
Low Forb (< 30 cm)			
WESTERN CANADA VIOLET *(Viola canadensis)*	3.0	1.0-7.0	100
Graminoid			
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	1.0	0.0-2.0	67
FRINGED BROME *(Bromus ciliatus)*	4.0	1.0-10.0	100
BLUEJOINT *(Calamagrostis canadensis)*	4.3	3.0-6.0	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Subhygric (moderately moist) (1), Mesic (fresh) (2)

Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (2)

Elevation (range): 1025 (1000-1050) M

Slope (%): 16 - 30.99 (3)

Aspect: Westerly (1), Southerly (1), Level (1)

Topographic Position: Upper Slope (1), Midslope (2)

Soil Variables

Soil Drainage: Moderately well drained (1), Well drained (2)

Soil Subgroup: GRAY LUVISOL BRUNISOLIC (1)

Surface Texture: Silt loam (1)

Effective Texture: Clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Morainal (1)

Soil Type: Moist/Fine (1)

Humus Form MODER (1)

LFH Thickness	Mean	Min	Max	Count
cm:	6.00	6.00	6.00	1

e9 low-bush cranberry tame (n=33)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)

Characteristic Species

Forb

[13.5]ALSIKE CLOVER
Trifolium hybridum

[6.2]WHITE CLOVER
Trifolium repens

[4.5]COMMON DANDELION
Taraxacum officinale

Graminoid

[18.5]TIMOTHY
Phleum pratense

[8.2]CREEPING RED FESCUE
Festuca rubra

[7.0]KENTUCKY BLUEGRASS
Poa pratensis

[1.7]AWNLESS BROME
Bromus inermis

Environmental Variables

Moisture Regime: Hygric (moist) (1), Subhydric (moderately wet) (1), Subxeric (moderately dry) (2), Subhygric (moderately moist) (7), Submesic (moderately fresh) (10), Mesic (fresh) (37)

Nutrient Regime: Eutrophic (very rich) (1), Submesotrophic (poor) (2), Permesotrophic (rich) (14), Mesotrophic (medium) (41)

Elevation (range): 1165.8 (711-1539) M

Slope (%): gentle slope (2), moderate slope (3), strong slope (3), very gentle slope (12), nearly level (16), level (17)

Aspect: Westerly (3), Easterly (8), Southerly (11), Northerly (13), Level (14)

Topographic Position:Crest (1), Depression (1), Upper Slope (3), Toe (6), Lower Slope (6), Midslope (10), Level (19)

Soil Variables

Soil Drainage: Rapidly drained (4), Imperfectly drained (7), Well drained (18), Moderately well drained (27)

Soil Subgroup: EUTRIC BRUNISOL (1), GRAY LUVISOL (3)

Surface Texture: Fine sandy loam (1), Loam (1), Sandy loam (1), Silt loam (1)

Effective Texture: Clay (1), Sandy loam (1), Silty clay (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Glaciolacustrine (1), Morainal (4)

Soil Type: Very Dry/Coarse (1), Wet/Mineral (1), Moist/Fine (2)

Humus Form FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	3.25	2.00	4.00	4

LFa16 Timothy-Creeping red fescue/Clover (n=4)

(Phleum pratense-Festuca rubra/Trifolium spp.)

This community type occurs on cleared pastures that were seeded with a mixture that likely included a combination of timothy, brome grasses, orchard grass, creeping red fescue and clover species. Light to moderate grazing will likely maintain the original seed mixture, but prolonged heavy grazing will allow grazing resistant species such as creeping red fescue, Kentucky bluegrass and clovers to dominate the site (LFa17 see range plant community guide). Very heavily grazed sites may even become invaded with disturbance and weedy species (LFa18,LFa19 see range plant community guide).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: e low-bush cranberry (mesic/medium)
Ecosite Phase: e9 low-bush cranberry tame

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Forb (>= 30 cm)			
ALSIKE CLOVER *(Trifolium hybridum)*	13.5	0.0-34.0	50
Low Forb (< 30 cm)			
COMMON DANDELION *(Taraxacum officinale)*	4.5	0.0-8.0	75
WHITE CLOVER *(Trifolium repens)*	6.2	0.0-23.0	50
Graminoid			
AWNLESS BROME *(Bromus inermis)*	1.7	0.0-5.0	50
KENTUCKY BLUEGRASS *(Poa pratensis)*	7.0	0.0-21.3	50
CREEPING RED FESCUE *(Festuca rubra)*	8.2	0.0-24.0	50
TIMOTHY *(Phleum pratense)*	18.5	0.0-35.0	75

Environmental Variables

Ecological Status Score: 7-14

Moisture Regime: Hygric (moist) (1), Subhydric (moderately wet) (1), Subhygric (moderately moist) (1), Subxeric (moderately dry) (1), Submesic (moderately fresh) (2), Mesic (fresh) (10)

Nutrient Regime: Eutrophic (very rich) (1), Permesotrophic (rich) (3), Mesotrophic (medium) (12)

Elevation (range): 938 (711-1319) M

Slope (%): 16 - 30.99 (1), 10 - 15.99 (1), 2.5 - 5.99 (2), 0 - 0.49 (3), 0.5 - 2.49 (6)

Aspect: Southerly (1), Easterly (2), Westerly (2), Level (3), Northerly (4)

Topographic Position: Upper Slope (1), Toe (1), Level (3), Midslope (3)

Soil Variables

Soil Drainage: Imperfectly drained (3), Well drained (6), Moderately well drained (7)

Soil Subgroup: GRAY LUVISOL ORTHIC (1)

Surface Texture: Silt loam (1)

Effective Texture: Silty clay (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Glaciolacustrine (1), Morainal (1)

Soil Type: Wet/Mineral (1)

Humus Form FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	4.00	4.00	4.00	1

f bracted honeysuckle (subhygric/rich) (n=393)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The bracted honeysuckle ecosite tends to be subhygric and nutrient rich. These sites are commonly found in mid or lower slope topographic positions where they receive nutrient-rich seepage waters for a portion of the growing season. Morainal parent materials and northern aspects are common and plant communities tend to be high in species richness, diversity and cover. The bracted honeysuckle ecosite tends to be the most productive ecosite (based on site index) in the Lower Foothills Natural Subregion and in the entire province (Beckingham et al. 1996).

Successional Relationships

Initially, succession proceeds slowly after disturbance due to the proliferation of grass, forb, and shrub cover. This explosion of vegetational cover can make tree establishment (especially coniferous) difficult and can reduce early growth rates. Once tree seedlings become established, high growth rates can be expected.

Indicator Species

Tree

WHITE SPRUCE
Picea glauca

LODGEPOLE PINE
Pinus contorta

BALSAM POPLAR
Populus balsamifera

ASPEN
Populus tremuloides

Shrub

BRACTED HONEYSUCKLE
Lonicera involucrata

DEVIL'S-CLUB
Oplopanax horridum

SILVERBERRY
Elaeagnus commutata

THIMBLEBERRY
Rubus parviflorus

RED-OSIER DOGWOOD
Cornus stolonifera

GREEN ALDER
Alnus crispa

RIVER ALDER
Alnus tenuifolia

Forb

WILD SARSAPARILLA
Aralia nudicaulis

OAK FERN
Gymnocarpium dryopteris

COW PARSNIP
Heracleum lanatum

Moss and Liverwort

STAIR-STEP MOSS
Hylocomium splendens

SCHREBER'S MOSS
Pleurozium schreberi

Site Index at 50 Years

	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	18.50	0.20	384
WHITE BIRCH *(Betula papyrifera)*	17.40	1.10	14
SUBALPINE FIR *(Abies lasiocarpa)*	15.40	0.90	27
LODGEPOLE PINE *(Pinus contorta)*	19.10	0.10	466
BLACK SPRUCE *(Picea mariana)*	13.60	0.80	14
BALSAM POPLAR *(Populus balsamifera)*	18.80	1.20	15
ASPEN *(Populus tremuloides)*	19.10	0.20	170

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (4), Hygric (moist) (52), Mesic (fresh) (149), Subhygric (moderately moist) (171)

Nutrient Regime: Submesotrophic (poor) (5), Eutrophic (very rich) (19), Mesotrophic (medium) (169), Permesotrophic (rich) (176)

Elevation (range): 1023.5 (495-1460) M

Slope (%): steep slope (1), very strong slope (6), strong slope (21), moderate slope (46), level (50), gentle slope (51), nearly level (82), very gentle slope (114)

Aspect: Level (37), Westerly (43), Southerly (64), Easterly (85), Northerly (97)

Topographic Position:Toe (6), Depression (8), Crest (9), Upper Slope (40), Level (43), Lower Slope (46), Midslope (93)

Soil Variables

Soil Drainage: Poorly drained (33), Well drained (86), Imperfectly drained (131), Moderately well drained (135)

Soil Subgroup; REGOSOL (8), HUMIC GLEYSOL (13), GLEYSOL (14), DYSTRIC BRUNISOL (23), EUTRIC BRUNISOL (34), LUVIC GLEYSOL (57), GRAY LUVISOL (159)

Surface Texture: Fine sandy loam (8), Silty clay (8), Sandy clay loam (11), Silt (13), Clay (13), Sandy loam (16), Clay loam (22), Silty clay loam (32), Loam (38), Silt loam (73)

Effective Texture: Loamy sand (2), Sand (5), Sandy loam (5), Sandy clay (7), Loam (8), Silt loam (9), Heavy clay (13), Sandy clay loam (18), Silty clay (23), Silty clay loam (28), Clay loam (55), Clay (73)

Depth to Mottles/Gley: 51 - 100 (4), 26 - 50 (11), 0 - 25 (44)

Organic Thickness: >= 80 cm (1), 26 - 39 cm (2), 40 - 59 cm (2), 6 - 15 cm (3), 0 - 5 cm (335)

Parent Material: Residual (2), Lacustromoraine (4), Colluvial (7), Undifferentiated Organic (7), Lacustrine (10), Rock (12), Eolian (16), Fluvial (35), Glaciofluvial (39), Glaciolacustrine (46), Morainal (220)

Soil Type: Dry/Coarse (1), Dry/Silty-Loamy (1), Organic (1), Very Dry/Fine (1), Dry/Fine (2), Moist/Coarse (5), Wet/Peaty (7), Moist/Sandy (8), Moist/Peaty (10), Wet/Mineral (13), Moist/Silty-Loamy (17), Moist/Fine (180)

Humus Form: MULL-LIKE MODER (3), HUMIMOR (3), MODER (4), RAW MODER (14), FIBRIMOR (15), HUMIFIBRIMOR (19), FIBRIHUMIMOR (36)

LFH Thickness

	Mean	Min	Max	Count
cm:	9.50	1.00	35.00	244

f1 bracted honeysuckle/fern Pl (n=75)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)

Characteristic Species

Tree

[34.3]LODGEPOLE PINE*
Pinus contorta

Shrub

[10.2]GREEN ALDER*
Alnus crispa

[6.9]BUNCHBERRY
Cornus canadensis

[4.2]BRACTED HONEYSUCKLE*
Lonicera involucrata

[3.6]LOW-BUSH CRANBERRY
Viburnum edule

[3.6]TWINFLOWER
Linnaea borealis

[3.3]DEVIL'S-CLUB*
Oplopanax horridum

[3.1]DEWBERRY
Rubus pubescens

[2.9]PRICKLY ROSE
Rosa acicularis

[1.1]WILD RED RASPBERRY
Rubus idaeus

[0.9]THIMBLEBERRY
Rubus parviflorus

Forb

[5.8]WILD SARSAPARILLA
Aralia nudicaulis

[5.5]STIFF CLUB-MOSS
Lycopodium annotinum

[4.4]OAK FERN*
Gymnocarpium dryopteris

[2.2]COMMON FIREWEED
Epilobium angustifolium

Moss and Liverwort

[18.7]SCHREBER'S MOSS*
Pleurozium schreberi

[12.8]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

[8.9]STAIR-STEP MOSS*
Hylocomium splendens

Graminoid

[4.4]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (2), Subhydric (moderately wet) (2), Hygric (moist) (6), Subhygric (moderately moist) (29), Mesic (fresh) (35)

Nutrient Regime: Eutrophic (very rich) (2), Submesotrophic (poor) (3), Permesotrophic (rich) (30), Mesotrophic (medium) (35)

Elevation (range): 1057 (762-1417) M

Slope (%): very strong slope (1), strong slope (3), gentle slope (9), level (9), moderate slope (10), nearly level (16), very gentle slope (26)

Aspect: Westerly (8), Level (9), Southerly (14), Easterly (14), Northerly (24)

Topographic Position:Crest (2), Upper Slope (6), Lower Slope (6), Level (6), Midslope (25)

Soil Variables

Soil Drainage: Poorly drained (3), Well drained (19), Imperfectly drained (20), Moderately well drained (32)

Soil Subgroup: HUMIC GLEYSOL (2), DYSTRIC BRUNISOL (8), EUTRIC BRUNISOL (9), LUVIC GLEYSOL (10), GRAY LUVISOL (44)

Surface Texture: Loamy sand (1), Sandy clay (1), Silty clay (1), Silt (2), Sandy clay loam (2), Fine sandy loam (2), Sandy loam (3), Clay (5), Loam (8), Clay loam (9), Silty clay loam (9), Silt loam (21)

Effective Texture: Sandy clay (1), Silt loam (2), Silty clay (4), Loam (4), Heavy clay (4), Sandy clay loam (6), Silty clay loam (7), Clay loam (14), Clay (21)

Depth to Mottles/Gley: 51 - 100 (3), 26 - 50 (4), 0 - 25 (16)

Organic Thickness: 0 - 5 cm (75)

Parent Material: Lacustrine (1), Residual (1), Fluvial (2), Colluvial (3), Glaciofluvial (5), Rock (5), Glaciolacustrine (6), Eolian (6), Morainal (58)

Soil Type: Dry/Fine (1), Dry/Silty-Loamy (1), Moist/Peaty (1), Wet/Mineral (2), Moist/Silty-Loamy (8), Moist/Fine (46)

Humus Form MESIC PEATYMOR (1), MODER (1), RAW MODER (2), MULL-LIKE MODER (2), FIBRIMOR (5), HUMIFIBRIMOR (5), FIBRIHUMIMOR (14)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	2.00	24.00	62

LFj32 Pl/Bracted honeysuckle/Fern/Feather moss (n=30)

(Pinus contorta/Lonicera involcrata/Gymnocarpium dryopteris/Pleurozium schreberi)

This community type combines the fern/feather moss (e1.2) from the Southwestern field guide (Archibald et al. 1996) and community types bracted honeysuckle (f1.2), fir/fern/feather moss (f1.3) and fern/feather moss (f1.5) from the West-Central ecosite guide (Beckingham et al. 1996). This community type can be dominated by willow, bracted honeysuckle, Saskatoon or moss in the understory. The moisture regime tends to be subhygric and the community tends to be richer than the modal ecological site. Herbaceous plants are scarce in the understory of this community type.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f1 bracted honeysuckle/fern Pl

Plant Composition

	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	2.2	0.0-15.0	33
LODGEPOLE PINE *(Pinus contorta)*	34.5	7.0-70.0	100
Medium Shrub (0.5 to 2 m)			
THIMBLEBERRY *(Rubus parviflorus)*	1.7	0.0-35.0	20
GREEN ALDER *(Alnus crispa)*	2.7	0.0-65.0	20
TWINFLOWER *(Linnaea borealis)*	3.4	0.0-15.0	90
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.6	0.0-13.0	90
PRICKLY ROSE *(Rosa acicularis)*	3.8	0.0-15.0	90
BALSAM FIR *(Abies balsamea)*	4.4	0.0-62.0	33
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	5.0	0.0-45.0	70
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	5.8	0.0-45.0	87
Tall Forb (>= 30 cm)			
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.2	0.0-15.0	50
COMMON FIREWEED *(Epilobium angustifolium)*	2.0	0.0-8.0	70
WILD SARSAPARILLA *(Aralia nudicaulis)*	6.1	0.0-25.0	70
OAK FERN *(Gymnocarpium dryopteris)*	7.3	0.0-70.0	83
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.4	0.0-10.0	57
STIFF CLUB-MOSS *(Lycopodium annotinum)*	5.3	0.0-30.0	83
BUNCHBERRY *(Cornus canadensis)*	8.3	1.0-35.0	100
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	7.0	0.0-45.0	67
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	9.7	0.0-55.0	77
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	21.4	0.0-75.0	93
SCHREBER'S MOSS *(Pleurozium schreberi)*	24.4	0.0-55.0	87

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Submesic (moderately fresh) (2), Subhygric (moderately moist) (12), Mesic (fresh) (15)

Nutrient Regime: Submesotrophic (poor) (3), Permesotrophic (rich) (7), Mesotrophic (medium) (18)

Elevation (range): 990 (762-1270) M

Slope (%): 0 - 0.49 (2), 0.5 - 2.49 (5), 10 - 15.99 (5), 6 - 9.99 (6), 2.5 - 5.99 (12)

Aspect: Westerly (4), Southerly (5), Level (5), Northerly (7), Easterly (8)

Topographic Position: Level (2), Lower Slope (2), Upper Slope (4), Midslope (11)

Soil Variables

Soil Drainage: Poorly drained (1), Imperfectly drained (7), Well drained (10), Moderately well drained (11)

Soil Subgroup: GRAY LUVISOL BROWN (1), EUTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL GLEYED ELUVIATED (1), DYSTRIC BRUNISOL GLEYED ELUVIATED (1), DYSTRIC BRUNISOL ORTHIC (1), DYSTRIC BRUNISOL ELUVIATED (2), GRAY LUVISOL GLEYED (2), GRAY LUVISOL ORTHIC (5), LUVIC GLEYSOL ORTHIC (6), GRAY LUVISOL BRUNISOLIC (10)

Surface Texture: Sandy clay (1), Loamy sand (1), Loam (1), Sandy clay loam (1), Silt (1), Fine sandy loam (2), Clay loam (2), Clay (2), Silty clay loam (4), Silt loam (7)

Effective Texture: Silt loam (1), Sandy clay loam (2), Silty clay loam (3), Clay loam (7), Clay (9)

Depth to Mottles/Gley: 51 - 100 (1), 0 - 25 (7)

Organic Thickness: 0 - 5 cm (30)

Parent Material: Rock (1), Glaciolacustrine (2), Fluvial (2), Glaciofluvial (3), Eolian (5), Morainal (24)

Soil Type: Dry/Silty-Loamy (1), Dry/Fine (1), Moist/Peaty (1), Moist/Silty-Loamy (2), Moist/Fine (17)

Humus Form MODER (1), MULL-LIKE MODER (1), HUMIFIBRIMOR (1), FIBRIMOR (2), RAW MODER (2), FIBRIHUMIMOR (6)

LFH Thickness	Mean	Min	Max	Count
cm:	9.00	2.00	24.00	22

LFj24 Pl/Green alder/Fern (n=37)

(Pinus contorta/Alnus crispa/Gymnocarpium dryopteris)

A similar community type is described by Beckingham et al. (1996) as a Pl/green alder/fern type (f1.2). The presence of green alder, fern, cow parsnip and horsetails indicates a high moisture availability, likely found near natural drainages.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f1 bracted honeysuckle/fern Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	35.7	0.0-88.0	95
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	2.1	0.0-15.0	49
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	14.0	0.0-88.0	54
Medium Shrub (0.5 to 2 m)			
BALSAM FIR *(Abies balsamea)*	1.5	0.0-52.0	8
WHITE MEADOWSWEET *(Spiraea betulifolia)*	1.5	0.0-10.0	51
WILD RED RASPBERRY *(Rubus idaeus)*	3.3	0.0-35.0	60
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	4.1	0.0-38.0	65
TWINFLOWER *(Linnaea borealis)*	4.4	0.0-18.0	97
PRICKLY ROSE *(Rosa acicularis)*	5.0	0.0-18.0	95
LOW-BUSH CRANBERRY *(Viburnum edule)*	7.4	0.0-30.0	95
GREEN ALDER *(Alnus crispa)*	14.3	0.0-60.0	76
Low Shrub (< 0.5m)			
DWARF BRAMBLE *(Rubus pedatus)*	2.2	0.0-42.0	24
DEWBERRY *(Rubus pubescens)*	3.7	0.0-18.0	95
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	3.1	0.0-16.0	81
OAK FERN *(Gymnocarpium dryopteris)*	3.1	0.0-20.0	54
WILD SARSAPARILLA *(Aralia nudicaulis)*	6.0	0.0-55.0	54
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	7.2	0.0-18.0	95
STIFF CLUB-MOSS *(Lycopodium annotinum)*	7.2	0.0-42.0	84
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	5.0	0.0-75.0	68
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	9.6	0.0-50.0	60
SCHREBER'S MOSS *(Pleurozium schreberi)*	16.6	0.0-57.0	92
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	17.2	0.0-80.0	89

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhydric (moderately wet) (2), Hygric (moist) (4), Subhygric (moderately moist) (14), Mesic (fresh) (17)

Nutrient Regime: Eutrophic (very rich) (2), Mesotrophic (medium) (15), Permesotrophic (rich) (17)

Elevation (range): 1112 (919-1380) M

Slope (%): 31 - 45.99 (1), 6 - 9.99 (2), 16 - 30.99 (3), 10 - 15.99 (3), 0 - 0.49 (7), 2.5 - 5.99 (10), 0.5 - 2.49 (10)

Aspect: Westerly (4), Level (4), Easterly (5), Southerly (9), Northerly (10)

Topographic Position: Crest (2), Upper Slope (2), Lower Slope (4), Level (4), Midslope (8)

Soil Variables

Soil Drainage: Poorly drained (2), Well drained (7), Imperfectly drained (9), Moderately well drained (19)

Soil Subgroup: EUTRIC BRUNISOL GLEYED (1), GRAY LUVISOL GLEYED DARK (1), DYSTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL GLEYED BRUNISOLIC (1), HUMIC GLEYSOL REGO (1), EUTRIC BRUNISOL GLEYED ELUVIATED (1), EUTRIC BRUNISOL ELUVIATED (1), LUVIC GLEYSOL ORTHIC (2), EUTRIC BRUNISOL ORTHIC (2), DYSTRIC BRUNISOL ORTHIC (3), GRAY LUVISOL ORTHIC (3), GRAY LUVISOL GLEYED (4), GRAY LUVISOL BRUNISOLIC (14)

Surface Texture: Sandy clay loam (1), Silt (1), Sandy loam (2), Clay (3), Silty clay loam (4), Loam (6), Clay loam (6), Silt loam (11)

Effective Texture: Sandy clay (1), Loam (2), Heavy clay (2), Silty clay (3), Silty clay loam (4), Sandy clay loam (4), Clay loam (7), Clay (10)

Depth to Mottles/Gley: 26 - 50 (2), 51 - 100 (2), 0 - 25 (8)

Organic Thickness: 0 - 5 cm (37)

Parent Material: Lacustrine (1), Eolian (1), Residual (1), Glaciofluvial (2), Colluvial (3), Rock (3), Glaciolacustrine (4), Morainal (27)

Soil Type: Wet/Mineral (1), Moist/Silty-Loamy (3), Moist/Fine (25)

Humus Form MULL-LIKE MODER (1), FIBRIMOR (1), MESIC PEATYMOR (1), HUMIFIBRIMOR (3), FIBRIHUMIMOR (6)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	3.00	20.00	32

LFj25 Pl/Devils club/Fern (n=8)

(Pinus contorta/Oplopanax horridum/Gymnocarpium dryopteris)

This community type tends to be subhygric and nutrient rich. Devil's club dominated community types occur sporadically throughout the Lower Foothills on nutrient rich seepage areas. After disturbance this community type will regenerate slowly due to the proliferation of grass, forb and shrub cover.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f1 bracted honeysuckle/fern Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE BIRCH *(Betula papyrifera)*	2.0	0.0-8.0	25
BLACK SPRUCE *(Picea mariana)*	5.6	0.0-40.0	25
LODGEPOLE PINE *(Pinus contorta)*	32.7	5.0-57.0	100
Medium Shrub (0.5 to 2 m)			
THIMBLEBERRY *(Rubus parviflorus)*	1.2	0.0-8.0	38
BALSAM FIR *(Abies balsamea)*	2.7	0.0-22.0	13
TWINFLOWER *(Linnaea borealis)*	3.2	1.0-12.0	100
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	3.5	0.0-12.0	88
DEVIL'S-CLUB *(Oplopanax horridum)*	10.1	1.0-30.0	100
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.6	0.0-4.0	88
LADY FERN *(Athyrium filix-femina)*	2.6	0.0-20.0	25
OAK FERN *(Gymnocarpium dryopteris)*	3.0	0.0-8.0	88
WILD SARSAPARILLA *(Aralia nudicaulis)*	5.5	0.0-15.0	63
Low Forb (< 30 cm)			
STIFF CLUB-MOSS *(Lycopodium annotinum)*	4.2	0.0-15.0	75
BUNCHBERRY *(Cornus canadensis)*	5.3	1.0-10.0	100
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	1.2	0.0-3.0	63
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	7.5	0.0-55.0	50
SCHREBER'S MOSS *(Pleurozium schreberi)*	15.3	1.0-65.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (2), Subhygric (moderately moist) (3), Mesic (fresh) (3)

Nutrient Regime: Mesotrophic (medium) (2), Permesotrophic (rich) (6)

Elevation (range): 1069 (880-1417) M

Slope (%): 0.5 - 2.49 (1), 6 - 9.99 (1), 10 - 15.99 (2), 2.5 - 5.99 (4)

Aspect: Easterly (1), Northerly (7)

Topographic Position: Midslope (6)

Soil Variables

Soil Drainage: Well drained (2), Moderately well drained (2), Imperfectly drained (4)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL GLEYED (1), GRAY LUVISOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (1), EUTRIC BRUNISOL ORTHIC (1), HUMIC GLEYSOL ORTHIC (1), LUVIC GLEYSOL HUMIC (2)

Surface Texture: Clay loam (1), Silty clay (1), Loam (1), Silty clay loam (1), Sandy loam (1), Silt loam (3)

Effective Texture: Silty clay (1), Silt loam (1), Loam (2), Heavy clay (2), Clay (2)

Depth to Mottles/Gley: 0 - 25 (1), 26 - 50 (2)

Organic Thickness: 0 - 5 cm (8)

Parent Material: Rock (1), Morainal (7)

Soil Type: Wet/Mineral (1), Moist/Silty-Loamy (3), Moist/Fine (4)

Humus Form HUMIFIBRIMOR (1), FIBRIHUMIMOR (2), FIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	5.00	9.00	8

f2 bracted honeysuckle/fern Aw-Pb (n=171)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)

Characteristic Species

Tree

[31.8]ASPEN*
Populus tremuloides

[10.4]BALSAM POPLAR*
Populus balsamifera

[4.8]WHITE BIRCH*
Betula papyrifera

Shrub

[9.5]THIMBLEBERRY*
Rubus parviflorus

[6.9]PRICKLY ROSE
Rosa acicularis

[5.4]LOW-BUSH CRANBERRY
Viburnum edule

[5.3]GREEN ALDER*
Alnus crispa

[4.8]BRACTED HONEYSUCKLE
Lonicera involucrata

[4.7]SALIX SPECIES
Salix

[4.3]BUNCHBERRY
Cornus canadensis

[2.3]RIVER ALDER*
Alnus tenuifolia

[1.5]BEAKED WILLOW
Salix bebbiana

[1.0]RED-OSIER DOGWOOD*
Cornus stolonifera

Forb

[4.9]WILD SARSAPARILLA*
Aralia nudicaulis

[3.0]COMMON FIREWEED
Epilobium angustifolium

[3.0]COW PARSNIP*
Heracleum lanatum

[1.8]TALL LUNGWORT
Mertensia paniculata

[1.6]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

[1.6]WILD STRAWBERRY
Fragaria virginiana

[1.2]SHOWY ASTER
Aster conspicuus

[1.0]WESTERN CANADA VIOLET
Viola canadensis

[0.8]OAK FERN*
Gymnocarpium dryopteris

Graminoid

[6.4]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (4), Hygric (moist) (26), Mesic (fresh) (64), Subhygric (moderately moist) (77)

Nutrient Regime: Eutrophic (very rich) (7), Mesotrophic (medium) (73), Permesotrophic (rich) (81)

Elevation (range): 959.5 (495-1460) M

Slope (%): steep slope (1), very strong slope (3), strong slope (12), gentle slope (19), moderate slope (21), level (26), nearly level (34), very gentle slope (49)

Aspect: Level (16), Westerly (19), Southerly (29), Northerly (35), Easterly (40)

Topographic Position:Crest (2), Toe (5), Depression (6), Level (20), Upper Slope (20), Lower Slope (27), Midslope (45)

Soil Variables

Soil Drainage: Poorly drained (15), Well drained (42), Moderately well drained (57), Imperfectly drained (59)

Soil Subgroup: DARK GRAY CHERNOZEM (1), MELANIC BRUNISOL (1), HUMIC GLEYSOL (5), REGOSOL (5), DYSTRIC BRUNISOL (7), GLEYSOL (7), EUTRIC BRUNISOL (14), LUVIC GLEYSOL (23), GRAY LUVISOL (50)

Surface Texture: Fibric (1), Heavy clay (1), Humic (1), Loamy sand (1), Sandy clay (1), Silty clay (2), Sand (2), Fine sandy loam (3), Sandy clay loam (3), Clay (5), Silt (6), Sandy loam (6), Clay loam (8), Silty clay loam (10), Loam (22), Silt loam (23)

Effective Texture: Humic (1), Loamy sand (1), Silt (1), Loam (2), Sandy loam (3), Sand (4), Heavy clay (5), Sandy clay (5), Sandy clay loam (5), Silt loam (5), Silty clay loam (10), Silty clay (11), Clay loam (16), Clay (26)

Depth to Mottles/Gley: 26 - 50 (1), 0 - 25 (12)

Organic Thickness: 26 - 39 cm (1), 6 - 15 cm (2), 40 - 59 cm (2), 0 - 5 cm (133)

Parent Material: Fluviolacustrine (1), Marsh (1), Lacustromoraine (1), Residual (1), Undifferentiated Mineral (1), Eolian (2), Colluvial (2), Undifferentiated Organic (3), Rock (4), Lacustrine (7), Fluvial (14), Glaciolacustrine (19), Glaciofluvial (25), Morainal (74)

Soil Type: Dry/Coarse (1), Dry/Fine (1), Moist/Coarse (1), Very Dry/Fine (1), Moist/Peaty (3), Wet/Peaty (3), Moist/Silty-Loamy (4), Moist/Sandy (6), Wet/Mineral (7), Moist/Fine (65)

Humus Form MESIC PEATYMOR (1), MOR (1), TYPICAL MODER (1), MODER (2), HUMIMOR (2), HUMIFIBRIMOR (5), FIBRIMOR (6), RAW MODER (8), FIBRIHUMIMOR (11)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	1.00	25.00	88

LFe12 Aw-Pb/Bracted honeysuckle-Red osier dogwood/Fern (n=100)

(Populus tremuloides-Populus balsamifera/Lonicera involcrata-Cornus stolonifera/Gymnocarpium dryopteris)

Bracted honeysuckle, red osier dogwood and fern species are viewed as indicators of a moderately moist (subhyric) rich nutrient ecosite and tends to be the most productive ecosite for the Lower Foothills Subregion (Beckingham et al 1996). This community type is generally found on northerly mid to low slope positions receiving nutrient rich seepage waters from upslope and combines Beckingham et al. (1996) honeysuckle/fern (f2.1) and red osier dogwood/fern (f2.3) community types in West-Central Alberta. It also combines e14, f1, f3, f4 and f10 community types from Lawrence et al 2005. White spruce develops in the understory indicating a succession to a mixed Aw-Sw stand climaxing to a Sw dominated stand. Under harvesting conditions it is believed that this community will revert to a LFl10 Aw/honeysuckle/horsetail type with horsetail emerging with the higher surface moister that usually occurs after harvesting.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f2 bracted honeysuckle/fern Aw-Pb

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	8.9	0.0-70.0	53
WHITE BIRCH *(Betula papyrifera)*	14.2	0.0-90.0	72
ASPEN *(Populus tremuloides)*	22.7	0.0-90.0	76
Understory Tree			
ASPEN *(Populus tremuloides)*	1.8	0.0-42.0	29
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	2.3	0.0-75.0	29
Medium Shrub (0.5 to 2 m)			
TWINFLOWER *(Linnaea borealis)*	2.1	0.0-15.0	61
RED-OSIER DOGWOOD *(Cornus stolonifera)*	2.5	0.0-30.0	27
PRICKLY ROSE *(Rosa acicularis)*	7.2	0.0-35.0	90
LOW-BUSH CRANBERRY *(Viburnum edule)*	8.0	0.0-42.0	84
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	9.7	0.0-35.0	88
Tall Forb (>= 30 cm)			
COMMON HORSETAIL *(Equisetum arvense)*	1.2	0.0-20.0	36
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.3	0.0-20.0	56
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.5	0.0-8.0	69
OAK FERN *(Gymnocarpium dryopteris)*	1.7	0.0-22.0	46
TALL LUNGWORT *(Mertensia paniculata)*	3.2	0.0-30.0	80
COMMON FIREWEED *(Epilobium angustifolium)*	3.4	0.0-30.0	82
WILD SARSAPARILLA *(Aralia nudicaulis)*	7.7	0.0-65.0	70
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.7	0.0-10.0	83
BUNCHBERRY *(Cornus canadensis)*	4.6	0.0-22.0	73
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	10.0	0.0-70.0	92

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (16), Mesic (fresh) (36), Subhygric (moderately moist) (46)

Nutrient Regime: Eutrophic (very rich) (4), Mesotrophic (medium) (41), Permesotrophic (rich) (48)

Elevation (range): 899 (580-1428) M

Slope (%): 46 - 70.99 (1), 16 - 30.99 (2), 31 - 45.99 (3), 10 - 15.99 (13), 6 - 9.99 (14), 0 - 0.49 (15), 0.5 - 2.49 (16), 2.5 - 5.99 (35)

Aspect: Level (7), Westerly (13), Southerly (15), Easterly (22), Northerly (24)

Topographic Position: Crest (1), Toe (1), Depression (5), Level (11), Upper Slope (12), Lower Slope (14), Midslope (28)

Soil Variables

Soil Drainage: Poorly drained (7), Well drained (22), Moderately well drained (34), Imperfectly drained (40)

Soil SubgroupHUMIC GLEYSOL REGO (1), MELANIC BRUNISOL ORTHIC (1), DYSTRIC BRUNISOL ELUVIATED (2), REGOSOL CUMULIC (2), GRAY LUVISOL GLEYED SOLONETZIC (2), HUMIC GLEYSOL ORTHIC (2), GRAY LUVISOL DARK (2), DYSTRIC BRUNISOL ORTHIC (3), EUTRIC BRUNISOL ELUVIATED (3), GLEYSOL ORTHIC (3), LUVIC GLEYSOL HUMIC (3), EUTRIC BRUNISOL ORTHIC (5), GRAY LUVISOL BRUNISOLIC (6), GRAY LUVISOL GLEYED (9), LUVIC GLEYSOL ORTHIC (10), GRAY LUVISOL ORTHIC (16)

Surface Texture: Silty clay (1), Fibric (1), Sand (1), Clay (3), Silt (4), Sandy loam (4), Clay loam (5), Silty clay loam (7), Loam (14), Silt loam (15)

Effective Texture:Sandy loam (2), Sandy clay loam (2), Sandy clay (3), Silt loam (3), Silty clay (6), Silty clay loam (8), Clay loam (9), Clay (21)

Depth to Mottles/Gley: 26 - 50 (1), 0 - 25 (6)

Organic Thickness: 26 - 39 cm (1), 40 - 59 cm (1), 6 - 15 cm (2), 0 - 5 cm (86)

Parent Material: Colluvial (2), Eolian (2), Lacustrine (4), Fluvial (8), Glaciolacustrine (12), Glaciofluvial (14), Morainal (42)

Soil Type: Very Dry/Fine (1), Dry/Fine (1), Moist/Silty-Loamy (1), Moist/Coarse (1), Dry/Coarse (1), Moist/Peaty (2), Moist/Sandy (2), Wet/Peaty (2), Wet/Mineral (4), Moist/Fine (41)

Humus Form MODER (1), TYPICAL MODER (1), MOR (1), MESIC PEATYMOR (1), HUMIMOR (2), FIBRIMOR (2), HUMIFIBRIMOR (4), RAW MODER (4), FIBRIHUMIMOR (6)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	1.00	25.00	54

LFe13 Aw/Thimbleberry (n=4)

(Populus tremuloides/Rubus parviflorus)

This community type is generally rare within the Lower Foothills Subregion, it is more commonly found within the Montane Subregion as indicated by Willoughby et al (2017) and Archibald et al (1996) to be found on nutrient rich seepage areas. This community type was found along the north-easterly banks of the Smoky River, NE of Grande Prairie. Forage production of this type can be quite high because of the favourable moisture and nutrient conditions. However, Thimbleberry is generally unpalatable to livestock, although Willoughby et al (2017) found it to have a productive grass and forb layer.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f2 bracted honeysuckle/fern Aw-Pb

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	8.0	0.0-20.0	75
ASPEN *(Populus tremuloides)*	26.0	15.0-40.0	100
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	3.5	0.0-10.0	50
RIVER ALDER *(Alnus tenuifolia)*	4.3	0.0-7.0	75
Medium Shrub (0.5 to 2 m)			
SASKATOON *(Amelanchier alnifolia)*	1.9	0.0-7.8	25
WHITE MEADOWSWEET *(Spiraea betulifolia)*	2.0	0.0-5.3	75
BEAKED HAZELNUT *(Corylus cornuta)*	2.2	0.0-9.0	25
LOW-BUSH CRANBERRY *(Viburnum edule)*	5.6	0.6-10.0	100
PRICKLY ROSE *(Rosa acicularis)*	5.9	3.0-9.0	100
THIMBLEBERRY *(Rubus parviflorus)*	47.7	18.5-85.0	100
Tall Forb (>= 30 cm)			
SHOWY ASTER *(Aster conspicuus)*	1.2	0.0-2.7	75
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.4	0.8-2.5	100
COMMON FIREWEED *(Epilobium angustifolium)*	2.7	0.0-10.0	50
WILD SARSAPARILLA *(Aralia nudicaulis)*	6.3	2.0-15.0	100
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	4.3	0.0-6.7	75
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	3.6	0.0-6.9	75
WHITE-GRAINED MOUNTAIN RICE GRASS *(Oryzopsis asperifolia)*	4.3	0.0-13.1	75

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (1), Subhygric (moderately moist) (3)

Nutrient Regime: Eutrophic (very rich) (1), Permesotrophic (rich) (3)

Elevation (range): 739 (650-870) M

Slope (%): 16 - 30.99 (1), 0 - 0.49 (1)

Aspect: Southerly (1), Westerly (1), Level (1)

Topographic Position: Level (1), Lower Slope (2)

Soil Variables

Soil Drainage: Well drained (1), Moderately well drained (3)

Soil Subgroup: GRAY LUVISOL BRUNISOLIC (1)

Surface Texture: Silty clay (1)

Effective Texture: Silty clay (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Rock (1), Morainal (1)

Soil Type: Moist/Fine (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	10.00	10.00	10.00	1

LFe15 Aw/Willow (n=12)

(Populus tremuloides/Salix spp.)

This community type is found on lower slope seepage areas with moderately moist, nutrient rich soils. It is often found in association with other moisture-adapted shrub species such as honeysuckle, dogwood, and to a lesser extent alder. This may be found upslope, in transition, from willow shrubland areas and is an important cover and browse for moose.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f2 bracted honeysuckle/fern Aw-Pb

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	4.9	0.0-15.0	58
ASPEN *(Populus tremuloides)*	46.0	3.0-75.0	100
Tall Shrub (2 to 5m)			
BEAKED WILLOW *(Salix bebbiana)*	7.8	0.0-35.0	34
Medium Shrub (0.5 to 2 m)			
GREEN ALDER *(Alnus crispa)*	1.7	0.0-15.0	34
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.8	0.0-11.0	42
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.5	0.0-15.0	42
PRICKLY ROSE *(Rosa acicularis)*	10.4	0.0-33.0	92
SALIX SPECIES *(Salix)*	23.8	0.0-63.0	88
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	2.3	0.0-14.6	58
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.8	0.0-8.3	83
WILD SARSAPARILLA *(Aralia nudicaulis)*	3.4	0.0-18.0	25
TALL LUNGWORT *(Mertensia paniculata)*	3.5	0.0-18.5	75
LINDLEY'S ASTER *(Aster ciliolatus)*	3.8	0.0-25.9	67
Low Forb (< 30 cm)			
BISHOP'S-CAP *(Mitella nuda)*	1.0	0.0-4.0	50
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.3	0.0-9.4	75
WILD STRAWBERRY *(Fragaria virginiana)*	4.2	0.0-10.6	92
BUNCHBERRY *(Cornus canadensis)*	5.5	0.0-15.9	75
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	3.4	0.0-17.0	58
HAIRY WILD RYE *(Elymus innovatus)*	3.4	0.0-19.0	67

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (1), Mesic (fresh) (4), Subhygric (moderately moist) (5)

Nutrient Regime: Permesotrophic (rich) (4), Mesotrophic (medium) (7)

Elevation (range): 1017 (724-1350) M

Slope (%): 2.5 - 5.99 (1), 0 - 0.49 (2), 0.5 - 2.49 (5)

Aspect: Easterly (1), Level (1), Westerly (1), Southerly (4)

Topographic Position: Toe (1), Lower Slope (1), Level (3)

Soil Variables

Soil Drainage: Imperfectly drained (3), Well drained (4), Moderately well drained (4)

Soil Subgroup: LUVIC GLEYSOL ORTHIC (2)

Surface Texture: Clay loam (1), Sandy clay loam (1)

Effective Texture: Loam (1), Silty clay loam (1)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 0 - 5 cm (4)

Parent Material: Glaciolacustrine (3), Morainal (3)

Soil Type: Moist/Fine (1), Wet/Mineral (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	10.00	8.00	13.00	2

LFf2 Aw-Pb/Cow parsnip-Devils-club/Fern (n=10)

(Populus tremuloides-Populus balsamifera/Heracleum lanatum-Oplopanax horridum)

Nutrient rich seepage occurs at some point in the growing season favouring the growth of cow parsnip and/or devil's club. This community type was found on lower slope positions within Whitecourt Mountain and Solomon Creek Valley and combines plant communities f11 and f12 from Lawrence et al 2005. Forage productivity on these sites is generally quite high because of the favourable moisture and nutrient conditions. These sites tend to have low shrub cover.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f2 bracted honeysuckle/fern Aw-Pb

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	5.8	0.0-30.0	60
WHITE BIRCH *(Betula papyrifera)*	9.9	0.0-60.0	50
ASPEN *(Populus tremuloides)*	41.4	0.0-60.0	90
Understory Tree			
BALSAM POPLAR *(Populus balsamifera)*	4.5	0.0-40.0	30
Medium Shrub (0.5 to 2 m)			
LOW-BUSH CRANBERRY *(Viburnum edule)*	2.3	0.0-8.0	60
DEVIL'S-CLUB *(Oplopanax horridum)*	2.8	0.0-10.0	30
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	3.0	0.0-15.0	70
PRICKLY ROSE *(Rosa acicularis)*	4.0	1.0-10.0	100
Tall Forb (>= 30 cm)			
WILD SARSAPARILLA *(Aralia nudicaulis)*	1.3	0.0-4.0	50
LADY FERN *(Athyrium filix-femina)*	1.3	0.0-8.0	40
OAK FERN *(Gymnocarpium dryopteris)*	1.6	0.0-10.7	60
BROAD SPINULOSE SHIELD FERN *(Dryopteris assimilis)*	2.4	0.0-20.0	30
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	2.4	0.0-10.0	90
SHOWY ASTER *(Aster conspicuus)*	2.5	0.0-10.3	50
LINDLEY'S ASTER *(Aster ciliolatus)*	2.9	0.0-15.0	50
VEINY MEADOW RUE *(Thalictrum venulosum)*	3.1	0.0-10.0	60
COMMON FIREWEED *(Epilobium angustifolium)*	3.7	0.0-12.3	80
COW PARSNIP *(Heracleum lanatum)*	13.8	0.0-50.0	90
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	2.0	0.0-10.0	50
BUNCHBERRY *(Cornus canadensis)*	2.6	0.0-6.0	70
WESTERN CANADA VIOLET *(Viola canadensis)*	5.1	0.0-30.0	70
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	5.3	0.0-21.1	90

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (2), Subhygric (moderately moist) (4), Mesic (fresh) (6)

Nutrient Regime: Mesotrophic (medium) (5), Permesotrophic (rich) (8)

Elevation (range): 978 (786-1265) M

Slope (%): 6 - 9.99 (1), 10 - 15.99 (2), 16 - 30.99 (2), 0.5 - 2.49 (3), 2.5 - 5.99 (4)

Aspect: Level (2), Easterly (3), Southerly (3), Northerly (4)

Topographic Position: Lower Slope (4), Midslope (7)

Soil Variables

Soil Drainage: Imperfectly drained (2), Well drained (5), Moderately well drained (6)

Soil Subgroup: REGOSOL CUMULIC (1), LUVIC GLEYSOL HUMIC (1), GLEYSOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (2)

Surface Texture: Clay (1), Silt loam (4)

Effective Texture: Sandy loam (1), Heavy clay (2), Clay (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (5)

Parent Material: Lacustrine (1), Fluvial (1), Morainal (3)

Soil Type: Moist/Sandy (1), Moist/Fine (4)

Humus Form FIBRIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	1.00	9.00	5

LFf6 Aw-Pb/Green alder-River alder/Fern (n=44)

(Populus tremuloides-Populus balsamifera/Alnus crispa-Alnus tenuifolia/Gymnocarpium dryopteris)

This community type is similar to the community type described by Beckingham et al (1996), i.e. Aw-Pb/green alder-river alder/fern and combines plant communities f7, f8 and f9 from Lawrence et al 2005. This community type is persistent on mid to lower slopes and that receive nutrient-rich seepage waters.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f2 bracted honeysuckle/fern Aw-Pb

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	15.7	0.0-60.0	71
ASPEN *(Populus tremuloides)*	23.2	0.0-65.0	82
Understory Tree			
BALSAM POPLAR *(Populus balsamifera)*	3.3	0.0-15.0	76
ASPEN *(Populus tremuloides)*	3.7	0.0-29.0	79
Tall Shrub (2 to 5m)			
RIVER ALDER *(Alnus tenuifolia)*	7.2	0.0-80.0	41
GREEN ALDER *(Alnus crispa)*	20.8	10.0-70.0	100
Medium Shrub (0.5 to 2 m)			
RED-OSIER DOGWOOD *(Cornus stolonifera)*	2.9	0.0-38.0	34
PRICKLY ROSE *(Rosa acicularis)*	7.4	0.0-28.0	80
LOW-BUSH CRANBERRY *(Viburnum edule)*	7.7	0.0-63.0	82
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	8.7	0.0-40.0	80
Tall Forb (>= 30 cm)			
OAK FERN *(Gymnocarpium dryopteris)*	1.1	0.0-29.0	16
COW PARSNIP *(Heracleum lanatum)*	1.3	0.0-16.0	30
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.4	0.0-30.0	48
TALL LUNGWORT *(Mertensia paniculata)*	2.5	0.0-12.3	64
SHOWY ASTER *(Aster conspicuus)*	2.6	0.0-26.5	36
COMMON FIREWEED *(Epilobium angustifolium)*	3.3	0.0-21.0	80
WILD SARSAPARILLA *(Aralia nudicaulis)*	6.2	0.0-42.0	68
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.9	0.0-11.0	52
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.1	0.0-10.0	84
COMMON PINK WINTERGREEN *(Pyrola asarifolia)*	2.1	0.0-9.0	68
BUNCHBERRY *(Cornus canadensis)*	4.7	0.0-20.0	73
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	10.1	0.0-70.0	68

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (6), Mesic (fresh) (16), Subhygric (moderately moist) (18)

Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (15), Mesotrophic (medium) (20)

Elevation (range): 904 (495-1460) M

Slope (%): 6 - 9.99 (4), 10 - 15.99 (5), 16 - 30.99 (5), 0 - 0.49 (8), 2.5 - 5.99 (9), 0.5 - 2.49 (10)

Aspect: Westerly (3), Level (4), Southerly (6), Northerly (6), Easterly (14)

Topographic Position: Crest (1), Depression (1), Toe (3), Level (4), Lower Slope (6), Upper Slope (7), Midslope (9)

Soil Variables

Soil Drainage: Well drained (8), Poorly drained (8), Moderately well drained (10), Imperfectly drained (14)

Soil Subgroup: REGOSOL CUMULIC (1), GRAY LUVISOL GLEYED (1), EUTRIC BRUNISOL GLEYED ELUVIATED (1), GRAY LUVISOL BRUNISOLIC (1), REGOSOL GLEYED CUMULIC (1), DYSTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL ORTHIC (2), EUTRIC BRUNISOL ELUVIATED (2), HUMIC GLEYSOL ORTHIC (2), LUVIC GLEYSOL HUMIC (3), GLEYSOL ORTHIC (3), LUVIC GLEYSOL ORTHIC (4), GRAY LUVISOL ORTHIC (10)

Surface Texture: Sand (1), Humic (1), Heavy clay (1), Clay (1), Sandy loam (2), Fine sandy loam (2), Clay loam (2), Silt (2), Sandy clay loam (2), Silty clay loam (3), Silt loam (4), Loam (8)

Effective Texture: Loam (1), Silty clay loam (1), Humic (1), Silt loam (2), Sandy clay (2), Heavy clay (2), Clay (3), Sand (3), Sandy clay loam (3), Silty clay (4), Clay loam (7)

Depth to Mottles/Gley: 0 - 25 (5)

Organic Thickness: 40 - 59 cm (1), 0 - 5 cm (37)

Parent Material: Lacustromoraine (1), Marsh (1), Fluviolacustrine (1), Residual (1), Rock (2), Lacustrine (2), Undifferentiated Organic (2), Glaciolacustrine (4), Fluvial (5), Glaciofluvial (11), Morainal (25)

Soil Type: Moist/Peaty (1), Wet/Peaty (1), Wet/Mineral (2), Moist/Sandy (3), Moist/Silty-Loamy (3), Moist/Fine (18)

Humus Form MODER (1), FIBRIMOR (1), HUMIFIBRIMOR (1), RAW MODER (4), FIBRIHUMIMOR (5)

LFH Thickness	Mean	Min	Max	Count
cm:	7.00	1.00	23.00	26

f3 bracted honeysuckle/fern Aw-Sw-Pl (n=80)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)

Characteristic Species

Tree

[19.9]ASPEN
Populus tremuloides

[11.2]WHITE SPRUCE
Picea glauca

[8.1]LODGEPOLE PINE
Pinus contorta

[4.5]BALSAM POPLAR
Populus balsamifera

[3.4]WHITE BIRCH
Betula papyrifera

[2.1]BLACK SPRUCE
Picea mariana

Shrub

[7.6]PRICKLY ROSE
Rosa acicularis

[7.0]GREEN ALDER
Alnus crispa

[5.4]SILVERBERRY*
Elaeagnus commutata

[5.0]BRACTED HONEYSUCKLE
Lonicera involucrata

[5.0]LOW-BUSH CRANBERRY
Viburnum edule

[4.9]BUNCHBERRY
Cornus canadensis

[1.8]DEVIL'S-CLUB*
Oplopanax horridum

Forb

[8.3]WILD SARSAPARILLA
Aralia nudicaulis

[2.3]OAK FERN*
Gymnocarpium dryopteris

[2.1]COMMON FIREWEED
Epilobium angustifolium

[1.4]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

Moss and Liverwort

[8.2]STAIR-STEP MOSS
Hylocomium splendens

[4.7]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[10.3]BLUEJOINT
Calamagrostis canadensis

[5.4]HAIRY WILD RYE
Elymus innovatus

Environmental Variables

Moisture Regime: Hygric (moist) (7), Subhygric (moderately moist) (34), Mesic (fresh) (36)

Nutrient Regime: Submesotrophic (poor) (2), Eutrophic (very rich) (7), Permesotrophic (rich) (31), Mesotrophic (medium) (40)

Elevation (range): 1043 (746-1390) M

Slope (%): strong slope (3), moderate slope (6), level (11), gentle slope (13), nearly level (20), very gentle slope (23)

Aspect: Level (7), Westerly (9), Southerly (12), Easterly (18), Northerly (19)

Topographic Position:Depression (2), Crest (4), Upper Slope (8), Lower Slope (10), Level (11), Midslope (15)

Soil Variables

Soil Drainage: Poorly drained (5), Well drained (16), Moderately well drained (29), Imperfectly drained (30)

Soil Subgroup: GLEYSOL (1), REGOSOL (1), DYSTRIC BRUNISOL (3), HUMIC GLEYSOL (4), EUTRIC BRUNISOL (8), LUVIC GLEYSOL (13), GRAY LUVISOL (44)

Surface Texture: Clay (1), Coarse sandy loam (1), Fine sandy loam (1), Sand (1), Sandy clay (1), Very fine sandy loam (2), Silt (2), Loamy sand (2), Clay loam (3), Silty clay (4), Loam (5), Sandy clay loam (5), Sandy loam (5), Silty clay loam (8), Silt loam (18)

Effective Texture: Loamy fine sand (1), Loam (1), Sand (1), Sandy clay (1), Silt loam (2), Sandy loam (2), Heavy clay (2), Sandy clay loam (3), Silty clay (7), Silty clay loam (8), Clay loam (13), Clay (17)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (2), 0 - 25 (8)

Organic Thickness: 6 - 15 cm (1), 0 - 5 cm (76)

Parent Material: Colluvial (1), Fluvioeolian (1), Rock (1), Undifferentiated Mineral (1), Undifferentiated Organic (1), Lacustromoraine (3), Eolian (7), Glaciofluvial (7), Fluvial (8), Glaciolacustrine (16), Morainal (57)

Soil Type: Wet/Peaty (1), Moist/Sandy (2), Moist/Coarse (2), Moist/Silty-Loamy (3), Wet/Mineral (4), Moist/Peaty (4), Moist/Fine (44)

Humus Form FIBRIMOR (1), HUMIMOR (1), MODER (1), MULL (1), MULL-LIKE MODER (1), RAW MODER (3), HUMIFIBRIMOR (5), FIBRIHUMIMOR (7)

LFH Thickness	Mean	Min	Max	Count
cm:	9.75	4.00	28.00	60

LFh12 Aw-Sw-Pl/Bracted honeysuckle-Red osier dogwood/Fern (n=31)

(Populus tremuloides-Picea glauca-Pinus contorta/Lonicera involcrata-Cornus stolonifera/Gymnocarpium dryopteris)

This community type is similar to Aw-Sw-Pl/bracted honeysuckle/fern type (f3.1) and red osier dogwood-fern (f3.3) community types described by Beckingham et al (1996). It is adapted from a higher moisture-nutrient relative to the modal type for the Lower Foothills, as indicated by the predominance of Pb, Bw, and bracted honeysuckle, red osier dogwood and fern. With succession this community may revert to a Sw/bracted honeysuckle/fern and eventually to a Sw/moss type.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f3 bracted honeysuckle/fern Aw-Sw-Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	4.1	0.0-42.0	26
BALSAM POPLAR *(Populus balsamifera)*	4.7	0.0-40.0	36
WHITE BIRCH *(Betula papyrifera)*	6.1	0.0-80.0	19
WHITE SPRUCE *(Picea glauca)*	11.4	0.0-63.0	81
ASPEN *(Populus tremuloides)*	18.6	0.0-95.0	77
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	5.0	0.0-20.0	94
LOW-BUSH CRANBERRY *(Viburnum edule)*	8.8	0.0-40.0	84
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	10.7	0.0-50.0	97
Tall Forb (>= 30 cm)			
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.1	0.0-12.0	61
OAK FERN *(Gymnocarpium dryopteris)*	1.6	0.0-15.0	45
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.6	0.0-10.0	61
TALL LUNGWORT *(Mertensia paniculata)*	2.4	0.0-10.0	74
COMMON FIREWEED *(Epilobium angustifolium)*	3.6	0.0-25.0	65
WILD SARSAPARILLA *(Aralia nudicaulis)*	7.9	0.0-40.0	68
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	3.0	0.0-30.0	87
BUNCHBERRY *(Cornus canadensis)*	6.3	0.0-29.0	84
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	8.2	0.0-45.0	84
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	7.4	0.0-35.0	55
STAIR-STEP MOSS *(Hylocomium splendens)*	9.5	0.0-55.0	55

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (5), Mesic (fresh) (7), Subhygric (moderately moist) (19)

Nutrient Regime: Eutrophic (very rich) (2), Mesotrophic (medium) (14), Permesotrophic (rich) (15)

Elevation (range): 963 (763-1312) M

Slope (%): 10 - 15.99 (3), 6 - 9.99 (4), 0 - 0.49 (5), 0.5 - 2.49 (8), 2.5 - 5.99 (9)

Aspect: Level (1), Westerly (2), Southerly (4), Easterly (4), Northerly (10)

Topographic Position: Crest (1), Lower Slope (2), Upper Slope (5), Level (6), Midslope (9)

Soil Variables

Soil Drainage: Poorly drained (2), Well drained (5), Moderately well drained (8), Imperfectly drained (16)

Soil Subgroup: EUTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (1), GLEYSOL ORTHIC (1), HUMIC GLEYSOL ORTHIC (1), DYSTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL GLEYED BRUNISOLIC (1), HUMIC GLEYSOL REGO (1), EUTRIC BRUNISOL GLEYED ELUVIATED (1), LUVIC GLEYSOL HUMIC (1), DYSTRIC BRUNISOL GLEYED (1), GRAY LUVISOL DARK (2), GRAY LUVISOL GLEYED (2), GRAY LUVISOL BRUNISOLIC (2), EUTRIC BRUNISOL GLEYED (2), GRAY LUVISOL ORTHIC (3), LUVIC GLEYSOL ORTHIC (6)

Surface Texture: Sand (1), Loamy sand (1), Clay loam (1), Coarse sandy loam (1), Silty clay loam (2), Very fine sandy loam (2), Silty clay (2), Sandy loam (3), Silt loam (7)

Effective Texture: Heavy clay (1), Loam (1), Loamy fine sand (1), Sand (1), Sandy loam (1), Silt loam (2), Clay (3), Silty clay (3), Silty clay loam (3), Clay loam (4)

Depth to Mottles/Gley: 0 - 25 (3)

Organic Thickness: 0 - 5 cm (30)

Parent Material: Lacustromoraine (3), Glaciofluvial (4), Eolian (4), Fluvial (5), Glaciolacustrine (7), Morainal (17)

Soil Type: Moist/Sandy (1), Moist/Coarse (1), Moist/Silty-Loamy (3), Wet/Mineral (3), Moist/Peaty (4), Moist/Fine (8)

Humus Form MULL (1), RAW MODER (1), HUMIMOR (1), HUMIFIBRIMOR (1), FIBRIHUMIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	12.00	4.00	28.00	20

LFh16 Aw-Sw-Pl/Devils-club/Fern (n=3)

(Populus tremuloides-Picea glauca-Pinus contorta/Oplopanx horridum/Gymnocarpium dryopteris)

Nutrient rich seepage occurs at some point in the growing season favouring the growth of devil's club. It has been observed that some of these sites maybe also dominated by cow parsnip. This community type was found on lower slope positions within West-Central Alberta. Forage productivity on these sites is generally quite high because of the favourable moisture and nutrient conditions.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f3 bracted honeysuckle/fern Aw-Sw-Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
ASPEN *(Populus tremuloides)*	2.6	0.0-8.0	33
WHITE SPRUCE *(Picea glauca)*	3.0	0.0-8.0	67
WHITE BIRCH *(Betula papyrifera)*	7.6	0.0-15.0	67
LODGEPOLE PINE *(Pinus contorta)*	24.3	3.0-60.0	100
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	10.6	0.0-30.0	67
Medium Shrub (0.5 to 2 m)			
THIMBLEBERRY *(Rubus parviflorus)*	1.6	0.0-5.0	33
PRICKLY ROSE *(Rosa acicularis)*	2.9	0.9-5.0	100
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	5.6	0.0-12.0	67
GREEN ALDER *(Alnus crispa)*	8.6	0.0-25.0	67
DEVIL'S-CLUB *(Oplopanax horridum)*	9.0	0.0-25.0	67
LOW-BUSH CRANBERRY *(Viburnum edule)*	9.0	2.2-15.0	100
Tall Forb (>= 30 cm)			
NARROW SPINULOSE SHIELD FERN *(Dryopteris carthusiana)*	1.3	0.0-4.0	33
COMMON HORSETAIL *(Equisetum arvense)*	1.9	0.0-5.8	33
COMMON FIREWEED *(Epilobium angustifolium)*	2.1	0.3-5.0	100
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	2.3	0.0-4.0	67
OAK FERN *(Gymnocarpium dryopteris)*	3.6	0.0-8.0	67
WILD SARSAPARILLA *(Aralia nudicaulis)*	11.6	0.0-20.0	67
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	6.3	1.0-15.0	100
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	26.2	10.0-58.7	100
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	3.3	0.0-5.0	67
SCHREBER'S MOSS *(Pleurozium schreberi)*	6.6	0.0-15.0	67

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (1), Mesic (fresh) (2)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (1), Permesotrophic (rich) (1)

Elevation (range): 1059 (914-1282) M

Slope (%): 0.5 - 2.49 (1), 10 - 15.99 (1), 0 - 0.49 (1)

Aspect: Southerly (1), Northerly (1), Level (1)

Topographic Position: Lower Slope (1), Depression (1)

Soil Variables

Soil Drainage: Moderately well drained (1), Imperfectly drained (2)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), DYSTRIC BRUNISOL GLEYED ELUVIATED (1)

Surface Texture: Silty clay (1)

Effective Texture: Clay (1)

Depth to Mottles/Gley: 51 - 100 (1)

Organic Thickness: 0 - 5 cm (2)

Parent Material: Fluvial (1), Morainal (2)

Soil Type: Moist/Fine (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	8.00	8.00	1

LFh17 Aw-Sw-Pl/Green alder/Fern (n=24)

(Populus tremuloides-Picea glauca-Pinus contorta-Alnus crispa-Gymnocarpium dryopteris)

This community type is similar to Aw-Sw-Pl/bracted honeysuckle/fern type described by Beckingham et al (1996). It is adapted from a higher moisture-nutrient relative to the modal type for the Lower Foothills, as indicated by the predominance of Pb, fern, and bracted honeysuckle. With succession this community may revert to a Sw/bracted honeysuckle/fern and eventually to a Sw/moss type.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f3 bracted honeysuckle/fern Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE BIRCH *(Betula papyrifera)*	3.7	0.0-55.0	17
BALSAM POPLAR *(Populus balsamifera)*	4.4	0.0-60.0	38
WHITE SPRUCE *(Picea glauca)*	6.7	0.0-30.0	67
LODGEPOLE PINE *(Pinus contorta)*	7.6	0.0-25.0	67
ASPEN *(Populus tremuloides)*	18.1	0.0-60.0	75
Tall Shrub (2 to 5m)			
RIVER ALDER *(Alnus tenuifolia)*	1.5	0.0-25.0	13
GREEN ALDER *(Alnus crispa)*	15.5	0.0-60.0	79
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	4.9	0.0-15.0	83
PRICKLY ROSE *(Rosa acicularis)*	5.0	1.0-25.0	100
LOW-BUSH CRANBERRY *(Viburnum edule)*	7.3	0.0-18.0	96
GREEN ALDER *(Alnus crispa)*	11.1	0.0-70.0	63
Tall Forb (>= 30 cm)			
MEADOW HORSETAIL *(Equisetum pratense)*	1.0	0.0-10.0	25
TALL LUNGWORT *(Mertensia paniculata)*	2.7	0.0-12.0	71
COMMON FIREWEED *(Epilobium angustifolium)*	3.7	0.0-25.0	88
OAK FERN *(Gymnocarpium dryopteris)*	4.0	0.0-20.0	83
WILD SARSAPARILLA *(Aralia nudicaulis)*	13.1	0.0-50.0	79
Low Forb (< 30 cm)			
HEART-LEAVED ARNICA *(Arnica cordifolia)*	2.6	0.0-20.0	67
BUNCHBERRY *(Cornus canadensis)*	7.0	0.0-60.0	88
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	10.6	0.0-50.0	88
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	5.7	0.0-55.0	42

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (1), Subhygric (moderately moist) (6), Mesic (fresh) (16)

Nutrient Regime: Eutrophic (very rich) (2), Submesotrophic (poor) (2), Permesotrophic (rich) (8), Mesotrophic (medium) (12)

Elevation (range): 1051 (760-1390) M

Slope (%): 16 - 30.99 (1), 10 - 15.99 (1), 0 - 0.49 (2), 6 - 9.99 (3), 0.5 - 2.49 (7), 2.5 - 5.99 (9)

Aspect: Westerly (3), Southerly (4), Northerly (4), Easterly (9)

Topographic Position: Depression (1), Upper Slope (1), Lower Slope (2), Level (3), Midslope (4)

Soil Variables

Soil Drainage: Poorly drained (1), Well drained (3), Imperfectly drained (4), Moderately well drained (16)

Soil Subgroup: GRAY LUVISOL PODZOLIC (1), LUVIC GLEYSOL HUMIC (1), HUMIC GLEYSOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL DARK (1), EUTRIC BRUNISOL ORTHIC (1), LUVIC GLEYSOL ORTHIC (2), GRAY LUVISOL GLEYED BRUNISOLIC (3), GRAY LUVISOL ORTHIC (4), GRAY LUVISOL BRUNISOLIC (9)

Surface Texture: Silt (1), Sandy loam (1), Fine sandy loam (1), Silty clay (1), Clay loam (1), Silty clay loam (2), Loam (3), Sandy clay loam (3), Silt loam (9)

Effective Texture: Sandy clay loam (2), Silty clay (3), Silty clay loam (4), Clay (5), Clay loam (7)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 6 - 15 cm (1), 0 - 5 cm (23)

Parent Material: Undifferentiated Organic (1), Undifferentiated Mineral (1), Fluvioeolian (1), Eolian (2), Glaciofluvial (2), Glaciolacustrine (7), Morainal (20)

Soil Type: Moist/Sandy (1), Wet/Peaty (1), Moist/Fine (20)

Humus Form MODER (1), MULL-LIKE MODER (1), FIBRIMOR (1), HUMIFIBRIMOR (1), FIBRIHUMIMOR (2), RAW MODER (2)

LFH Thickness	Mean	Min	Max	Count
cm:	9.00	5.00	20.00	22

LFh7 Aw-Sw-Pl/Fern/Feather moss (n=21)

(Populus tremuloides-Picea glauca-Pinus contorta/Gymnocarpium dryopteris/Pleurozium schreberi)

This community type maybe dominated by fern or feather moss in the understory. This community type is a combination of Beckingham et al. (1996) (f3.4) fir/fern, and (f3.6) fern/feather moss community types in the West-Central ecosite guide. This community type seems to form on level to sloping sites that have some underground seepage. The underground seepage makes this community type fairly moist and nutrient rich. The high amount of moisture allows fern and moss to proliferate.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f3 bracted honeysuckle/fern Aw-Sw-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM POPLAR *(Populus balsamifera)*	3.8	0.0-25.0	48
LODGEPOLE PINE *(Pinus contorta)*	4.7	0.0-35.0	38
WHITE SPRUCE *(Picea glauca)*	10.2	0.0-25.0	81
ASPEN *(Populus tremuloides)*	15.6	0.0-65.0	75
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	3.9	1.0-15.0	100
Tall Forb (>= 30 cm)			
TALL LUNGWORT *(Mertensia paniculata)*	1.0	0.0-3.0	62
COMMON FIREWEED *(Epilobium angustifolium)*	1.2	0.0-5.0	62
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.3	0.0-10.0	86
OAK FERN *(Gymnocarpium dryopteris)*	2.3	0.0-8.0	71
WILD SARSAPARILLA *(Aralia nudicaulis)*	9.0	0.0-25.0	76
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.7	0.0-5.0	86
BUNCHBERRY *(Cornus canadensis)*	5.0	0.0-15.0	95
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	6.8	0.0-30.0	91
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	9.7	0.0-40.0	95
STAIR-STEP MOSS *(Hylocomium splendens)*	22.7	1.0-80.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (1), Subhygric (moderately moist) (8), Mesic (fresh) (10)

Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (6), Mesotrophic (medium) (13)

Elevation (range): 878 (746-1075) M

Slope (%): 10 - 15.99 (1), 16 - 30.99 (2), 0 - 0.49 (2), 0.5 - 2.49 (4), 2.5 - 5.99 (5), 6 - 9.99 (6)

Aspect: Southerly (3), Level (4), Northerly (4), Westerly (4), Easterly (5)

Topographic Position: Level (1), Midslope (2), Upper Slope (2), Crest (3), Lower Slope (5)

Soil Variables

Soil Drainage: Poorly drained (2), Moderately well drained (4), Well drained (7), Imperfectly drained (8)

Soil Subgroup: GRAY LUVISOL GLEYED BRUNISOLIC (1), EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL DARK (1), REGOSOL ORTHIC (1), HUMIC GLEYSOL ORTHIC (1), LUVIC GLEYSOL ORTHIC (3), GRAY LUVISOL BRUNISOLIC (4), GRAY LUVISOL ORTHIC (4), GRAY LUVISOL GLEYED (5)

Surface Texture: Silt (1), Clay (1), Clay loam (1), Loamy sand (1), Sandy clay (1), Sandy loam (1), Loam (2), Silt loam (2), Sandy clay loam (2), Silty clay loam (4)

Effective Texture: Heavy clay (1), Sandy clay (1), Sandy clay loam (1), Silty clay (1), Silty clay loam (1), Sandy loam (1), Clay loam (2), Clay (8)

Depth to Mottles/Gley: 26 - 50 (2), 0 - 25 (4)

Organic Thickness: 0 - 5 cm (21)

Parent Material: Colluvial (1), Eolian (1), Glaciofluvial (1), Rock (1), Fluvial (2), Glaciolacustrine (2), Morainal (18)

Soil Type: Moist/Coarse (1), Wet/Mineral (1), Moist/Fine (15)

Humus Form HUMIFIBRIMOR (3), FIBRIHUMIMOR (3)

LFH Thickness	Mean	Min	Max	Count
cm:	10.00	5.00	16.00	17

LFh18 Sw-Aw/Silverberry (fluvial) (n=1)

(Picea glauca-Populus tremuloides/Elaeagnus commutata)

This community type is found on fluvial sites with gravelly soils and shallow slopes and is similar to the silver-berry ecosite described by Archibald et al. (1996) in the Upper Foothills subregion in the Southwestern field guide. Sub-surface flow through coarse substrate provides habitat suitable for species whose roots can reach groundwater (spruce, silverberry). However, the surface is subxeric characterized by yellow mountain avens in early successional stages. In the absence of disturbance the yellow mountain avens dominated community types will succeed to this community type.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f3 bracted honeysuckle/fern Aw-Sw-Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
ASPEN *(Populus tremuloides)*	25.0	25.0-25.0	100
Understory Tree			
ASPEN *(Populus tremuloides)*	20.0	20.0-20.0	100
WHITE SPRUCE *(Picea glauca)*	25.0	25.0-25.0	100
Tall Shrub (2 to 5m)			
WHITE SPRUCE *(Picea glauca)*	5.0	5.0-5.0	100
BALSAM POPLAR *(Populus balsamifera)*	10.0	10.0-10.0	100
SILVERBERRY *(Elaeagnus commutata)*	27.3	27.3-27.3	100
Medium Shrub (0.5 to 2 m)			
SNOWBERRY *(Symphoricarpos albus)*	2.0	2.0-2.0	100
SALIX SPECIES *(Salix)*	4.3	4.3-4.3	100
ASPEN *(Populus tremuloides)*	4.7	4.7-4.7	100
PRICKLY ROSE *(Rosa acicularis)*	25.5	25.5-25.5	100
Tall Forb (>= 30 cm)			
VEINY MEADOW RUE *(Thalictrum venulosum)*	1.5	1.5-1.5	100
WILD VETCH *(Vicia americana)*	2.0	2.0-2.0	100
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	5.5	5.5-5.5	100
LINDLEY'S ASTER *(Aster ciliolatus)*	5.6	5.6-5.6	100
YELLOW HEDYSARUM *(Hedysarum sulphurescens)*	12.3	12.3-12.3	100
Low Forb (< 30 cm)			
WILD STRAWBERRY *(Fragaria virginiana)*	1.9	1.9-1.9	100
NORTHERN BEDSTRAW *(Galium boreale)*	2.7	2.7-2.7	100
Graminoid			
FRINGED BROME *(Bromus ciliatus)*	1.7	1.7-1.7	100
PURPLE OAT GRASS *(Schizachne purpurascens)*	3.8	3.8-3.8	100
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	7.1	7.1-7.1	100
KENTUCKY BLUEGRASS *(Poa pratensis)*	9.5	9.5-9.5	100
HAIRY WILD RYE *(Elymus innovatus)*	27.3	27.3-27.3	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Permesotrophic (rich) (1)

Elevation (range): 1264 (1264-1264) M

Slope (%): 0 - 0.49 (1)

Aspect: Level (1)

Topographic Position: Level (1)

Soil Variables

Soil Drainage: Well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

f4 bracted honeysuckle/fern Sw (n=61)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)

Characteristic Species

Tree

[38.3]WHITE SPRUCE*
Picea glauca

[3.6]BALSAM FIR
Abies balsamea

[2.3]LODGEPOLE PINE
Pinus contorta

Shrub

[8.4]BUNCHBERRY
Cornus canadensis

[6.5]BRACTED HONEYSUCKLE
Lonicera involucrata

[4.1]PRICKLY ROSE
Rosa acicularis

[3.7]TWINFLOWER
Linnaea borealis

[3.7]RIVER ALDER
Alnus tenuifolia

[3.7]GREEN ALDER
Alnus crispa

[3.4]TWINFLOWER
Linnaea borealis

[3.3]LOW-BUSH CRANBERRY
Viburnum edule

[2.4]DEVIL'S-CLUB
Oplopanax horridum

Forb

[7.0]WILD SARSAPARILLA
Aralia nudicaulis

[3.2]OAK FERN
Gymnocarpium dryopteris

[1.9]WOODLAND HORSETAIL
Equisetum sylvaticum

Moss and Liverwort

[27.5]STAIR-STEP MOSS
Hylocomium splendens

[12.3]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

[10.2]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[3.4]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (2), Mesic (fresh) (12), Hygric (moist) (13), Subhygric (moderately moist) (27)

Nutrient Regime: Eutrophic (very rich) (3), Mesotrophic (medium) (16), Permesotrophic (rich) (32)

Elevation (range): 948 (700-1346) M

Slope (%): very strong slope (2), strong slope (3), level (4), moderate slope (8), gentle slope (10), nearly level (10), very gentle slope (15)

Aspect: Level (4), Westerly (7), Southerly (8), Easterly (12), Northerly (18)

Topographic Position:Toe (1), Lower Slope (3), Level (5), Midslope (5), Upper Slope (6)

Soil Variables

Soil Drainage: Very poorly drained (1), Well drained (7), Poorly drained (10), Moderately well drained (15), Imperfectly drained (21)

Soil Subgroup: FIBRISOL (1), HUMIC REGOSOL (1), REGOSOL (2), HUMIC GLEYSOL (2), EUTRIC BRUNISOL (3), DYSTRIC BRUNISOL (5), GLEYSOL (6), LUVIC GLEYSOL (11), GRAY LUVISOL (21)

Surface Texture: Fibric (1), Loamy sand (1), Sand (1), Sandy clay loam (1), Silty clay (1), Sandy loam (2), Fine sandy loam (2), Clay loam (2), Clay (2), Loam (3), Silt (3), Silty clay loam (5), Silt loam (11)

Effective Texture: Fibric (1), Loam (1), Loamy sand (1), Silt (1), Silty clay (1), Heavy clay (2), Silty clay loam (3), Sandy clay loam (4), Clay (9), Clay loam (12)

Depth to Mottles/Gley: 26 - 50 (4), 0 - 25 (8)

Organic Thickness: >= 80 cm (1), 26 - 39 cm (1), 0 - 5 cm (51)

Parent Material: Colluvial (1), Eolian (1), Saprolite (1), Rock (2), Lacustrine (2), Glaciofluvial (2), Undifferentiated Organic (3), Glaciolacustrine (5), Fluvial (11), Morainal (31)

Soil Type: Organic (1), Moist/Silty-Loamy (2), Moist/Peaty (2), Moist/Coarse (2), Wet/Peaty (3), Moist/Fine (25)

Humus Form RAW MODER (1), TYPICAL MODER (1), FIBRIMOR (3), HUMIFIBRIMOR (4), FIBRIHUMIMOR (4)

LFH Thickness	Mean	Min	Max	Count
cm:	10.33	2.00	34.00	34

LFj13 Sw/Devils-club/Fern (n=10)

(Picea glauca/Oplopanax horridum/Gymnocarpium dryopteris)

This community type tends to be subhygric and nutrient rich and is transitional to the horsetail ecological site. Indeed many of the stands described in this community type were dominated by horsetail species. Devil's club dominated community types occur sporadically throughout the Lower Foothills on nutrient rich seepage areas. After disturbance this community type will regenerate slowly due to the proliferation of grass forb and shrub cover.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f4 bracted honeysuckle/fern Sw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	6.5	0.0-25.0	60
WHITE SPRUCE *(Picea glauca)*	40.1	10.0-80.0	100
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	9.4	0.0-42.0	80
Medium Shrub (0.5 to 2 m)			
SUBALPINE FIR *(Abies lasiocarpa)*	2.6	0.0-8.0	50
PRICKLY ROSE *(Rosa acicularis)*	2.9	1.0-10.0	100
LOW-BUSH CRANBERRY *(Viburnum edule)*	4.1	0.0-10.0	90
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	4.8	0.0-15.0	90
DEVIL'S-CLUB *(Oplopanax horridum)*	7.7	0.0-30.0	80
Tall Forb (>= 30 cm)			
COMMON HORSETAIL *(Equisetum arvense)*	2.4	0.0-20.0	30
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	5.0	0.0-20.0	70
MEADOW HORSETAIL *(Equisetum pratense)*	5.4	0.0-30.0	60
OAK FERN *(Gymnocarpium dryopteris)*	8.9	2.0-15.0	100
WILD SARSAPARILLA *(Aralia nudicaulis)*	16.1	0.0-50.0	90
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	2.1	0.0-10.0	80
BUNCHBERRY *(Cornus canadensis)*	6.0	2.0-10.0	100
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	5.5	1.0-18.0	100
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	8.2	0.0-20.0	90
STAIR-STEP MOSS *(Hylocomium splendens)*	14.9	1.0-40.0	100
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	22.4	2.0-70.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhydric (moderately wet) (2), Hygric (moist) (3), Subhygric (moderately moist) (5)

Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (8)

Elevation (range): 906 (700-1160) M

Slope (%): 0 - 0.49 (1), 16 - 30.99 (1), 2.5 - 5.99 (1), 10 - 15.99 (2), 0.5 - 2.49 (2), 6 - 9.99 (3)

Aspect: Westerly (1), Easterly (2), Level (2), Northerly (5)

Topographic Position: Midslope (3)

Soil Variables

Soil Drainage: Well drained (1), Very poorly drained (1), Imperfectly drained (2), Poorly drained (2), Moderately well drained (4)

Soil Subgroup: GLEYSOL ORTHIC (1), FIBRISOL TYPIC (1), GRAY LUVISOL BRUNISOLIC (1), GLEYSOL REGO (1), DYSTRIC BRUNISOL ELUVIATED (1), DYSTRIC BRUNISOL GLEYED ELUVIATED (2), GRAY LUVISOL ORTHIC (3)

Surface Texture: Fine sandy loam (1), Fibric (1), Silt loam (1), Silt (1)

Effective Texture: Clay (1), Clay loam (1), Loam (1), Fibric (1)

Depth to Mottles/Gley:

Organic Thickness: >= 80 cm (1), 0 - 5 cm (9)

Parent Material: Undifferentiated Organic (2), Fluvial (4), Morainal (6)

Soil Type: Moist/Silty-Loamy (1), Organic (1), Moist/Coarse (1), Moist/Fine (1)

Humus Form RAW MODER (1), FIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	7.00	11.00	3

LFj14 Sw/Bracted honeysuckle/Fern (n=20)

(Picea glauca/Lonicera involcrata/Gymnocarpium dryopteris)

This community type is similar to the Sw/bracted honeysuckle/fern community described by Beckingham et. al. (1996). It can be dominated by willow, and/or honeysuckle and red osier dogwood in the understory.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f4 bracted honeysuckle/fern Sw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	34.3	10.0-68.0	100
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	3.9	0.0-10.0	60
Medium Shrub (0.5 to 2 m)			
RED-OSIER DOGWOOD *(Cornus stolonifera)*	1.4	0.0-15.0	30
BALSAM FIR *(Abies balsamea)*	1.9	0.0-26.0	35
BARCLAY'S WILLOW *(Salix barclayi)*	3.0	0.0-60.6	5
PRICKLY ROSE *(Rosa acicularis)*	4.0	0.0-18.0	90
LOW-BUSH CRANBERRY *(Viburnum edule)*	5.7	0.0-20.0	85
TWINFLOWER *(Linnaea borealis)*	8.7	0.0-40.0	95
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	10.2	0.0-52.0	90
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.2	0.0-8.0	60
MEADOW HORSETAIL *(Equisetum pratense)*	1.6	0.0-18.0	40
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.7	0.0-10.0	40
TALL LUNGWORT *(Mertensia paniculata)*	2.7	0.0-15.0	90
WILD SARSAPARILLA *(Aralia nudicaulis)*	5.9	0.0-30.0	50
Low Forb (< 30 cm)			
BISHOP'S-CAP *(Mitella nuda)*	3.8	0.0-18.0	95
BUNCHBERRY *(Cornus canadensis)*	7.2	0.0-30.0	90
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	3.3	0.0-30.0	75
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	7.0	0.0-29.0	65
SCHREBER'S MOSS *(Pleurozium schreberi)*	10.5	0.0-35.0	80
STAIR-STEP MOSS *(Hylocomium splendens)*	29.6	0.0-80.0	80

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (4), Mesic (fresh) (5), Subhygric (moderately moist) (11)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (5), Permesotrophic (rich) (12)

Elevation (range): 993 (793-1346) M

Slope (%): 16 - 30.99 (1), 2.5 - 5.99 (4), 0.5 - 2.49 (4), 6 - 9.99 (4), 10 - 15.99 (6)

Aspect: Level (1), Northerly (3), Westerly (4), Easterly (5), Southerly (6)

Topographic Position: Toe (1), Midslope (2), Lower Slope (2), Level (4)

Soil Variables

Soil Drainage: Poorly drained (4), Well drained (4), Moderately well drained (5), Imperfectly drained (7)

Soil Subgroup: GLEYSOL REGO (1), GRAY LUVISOL BRUNISOLIC (1), DYSTRIC BRUNISOL ORTHIC (1), GLEYSOL ORTHIC (1), REGOSOL GLEYED CUMULIC (1), HUMIC REGOSOL ORTHIC (1), GRAY LUVISOL ORTHIC (2), GRAY LUVISOL GLEYED (2), HUMIC GLEYSOL ORTHIC (2), EUTRIC BRUNISOL ELUVIATED (2), LUVIC GLEYSOL ORTHIC (4)

Surface Texture: Silt (1), Sandy loam (1), Silty clay loam (1), Clay loam (1), Clay (2), Loam (3), Silt loam (6)

Effective Texture: Loamy sand (1), Silt (1), Silty clay loam (1), Sandy clay loam (2), Clay (3), Clay loam (7)

Depth to Mottles/Gley: 0 - 25 (5)

Organic Thickness: 26 - 39 cm (1), 0 - 5 cm (18)

Parent Material: Colluvial (1), Glaciolacustrine (2), Fluvial (3), Morainal (12)

Soil Type: Moist/Peaty (1), Moist/Coarse (1), Moist/Silty-Loamy (1), Wet/Peaty (3), Moist/Fine (9)

Humus Form TYPICAL MODER (1), FIBRIHUMIMOR (2), HUMIFIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	13.00	5.00	34.00	15

LFj15 Sw/Green alder-River alder/Fern (n=7)

(Picea glauca/Alnus crispa-Alnus tenuifolia/Gymnocarpium dryopteris)

This community type seems to form on level to sloping sites that have some underground seepage. The underground seepage makes this community type fairly moist and nutrient rich. The high amount of moisture allows green alder and fern to proliferate.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f4 bracted honeysuckle/fern Sw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	35.0	30.0-40.0	100
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	4.0	2.0-5.0	100
BALSAM FIR *(Abies balsamea)*	8.0	5.0-10.0	100
SUBALPINE FIR *(Abies lasiocarpa)*	8.0	5.0-10.0	100
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	15.0	10.0-20.0	100
RIVER ALDER *(Alnus tenuifolia)*	15.0	10.0-20.0	100
Medium Shrub (0.5 to 2 m)			
RED-OSIER DOGWOOD *(Cornus stolonifera)*	1.0	0.0-2.0	100
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	8.0	5.0-10.0	100
UNDIFFERENTIATED CURRANT *(Ribes)*	8.0	5.0-10.0	100
PRICKLY ROSE *(Rosa acicularis)*	8.0	5.0-10.0	100
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	4.0	2.0-5.0	100
LOW-BUSH CRANBERRY *(Viburnum edule)*	4.0	2.0-5.0	100
TWINFLOWER *(Linnaea borealis)*	15.0	10.0-20.0	100
Tall Forb (>= 30 cm)			
NARROW SPINULOSE SHIELD FERN *(Dryopteris carthusiana)*	1.0	0.0-2.0	100
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.0	0.0-2.0	100
COMMON FIREWEED *(Epilobium angustifolium)*	4.0	2.0-5.0	100
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	15.0	10.0-20.0	100
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	4.0	2.0-5.0	100
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	4.0	2.0-5.0	100
SCHREBER'S MOSS *(Pleurozium schreberi)*	8.0	5.0-10.0	100
STAIR-STEP MOSS *(Hylocomium splendens)*	35.0	30.0-40.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime:

Nutrient Regime:

Elevation (range): 0 (0-0) M

Slope (%):

Aspect:

Topographic Position:

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFj26 Sw/Fern/Feather moss (n=24)

(Picea glauca/Gymnocarpium dryopteris/Pleurozium schreberi)

This community type can be dominated by fern or feather moss in the understory. It is a combination of Beckingham et al. (1996) (f4.5) fir/fern/feather moss and fern/feather moss (f4.3) community types, in the West-Central ecosite guide of Alberta. This community type seems to form on level to sloping sites that have some underground seepage. The underground seepage makes this community type fairly moist and nutrient rich

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f4 bracted honeysuckle/fern Sw

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
LODGEPOLE PINE *(Pinus contorta)*	2.9	0.0-25.0	33
BALSAM FIR *(Abies balsamea)*	3.5	0.0-30.0	21
WHITE SPRUCE *(Picea glauca)*	28.3	0.0-81.0	92
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	1.6	0.0-10.0	79
DEVIL'S-CLUB *(Oplopanax horridum)*	2.0	0.0-15.0	29
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	3.2	0.0-15.0	92
LOW-BUSH CRANBERRY *(Viburnum edule)*	3.7	0.0-10.0	92
BALSAM FIR *(Abies balsamea)*	4.7	0.0-40.0	25
TWINFLOWER *(Linnaea borealis)*	4.9	0.0-18.0	92
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	5.4	0.0-55.0	83
Tall Forb (>= 30 cm)			
TALL LUNGWORT *(Mertensia paniculata)*	1.7	0.0-8.0	71
OAK FERN *(Gymnocarpium dryopteris)*	4.2	0.0-35.0	79
WILD SARSAPARILLA *(Aralia nudicaulis)*	6.0	0.0-42.0	63
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.7	0.0-12.0	79
BISHOP'S-CAP *(Mitella nuda)*	2.7	0.0-12.0	92
BUNCHBERRY *(Cornus canadensis)*	5.4	0.0-20.0	92
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	5.0	0.0-60.0	42
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	14.2	0.0-52.0	92
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	16.1	0.0-80.0	88
STAIR-STEP MOSS *(Hylocomium splendens)*	30.7	0.0-91.0	96

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (6), Mesic (fresh) (7), Subhygric (moderately moist) (11)

Nutrient Regime: Eutrophic (very rich) (2), Mesotrophic (medium) (10), Permesotrophic (rich) (12)

Elevation (range): 945 (790-1300) M

Slope (%): 16 - 30.99 (1), 31 - 45.99 (2), 6 - 9.99 (3), 0 - 0.49 (3), 0.5 - 2.49 (4), 2.5 - 5.99 (10)

Aspect: Level (1), Westerly (2), Southerly (2), Easterly (5), Northerly (10)

Topographic Position: Lower Slope (1), Level (1), Upper Slope (6)

Soil Variables

Soil Drainage: Well drained (2), Poorly drained (4), Moderately well drained (6), Imperfectly drained (12)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (1), GLEYSOL ORTHIC (1), DYSTRIC BRUNISOL GLEYED ELUVIATED (1), REGOSOL CUMULIC (1), GLEYSOL REGO (1), GRAY LUVISOL DARK (1), GRAY LUVISOL GLEYED (2), GRAY LUVISOL GLEYED BRUNISOLIC (2), GRAY LUVISOL BRUNISOLIC (2), LUVIC GLEYSOL HUMIC (3), LUVIC GLEYSOL ORTHIC (4), GRAY LUVISOL ORTHIC (5)

Surface Texture: Sandy clay loam (1), Fine sandy loam (1), Sandy loam (1), Sand (1), Silty clay (1), Loamy sand (1), Clay loam (1), Silt (1), Silty clay loam (4), Silt loam (4)

Effective Texture: Silty clay (1), Silty clay loam (2), Sandy clay loam (2), Heavy clay (2), Clay loam (4), Clay (5)

Depth to Mottles/Gley: 0 - 25 (3), 26 - 50 (4)

Organic Thickness: 0 - 5 cm (24)

Parent Material: Eolian (1), Undifferentiated Organic (1), Saprolite (1), Glaciofluvial (2), Lacustrine (2), Rock (2), Glaciolacustrine (3), Fluvial (4), Morainal (13)

Soil Type: Moist/Peaty (1), Moist/Fine (15)

Humus Form FIBRIHUMIMOR (2), HUMIFIBRIMOR (2), FIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	10.00	2.00	24.00	16

f5 bracted honeysuckle shrubland (n=1)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)

Characteristic Species

Tree

[1.0]ASPEN
Populus tremuloides

[1.0]WHITE SPRUCE
Picea glauca

Shrub

[36.0]GREEN ALDER
Alnus crispa

[18.4]WILD RED RASPBERRY
Rubus idaeus

[2.8]NORTHERN GOOSEBERRY
Ribes oxyacanthoides

[1.0]BEAKED WILLOW
Salix bebbiana

Forb

[24.5]COMMON FIREWEED
Epilobium angustifolium

[7.0]MARSH HEDGE-NETTLE
Stachys palustris

[6.5]TALL LUNGWORT
Mertensia paniculata

[4.0]COMMON NETTLE
Urtica dioica

[3.0]COW PARSNIP
Heracleum lanatum

[1.6]YELLOW AVENS
Geum aleppicum

[1.1]SWEET-SCENTED BEDSTRAW
Galium triflorum

[1.0]RED AND WHITE BANEBERRY
Actaea rubra

Graminoid

[26.4]BLUEJOINT
Calamagrostis canadensis

[8.0]FOWL BLUEGRASS
Poa palustris

Environmental Variables

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 1300 (1300-1300) M

Slope (%): moderate slope (1)

Aspect: Northerly (1)

Topographic Position:Midslope (1)

Soil Variables

Soil Drainage: Well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0	0	0	0

LFc7 Green alder/Marsh reed grass (Bluejoint) (n=1)

(Alnus crispa/Calamagrostis canadensis)

This community type was described on north and east facing slopes West of Sundre. This community appears to occupy areas that receive some nutrient rich seepage throughout the growing season. There are some trees growing on these sites, but they are generally restricted to the drier areas. This community is similar to the Alder/Fern community that was described on nutrient rich seepage areas in the Saddle Hills, but this type lacks the cover of fern.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f5 bracted honeysuckle shrubland

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Tall Shrub (2 to 5m)			
WHITE SPRUCE *(Picea glauca)*	1.0	1.0-1.0	100
ASPEN *(Populus tremuloides)*	1.0	1.0-1.0	100
BEAKED WILLOW *(Salix bebbiana)*	1.0	1.0-1.0	100
Medium Shrub (0.5 to 2 m)			
LOW-BUSH CRANBERRY *(Viburnum edule)*	0.8	0.8-0.8	100
NORTHERN GOOSEBERRY *(Ribes oxyacanthoides)*	2.8	2.8-2.8	100
WILD RED RASPBERRY *(Rubus idaeus)*	18.4	18.4-18.4	100
GREEN ALDER *(Alnus crispa)*	36.0	36.0-36.0	100
Tall Forb (>= 30 cm)			
SMOOTH ASTER *(Aster laevis)*	0.3	0.3-0.3	100
WILD WHITE GERANIUM *(Geranium richardsonii)*	0.5	0.5-0.5	100
RED AND WHITE BANEBERRY *(Actaea rubra)*	1.0	1.0-1.0	100
YELLOW AVENS *(Geum aleppicum)*	1.6	1.6-1.6	100
COW PARSNIP *(Heracleum lanatum)*	3.0	3.0-3.0	100
COMMON NETTLE *(Urtica dioica)*	4.0	4.0-4.0	100
TALL LUNGWORT *(Mertensia paniculata)*	6.5	6.5-6.5	100
MARSH HEDGE-NETTLE *(Stachys palustris)*	7.0	7.0-7.0	100
COMMON FIREWEED *(Epilobium angustifolium)*	24.5	24.5-24.5	100
Low Forb (< 30 cm)			
BISHOP'S-CAP *(Mitella nuda)*	0.1	0.1-0.1	100
SWEET-SCENTED BEDSTRAW *(Galium triflorum)*	1.1	1.1-1.1	100
Graminoid			
FOWL BLUEGRASS *(Poa palustris)*	8.0	8.0-8.0	100
BLUEJOINT *(Calamagrostis canadensis)*	26.4	26.4-26.4	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 1300 (1300-1300) M

Slope (%): 10 - 15.99 (1)

Aspect: Northerly (1)

Topographic Position: Midslope (1)

Soil Variables

Soil Drainage: Well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0	0	0	0

f6 bracted honeysuckle tame (n=5)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)

Characteristic Species

Forb

[3.0]COMMON DANDELION
Taraxacum officinale

[1.3]WHITE CLOVER
Trifolium repens

[1.3]WESTERN DOCK
Rumex occidentalis

[1.0]WATER PARSNIP
Sium suave

[1.0]MEADOW HORSETAIL
Equisetum pratense

Graminoid

[20.0]MEADOW FOXTAIL
Alopecurus pratensis

[18.3]REED CANARY GRASS
Phalaris arundinacea

[13.6]SHORT-AWNED FOXTAIL
Alopecurus aequalis

[2.6]BLUEJOINT
Calamagrostis canadensis

[2.3]KENTUCKY BLUEGRASS
Poa pratensis

[2.0]TIMOTHY
Phleum pratense

[1.3]CREEPING RED FESCUE
Festuca rubra

Environmental Variables

Moisture Regime: Mesic (fresh) (1), Subhygric (moderately moist) (4)

Nutrient Regime: Permesotrophic (rich) (2), Mesotrophic (medium) (4)

Elevation (range): 1091.5 (792-1189) M

Slope (%): very gentle slope (1), nearly level (2)

Aspect: Easterly (1), Level (1), Southerly (1)

Topographic Position:Crest (1), Level (1), Midslope (2)

Soil Variables

Soil Drainage: Imperfectly drained (1), Rapidly drained (1), Well drained (1), Moderately well drained (2)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFa20 Reed Canary Grass-Meadow foxtail/Clover (n=3)

(Phalaris arundinacea-Alopecurus pratensis/Trifolium spp.)

This community type occurs on cleared very moist pastures that were seeded with a mixture that likely included a combination of reed canary grass, meadow foxtail, timothy, creeping red fescue, and clover species. Light to moderate grazing will likely maintain the original seed mixture, but prolonged heavy grazing will allow grazing resistant species such as creeping red fescue, Kentucky bluegrass, and clovers to become dominant. Very heavily grazed sites may even become invaded with disturbance and weedy species.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: f bracted honeysuckle (subhygric/rich)
Ecosite Phase: f6 bracted honeysuckle tame

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Forb (>= 30 cm)			
MEADOW HORSETAIL *(Equisetum pratense)*	1.0	0.0-2.0	67
WATER PARSNIP *(Sium suave)*	1.0	0.0-1.0	67
WESTERN DOCK *(Rumex occidentalis)*	1.3	0.0-2.0	67
Low Forb (< 30 cm)			
WHITE CLOVER *(Trifolium repens)*	1.3	0.0-2.0	67
COMMON DANDELION *(Taraxacum officinale)*	3.0	2.0-5.0	100
Graminoid			
CREEPING RED FESCUE *(Festuca rubra)*	1.3	0.0-3.0	67
TIMOTHY *(Phleum pratense)*	2.0	0.0-5.0	67
KENTUCKY BLUEGRASS *(Poa pratensis)*	2.3	0.0-5.0	67
BLUEJOINT *(Calamagrostis canadensis)*	2.6	2.0-4.0	100
SHORT-AWNED FOXTAIL *(Alopecurus aequalis)*	13.6	0.0-41.0	33
REED CANARY GRASS *(Phalaris arundinacea)*	18.3	0.0-55.0	33
MEADOW FOXTAIL *(Alopecurus pratensis)*	20.0	0.0-60.0	33

Environmental Variables

Ecological Status Score: 14-14

Moisture Regime: Subhygric (moderately moist) (3)

Nutrient Regime: Mesotrophic (medium) (2), Permesotrophic (rich) (2)

Elevation (range): 994 (792-1189) M

Slope (%): 0.5 - 2.49 (1)

Aspect: Southerly (1)

Topographic Position: Crest (1), Midslope (1)

Soil Variables

Soil Drainage: Well drained (1), Moderately well drained (2)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

ff rough fescue-hairy wildrye (mesic/rich) (n=5)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

This ecosite consists of open grasslands and shrublands found in valley bottoms, adjacent to rivers and streams, and on south facing slopes at higher elevations in transition to the Upper Foothills subregion. The ecosite tends to be mesic to submesic and occurs on loamy, gravelly, fluvial parent materials or colluvial south and west facing shallow slopes. On fluvial floodplains the water table is slightly lower on this ecological site compared to the meadow ecological site, which favours the growth of rough fescue, hairy wildrye and intermediate oatgrass over tufted hairgrass. The soils on these sites tend to have thick Ah horizons. This ecological site is not common in the Lower Foothills. Only grazed examples were described in the Lower Foothills. The reference plant community was described from the Upper Foothills subregion.

Environmental Variables

Moisture Regime: Mesic (fresh) (1), Submesic (moderately fresh) (3)

Nutrient Regime: Permesotrophic (rich) (1), Submesotrophic (poor) (1), Mesotrophic (medium) (3)

Elevation (range): 1430 (1331-1500) M

Slope (%): gentle slope (1), nearly level (1), very strong slope (1), level (2)

Aspect: Southerly (3)

Topographic Position:Lower Slope (1), Midslope (1), Level (3)

Soil Variables

Soil Drainage: Moderately well drained (1), Rapidly drained (1), Well drained (3)

Soil Subgroup: EUTRIC BRUNISOL (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type: Moist/Silty-Loamy (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

Successional Relationships

Due to the nature of the site grasslands often remain the climax vegetation. In the moister lower slope positions shrubs often dominate the site with succession to aspen and spruce. Disturbance regime, cold air drainage, and competition from a diverse cover of shrubs, forbs and grasses slow or inhibit the establishment of trees. If trees do become established, the rich loamy soils will usually result in rapid growth.

Indicator Species

Shrub

SHRUBBY CINQUEFOIL
Potentilla fruticosa

Forb

THREE-FLOWERED AVENS
Geum triflorum

Graminoid

FOOTHILLS ROUGH FESCUE
Festuca campestris

GRACEFUL SEDGE
Carex praegracilis

AWNLESS BROME
Bromus inermis

SLENDER WHEAT GRASS
Agropyron trachycaulum

ff1 grassland (n=5)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: ff rough fescue-hairy wildrye (mesic/rich)

Characteristic Species

Shrub

[3.2]SHRUBBY CINQUEFOIL*
Potentilla fruticosa

Forb

[7.3]THREE-FLOWERED AVENS*
Geum triflorum

[4.3]TALL LARKSPUR
Delphinium glaucum

[2.7]COMMON YARROW
Achillea millefolium

[1.5]WILD VETCH
Vicia americana

[1.2]GRACEFUL CINQUEFOIL
Potentilla gracilis

Graminoid

[18.9]FOOTHILLS ROUGH FESCUE*
Festuca campestris

[3.2]GRACEFUL SEDGE*
Carex praegracilis

[2.7]AWNLESS BROME*
Bromus inermis

[2.6]SLENDER WHEAT GRASS*
Agropyron trachycaulum

[1.9]BLUNT SEDGE
Carex obtusata

Environmental Variables

Moisture Regime: Mesic (fresh) (1), Submesic (moderately fresh) (3)

Nutrient Regime: Permesotrophic (rich) (1), Submesotrophic (poor) (1), Mesotrophic (medium) (3)

Elevation (range): 1430 (1331-1500) M

Slope (%): gentle slope (1), nearly level (1), very strong slope (1), level (2)

Aspect: Southerly (3)

Topographic Position:Lower Slope (1), Midslope (1), Level (3)

Soil Variables

Soil Drainage: Moderately well drained (1), Rapidly drained (1), Well drained (3)

Soil Subgroup: EUTRIC BRUNISOL (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type: Moist/Silty-Loamy (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFb10 Rough fescue-Hairy wildrye (n=1)

(Festuca campestris-Elymus innovatus)

These grasslands are located on mid to lower, south facing slopes and level areas with well developed soils. They represent the transition from the Lower Foothills to the Upper Foothills rough fescue dominated grasslands described in the valley bottoms. Grazing pressure causes a shift away from a rough fescue, hairy wildrye dominated community to a sedge, Kentucky bluegrass dominated community (Willoughby 1992). These grasslands are fairly moist and have well developed soils which makes them very productive. There were no ungrazed reference sites that have been described in the Lower Foothills subregion.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: ff rough fescue-hairy wildrye (mesic/rich)
Ecosite Phase: ff1 grassland

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Medium Shrub (0.5 to 2 m)			
SHRUBBY CINQUEFOIL *(Potentilla fruticosa)*	3.2	3.2-3.2	100
Tall Forb (>= 30 cm)			
GRACEFUL CINQUEFOIL *(Potentilla gracilis)*	1.2	1.2-1.2	100
WILD VETCH *(Vicia americana)*	1.5	1.5-1.5	100
TALL LARKSPUR *(Delphinium glaucum)*	4.3	4.3-4.3	100
Low Forb (< 30 cm)			
COMMON YARROW *(Achillea millefolium)*	2.7	2.7-2.7	100
THREE-FLOWERED AVENS *(Geum triflorum)*	7.3	7.3-7.3	100
Graminoid			
BLUNT SEDGE *(Carex obtusata)*	1.9	1.9-1.9	100
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	2.6	2.6-2.6	100
AWNLESS BROME *(Bromus inermis)*	2.7	2.7-2.7	100
GRACEFUL SEDGE *(Carex praegracilis)*	3.2	3.2-3.2	100
FOOTHILLS ROUGH FESCUE *(Festuca campestris)*	18.9	18.9-18.9	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Mesic (fresh) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 1470 (1470-1470) M

Slope (%): 0.5 - 2.49 (1)

Aspect: Southerly (1)

Topographic Position: Level (1)

Soil Variables

Soil Drainage: Well drained (1)

Soil Subgroup: EUTRIC BRUNISOL ORTHIC (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type: Moist/Silty-Loamy (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

g meadow (subhygric/very rich) (n=37)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The meadow ecosite is mesic to subhydric and occurs on fluvial or colluvial parent materials where seepage and/or flooding increases the soil water content and replenishes the nutrient supply. The soils on these sites have thick Ah horizons and loamy textures.

Successional Relationships

The meadow ecosite is successionally stable. Disturbance regime, frost resulting from cold air drainage, and competition from a diverse cover of shrubs, forbs, and grasses slow or inhibit the establishment of trees. If trees become established, the rich, moist, loamy soils are conducive to rapid growth.

Indicator Species

Shrub

SALIX SPECIES
Salix

BOG BIRCH
Betula glandulosa

Forb

COW PARSNIP
Heracleum lanatum

VEINY MEADOW RUE
Thalictrum venulosum

Graminoid

GRACEFUL SEDGE
Carex praegracilis

TUFTED HAIR GRASS
Deschampsia cespitosa

FRINGED BROME
Bromus ciliatus

SLENDER WHEAT GRASS
Agropyron trachycaulum

SEDGE SPECIES
Carex

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (2), Subhydric (moderately wet) (4), Hygric (moist) (11), Mesic (fresh) (15), Subhygric (moderately moist) (24)

Nutrient Regime: Submesotrophic (poor) (2), Eutrophic (very rich) (8), Mesotrophic (medium) (18), Permesotrophic (rich) (27)

Elevation (range): 1123.57 (721-1572) M

Slope (%): strong slope (1), very gentle slope (2), moderate slope (3), nearly level (11), level (25)

Aspect: Southerly (5), Westerly (6), Level (11), Easterly (12)

Topographic Position:Upper Slope (1), Lower Slope (3), Midslope (5), Depression (8), Level (19)

Soil Variables

Soil Drainage: Rapidly drained (1), Poorly drained (7), Well drained (8), Imperfectly drained (15), Moderately well drained (23)

Soil Subgroup: EUTRIC BRUNISOL (1), HUMIC GLEYSOL (1), HUMIC REGOSOL (2), REGOSOL (2), GLEYSOL (2), GRAY LUVISOL (2)

Surface Texture: Loam (1), Sand (1), Sandy loam (1), Silty clay loam (1)

Effective Texture: Clay loam (1), Fine Sandy Clay Loam (1), Sand (1), Sandy clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (13)

Parent Material: Glaciofluvial (2), Lacustrine (2), Morainal (2), Fluvial (11)

Soil Type: Dry/Sandy (1), Wet/Mineral (1), Moist/Fine (2)

Humus Form ANMOOR (1), HUMIFIBRIMOR (1), RHIZOMULL (4)

LFH Thickness	Mean	Min	Max	Count
cm:	3.00	1.00	5.00	4

g1 shrubby meadow (n=15)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)

Characteristic Species

Shrub

[15.8]BOG BIRCH*
Betula glandulosa

[11.5]SALIX SPECIES*
Salix

[7.0]BEAKED WILLOW
Salix bebbiana

[3.1]BARCLAY'S WILLOW
Salix barclayi

[2.4]SHRUBBY CINQUEFOIL
Potentilla fruticosa

[1.6]DWARF BIRCH
Betula pumila

Forb

[4.8]LINDLEY'S ASTER
Aster ciliolatus

[4.5]THREE-FLOWERED AVENS
Geum triflorum

[2.6]WILD STRAWBERRY
Fragaria virginiana

[2.3]TALL LUNGWORT
Mertensia paniculata

[2.2]VEINY MEADOW RUE*
Thalictrum venulosum

[1.6]LATE YELLOW LOCOWEED
Oxytropis monticola

[1.6]LARGE-LEAVED YELLOW AVENS
Geum macrophyllum

[1.5]COMMON FIREWEED
Epilobium angustifolium

Graminoid

[7.4]BLUEJOINT
Calamagrostis canadensis

[6.8]TUFTED HAIR GRASS*
Deschampsia cespitosa

[3.8]SEDGE SPECIES*
Carex

[3.4]SLENDER WHEAT GRASS*
Agropyron trachycaulum

[3.2]FRINGED BROME*
Bromus ciliatus

[1.0]N/A
Festuca altaica

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (2), Subhydric (moderately wet) (2), Hygric (moist) (5), Mesic (fresh) (6), Subhygric (moderately moist) (13)

Nutrient Regime: Eutrophic (very rich) (5), Permesotrophic (rich) (10), Mesotrophic (medium) (12)

Elevation (range): 1203.5 (721-1572) M

Slope (%): strong slope (1), very gentle slope (2), moderate slope (2), nearly level (3), level (11)

Aspect: Southerly (2), Easterly (2), Westerly (4), Level (4)

Topographic Position:Upper Slope (1), Lower Slope (2), Midslope (3), Depression (4), Level (9)

Soil Variables

Soil Drainage: Rapidly drained (1), Well drained (4), Poorly drained (5), Moderately well drained (6), Imperfectly drained (10)

Soil Subgroup: EUTRIC BRUNISOL (1), REGOSOL (1), GRAY LUVISOL (2)

Surface Texture: Loam (1), Sand (1), Silty clay loam (1)

Effective Texture: Clay loam (1), Fine Sandy Clay Loam (1), Sand (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (5)

Parent Material: Morainal (1), Glaciofluvial (2), Fluvial (3)

Soil Type: Dry/Sandy (1), Moist/Fine (1), Wet/Mineral (1)

Humus Form ANMOOR (1), HUMIFIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	2.00	1.00	4.00	3

LFc5 Willow-Bog birch/Tufted hairgrass-Sedge (n=12)

(Salix spp.-Betula glandulosa/Deschampsia cespitosa-Carex spp.)

This community type occurs at higher elevations on moist, level valley flood plains and fluvial terraces in the Lower Foothills Subregion. At higher elevations in transition to the Upper Foothills tufted hairgrass tends to dominate the understory of these meadows. In contrast at lower elevations marsh reedgrass tends to dominate the understory. The water table is fairly high, but flooding is rare. A variant of this community type, the Cow parsnip/Veiny Meadow rue community type, is common along the Baptiste River at the upper elevation limit of the Lower Foothills subregion. The Cow parsnip/Veiny Meadow rue community type is highly productive for both cattle and wildlife but, if left undisturbed, it will quickly succeed to willow.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)
Ecosite Phase: g1 shrubby meadow

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Tall Shrub (2 to 5m)			
BEAKED WILLOW *(Salix bebbiana)*	7.0	0.0-40.0	34
SALIX SPECIES *(Salix)*	11.5	0.0-90.0	41
Medium Shrub (0.5 to 2 m)			
DWARF BIRCH *(Betula pumila)*	1.6	0.0-20.0	8
SHRUBBY CINQUEFOIL *(Potentilla fruticosa)*	2.4	0.0-11.7	50
BARCLAY'S WILLOW *(Salix barclayi)*	3.1	0.0-28.3	17
BOG BIRCH *(Betula glandulosa)*	15.8	0.0-70.0	83
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.5	0.0-5.0	75
LARGE-LEAVED YELLOW AVENS *(Geum macrophyllum)*	1.6	0.0-13.0	25
VEINY MEADOW RUE *(Thalictrum venulosum)*	2.2	0.0-5.0	92
TALL LUNGWORT *(Mertensia paniculata)*	2.3	0.0-19.0	50
LINDLEY'S ASTER *(Aster ciliolatus)*	4.8	0.0-27.0	67
Low Forb (< 30 cm)			
COMMON YARROW *(Achillea millefolium)*	1.3	0.1-3.9	100
LATE YELLOW LOCOWEED *(Oxytropis monticola)*	1.6	0.0-20.0	8
WILD STRAWBERRY *(Fragaria virginiana)*	2.6	0.0-15.0	83
THREE-FLOWERED AVENS *(Geum triflorum)*	4.5	0.0-35.0	17
Graminoid			
N/A *(Festuca altaica)*	1.0	0.0-5.8	25
FRINGED BROME *(Bromus ciliatus)*	3.2	0.0-25.0	33
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	3.4	0.0-10.2	50
SEDGE SPECIES *(Carex)*	3.8	0.0-16.3	50
TUFTED HAIR GRASS *(Deschampsia cespitosa)*	6.8	0.0-22.7	67
BLUEJOINT *(Calamagrostis canadensis)*	7.4	0.0-35.0	50

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Submesic (moderately fresh) (2), Subhydric (moderately wet) (2), Hygric (moist) (4), Mesic (fresh) (5), Subhygric (moderately moist) (11)

Nutrient Regime: Eutrophic (very rich) (5), Permesotrophic (rich) (8), Mesotrophic (medium) (10)

Elevation (range): 1259 (721-1572) M

Slope (%): 16 - 30.99 (1), 10 - 15.99 (2), 2.5 - 5.99 (2), 0.5 - 2.49 (3), 0 - 0.49 (8)

Aspect: Easterly (2), Southerly (2), Westerly (4), Level (4)

Topographic Position: Lower Slope (1), Upper Slope (1), Midslope (3), Depression (3), Level (8)

Soil Variables

Soil Drainage: Well drained (4), Poorly drained (5), Moderately well drained (5), Imperfectly drained (8)

Soil Subgroup: EUTRIC BRUNISOL ORTHIC (1), GRAY LUVISOL DARK (2)

Surface Texture: Loam (1), Sand (1)

Effective Texture: Clay loam (1), Sand (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Morainal (1), Fluvial (1), Glaciofluvial (2)

Soil Type: Moist/Fine (1), Dry/Sandy (1)

Humus Form HUMIFIBRIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	2.00	1.00	4.00	2

g2 forb meadow (n=3)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)

Characteristic Species

Shrub

[3.9]BEAKED WILLOW
Salix bebbiana

[1.4]SNOWBERRY (BUCKBRUSH)
Symphoricarpos occidentalis

Forb

[15.2]COW PARSNIP*
Heracleum lanatum

[14.1]VEINY MEADOW RUE
Thalictrum venulosum

[6.0]COMMON DANDELION
Taraxacum officinale

[5.2]TALL LARKSPUR
Delphinium glaucum

[4.5]TALL LUNGWORT
Mertensia paniculata

[2.6]PURPLE AVENS
Geum rivale

[2.5]WILD VETCH
Vicia americana

[2.4]COMMON FIREWEED
Epilobium angustifolium

[2.0]CANADA GOLDENROD
Solidago canadensis

Graminoid

[25.2]FRINGED BROME
Bromus ciliatus

[6.1]AWNED SEDGE
Carex atherodes

[5.1]KENTUCKY BLUEGRASS
Poa pratensis

[3.3]PRAIRIE SEDGE
Carex prairea

[2.6]TUFTED HAIR GRASS
Deschampsia cespitosa

[2.6]TIMOTHY
Phleum pratense

[1.5]SLENDER WHEAT GRASS
Agropyron trachycaulum

Environmental Variables

Moisture Regime: Hygric (moist) (1), Mesic (fresh) (1), Subhygric (moderately moist) (1)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (1), Permesotrophic (rich) (1)

Elevation (range): 925 (790-1060) M

Slope (%): nearly level (1), level (2)

Aspect: Easterly (1), Level (1)

Topographic Position:Level (2)

Soil Variables

Soil Drainage: Imperfectly drained (1), Moderately well drained (1), Well drained (1)

Soil Subgroup: GLEYSOL (1), REGOSOL (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material: Lacustrine (1), Fluvial (2)

Soil Type:

Humus Form RHIZOMULL (1)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFb4 Cow parsnip-Veiny meadow rue/Fringed brome (n=3)

(Heracleum lanatum-Thalictrum venulosum/Bromus ciliatus)

This community type occurs at higher elevations on moist, level valley flood plains and fluvial terraces in the Lower Foothills Subregion. The water table is fairly high, but flooding is rare. The soils are nutrient rich and generally have a silt loam texture. This community type is highly productive for both cattle and wildlife but, if left undisturbed, it will quickly be invaded by willow to form the Willow/Slender wheatgrass-Fringed brome community type. This community is often heavily utilized by livestock and is often invaded by timothy, Kentucky bluegrass and clover species.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)
Ecosite Phase: g2 forb meadow

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Medium Shrub (0.5 to 2 m)			
SNOWBERRY (BUCKBRUSH) *(Symphoricarpos occidentalis)*	1.4	0.0-4.3	33
BEAKED WILLOW *(Salix bebbiana)*	3.9	0.0-8.0	67
Tall Forb (>= 30 cm)			
CANADA GOLDENROD *(Solidago canadensis)*	2.0	0.5-4.5	100
COMMON FIREWEED *(Epilobium angustifolium)*	2.4	0.5-4.8	100
WILD VETCH *(Vicia americana)*	2.5	1.0-4.0	100
PURPLE AVENS *(Geum rivale)*	2.6	0.0-8.0	33
TALL LUNGWORT *(Mertensia paniculata)*	4.5	1.0-10.6	100
TALL LARKSPUR *(Delphinium glaucum)*	5.2	1.0-7.7	100
VEINY MEADOW RUE *(Thalictrum venulosum)*	14.1	3.0-30.0	100
COW PARSNIP *(Heracleum lanatum)*	15.2	5.0-20.7	100
Low Forb (< 30 cm)			
ARROW-LEAVED COLTSFOOT *(Petasites sagittatus)*	1.6	0.0-5.0	33
COMMON DANDELION *(Taraxacum officinale)*	6.0	2.0-14.0	100
Graminoid			
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	1.5	0.0-3.7	67
TUFTED HAIR GRASS *(Deschampsia cespitosa)*	2.6	0.0-8.0	33
TIMOTHY *(Phleum pratense)*	2.6	0.0-8.0	33
PRAIRIE SEDGE *(Carex prairea)*	3.3	0.0-5.1	67
KENTUCKY BLUEGRASS *(Poa pratensis)*	5.1	0.0-15.3	33
AWNED SEDGE *(Carex atherodes)*	6.1	1.0-10.0	100
FRINGED BROME *(Bromus ciliatus)*	25.2	5.5-65.0	100

Environmental Variables

Ecological Status Score: 27-40

Moisture Regime: Mesic (fresh) (1), Subhygric (moderately moist) (1), Hygric (moist) (1)

Nutrient Regime: Eutrophic (very rich) (1), Permesotrophic (rich) (1), Mesotrophic (medium) (1)

Elevation (range): 925 (790-1060) M

Slope (%): 0.5 - 2.49 (1), 0 - 0.49 (2)

Aspect: Easterly (1), Level (1)

Topographic Position: Level (2)

Soil Variables

Soil Drainage: Well drained (1), Moderately well drained (1), Imperfectly drained (1)

Soil Subgroup: REGOSOL CUMULIC (1), GLEYSOL REGO (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material: Lacustrine (1), Fluvial (2)

Soil Type:

Humus Form RHIZOMULL (1)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

g3 graminoid meadow (n=19)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)

Characteristic Species

Tree

[1.8]BALSAM POPLAR
Populus balsamifera

Shrub

[3.7]SANDBAR WILLOW
Salix exigua

[3.2]FLAT-LEAVED WILLOW
Salix planifolia

Forb

[4.8]VEINY MEADOW RUE
Thalictrum venulosum

[3.2]TALL LUNGWORT
Mertensia paniculata

[2.8]THREE-FLOWERED AVENS
Geum triflorum

[2.4]WILD STRAWBERRY
Fragaria virginiana

[2.2]TALL LARKSPUR
Delphinium glaucum

[1.9]COMMON DANDELION
Taraxacum officinale

[1.5]WILD VETCH
Vicia americana

[1.2]COMMON FIREWEED
Epilobium angustifolium

Graminoid

[12.7]TUFTED HAIR GRASS*
Deschampsia cespitosa

[7.1]FRINGED BROME
Bromus ciliatus

[5.0]GRACEFUL SEDGE*
Carex praegracilis

[2.6]SEDGE SPECIES
Carex

[2.0]SLENDER WHEAT GRASS
Agropyron trachycaulum

[1.8]CREEPING RED FESCUE
Festuca rubra

[1.3]BLUEJOINT
Calamagrostis canadensis

[1.3]SMALL BOTTLE SEDGE
Carex utriculata

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (2), Hygric (moist) (5), Mesic (fresh) (8), Subhygric (moderately moist) (10)

Nutrient Regime: Submesotrophic (poor) (2), Eutrophic (very rich) (2), Mesotrophic (medium) (5), Permesotrophic (rich) (16)

Elevation (range): 1133.25 (730-1451) M

Slope (%): moderate slope (1), nearly level (7), level (12)

Aspect: Westerly (2), Southerly (3), Level (6), Easterly (9)

Topographic Position:Lower Slope (1), Midslope (2), Depression (4), Level (8)

Soil Variables

Soil Drainage: Poorly drained (2), Well drained (3), Imperfectly drained (4), Moderately well drained (16)

Soil Subgroup: GLEYSOL (1), HUMIC GLEYSOL (1), HUMIC REGOSOL (2)

Surface Texture: Sandy loam (1)

Effective Texture: Sandy clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (6)

Parent Material: Lacustrine (1), Morainal (1), Fluvial (6)

Soil Type: Moist/Fine (1)

Humus Form RHIZOMULL (3)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	5.00	5.00	1

LFb5 Tufted hair grass-Sedge/Veiny meadow rue (n=8)

(Deschampsia cespitosa-Carex spp./Thalictrum venulosum)

This community type occurs at higher elevations in transition to the Upper Foothills subregion on moist, level, valley flood plains and fluvial terraces. The water table is usually high, but flooding is rare. When these sites are protected from grazing, willow and bog birch expand, grasses decline, and taller forbs start to dominate. Past wildfires have played an important role in controlling shrub growth within this community type. Long-term heavy grazing pressure will lead to a community that is dominated by Kentucky bluegrass, clover and dandelion. This community type is very similar to the tufted hair grass-dominated communities described in the Upper Foothills subregion (Willoughby and Smith 1997). The presence of tufted hair grass appears to indicate the transition to the Upper Foothills subregion.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)
Ecosite Phase: g3 graminoid meadow

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
SALIX SPECIES *(Salix)*	2.0	0.0-10.7	51
BALSAM POPLAR *(Populus balsamifera)*	3.7	0.0-30.0	13
FLAT-LEAVED WILLOW *(Salix planifolia)*	6.5	0.0-52.1	13
Tall Forb (>= 30 cm)			
LINDLEY'S ASTER *(Aster ciliolatus)*	1.4	0.0-4.0	63
VEINY MEADOW RUE *(Thalictrum venulosum)*	1.4	0.0-5.0	38
PURPLE AVENS *(Geum rivale)*	2.0	0.0-15.0	25
TALL LARKSPUR *(Delphinium glaucum)*	3.1	0.0-25.0	13
Low Forb (< 30 cm)			
WHITE CLOVER *(Trifolium repens)*	1.4	0.0-5.1	38
WILD STRAWBERRY *(Fragaria virginiana)*	1.6	0.0-4.3	63
ARROW-LEAVED COLTSFOOT *(Petasites sagittatus)*	1.8	0.0-11.0	38
Graminoid			
CALIFORNIA OAT GRASS *(Danthonia californica)*	1.2	0.0-10.1	13
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	1.4	0.0-6.4	63
KENTUCKY BLUEGRASS *(Poa pratensis)*	1.9	0.0-8.7	50
BLUEJOINT *(Calamagrostis canadensis)*	2.6	0.0-13.7	25
SMALL BOTTLE SEDGE *(Carex utriculata)*	2.7	0.0-21.7	13
CREEPING RED FESCUE *(Festuca rubra)*	3.6	0.0-28.7	25
SEDGE SPECIES *(Carex)*	5.2	0.0-16.0	38
TUFTED HAIR GRASS *(Deschampsia cespitosa)*	25.4	4.3-68.7	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Mesic (fresh) (1), Subhygric (moderately moist) (2), Subhydric (moderately wet) (2), Hygric (moist) (3)

Nutrient Regime: Submesotrophic (poor) (2), Mesotrophic (medium) (2), Eutrophic (very rich) (2), Permesotrophic (rich) (3)

Elevation (range): 1269 (914-1451) M

Slope (%): 10 - 15.99 (1), 0.5 - 2.49 (2), 0 - 0.49 (5)

Aspect: Southerly (1), Easterly (2), Level (4)

Topographic Position: Lower Slope (1), Level (2), Midslope (2), Depression (3)

Soil Variables

Soil Drainage: Well drained (1), Imperfectly drained (2), Poorly drained (2), Moderately well drained (3)

Soil Subgroup: GLEYSOL REGO (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Lacustrine (1)

Soil Type:

Humus Form RHIZOMULL (1)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFb6 Sedge/Veiny meadow rue (n=6)

(Carex spp./Thalictrum venulosum)

This community type was described on fluvial deposits adjacent to numerous creeks throughout West-Central Alberta. It is similar to the Cow parsnip/Veiny meadow rue community previously described, but lacks the cover of cow parsnip. The lack of cow parsnip and presence of upland sedge species appears to indicate slightly better drainage. It is likely that this community will succeed to a willow dominated community in the absence of disturbance.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: g meadow (subhygric/very rich)
Ecosite Phase: g3 graminoid meadow

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
ASPEN *(Populus tremuloides)*	1.3	0.0-8.0	17
Tall Shrub (2 to 5m)			
SANDBAR WILLOW *(Salix exigua)*	7.5	0.0-45.0	17
Tall Forb (>= 30 cm)			
CANADA GOLDENROD *(Solidago canadensis)*	1.3	0.0-5.0	50
TALL LARKSPUR *(Delphinium glaucum)*	1.4	0.0-4.0	67
WESTERN MEADOW RUE *(Thalictrum occidentale)*	1.6	0.0-10.0	17
COMMON FIREWEED *(Epilobium angustifolium)*	2.5	0.0-9.0	50
WILD VETCH *(Vicia americana)*	3.0	0.0-7.0	83
TALL LUNGWORT *(Mertensia paniculata)*	6.4	0.5-20.0	100
VEINY MEADOW RUE *(Thalictrum venulosum)*	8.3	0.0-17.0	83
Low Forb (< 30 cm)			
COMMON YARROW *(Achillea millefolium)*	3.1	0.0-10.0	83
WILD STRAWBERRY *(Fragaria virginiana)*	3.3	1.0-10.0	100
COMMON DANDELION *(Taraxacum officinale)*	3.8	0.0-8.0	67
THREE-FLOWERED AVENS *(Geum triflorum)*	5.6	0.0-18.0	33
Graminoid			
PURPLE OAT GRASS *(Schizachne purpurascens)*	1.3	0.0-4.0	33
HAIRY WILD RYE *(Elymus innovatus)*	1.5	0.0-8.0	33
FEW-FLOWERED SEDGE *(Carex pauciflora)*	1.6	0.0-10.0	17
SLENDER WHEAT GRASS *(Agropyron trachycaulum)*	2.6	0.5-8.0	100
GRACEFUL SEDGE *(Carex praegracilis)*	10.1	0.0-61.0	17
FRINGED BROME *(Bromus ciliatus)*	14.3	4.0-20.0	100

Environmental Variables

Ecological Status Score: 27-40

Moisture Regime: Mesic (fresh) (1), Hygric (moist) (1), Subhygric (moderately moist) (4)

Nutrient Regime: Permesotrophic (rich) (2), Mesotrophic (medium) (2)

Elevation (range): 972 (730-1210) M

Slope (%): 0.5 - 2.49 (2), 0 - 0.49 (3)

Aspect: Westerly (1), Easterly (1), Level (2)

Topographic Position: Depression (1), Level (2)

Soil Variables

Soil Drainage: Well drained (1), Imperfectly drained (1), Moderately well drained (3)

Soil Subgroup: HUMIC REGOSOL GLEYED CUMULIC (1), HUMIC REGOSOL CUMULIC (1), HUMIC GLEYSOL REGO (1)

Surface Texture: Sandy loam (1)

Effective Texture: Sandy clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (5)

Parent Material: Morainal (1), Fluvial (6)

Soil Type: Moist/Fine (1)

Humus Form RHIZOMULL (2)

LFH Thickness	Mean	Min	Max	Count
cm:	5.00	5.00	5.00	1

h Labrador tea (subhygric/poor) (n=105)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The Labrador tea-subhygric ecosite has a nutrient poor substrate with imperfectly to very poorly drained soils. Labrador tea and bog cranberry are indicative of the relatively acidic surface soil conditions. It usually occurs on fine-textured morainal parent materials where wet soil conditions promote the development of Gleysolic soils. While the Labrador tea-subhygric ecosite has plant community types similar to the Labrador tea-mesic ecosite (d), the subhygric ecosite tends to occur in lower topographic positions, has mottles in the top 25 cm of soil, has a thicker organic layer, and may be dominated by black spruce rather than pine. High soil water content associated with this ecosite creates a greater risk of site modification if operations occur in months when the soil is not frozen.

Site Index at 50 Years

	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	14.70	0.00	1
LODGEPOLE PINE *(Pinus contorta)*	15.00	0.20	276
BLACK SPRUCE *(Picea mariana)*	11.10	0.50	32
BALSAM POPLAR *(Populus balsamifera)*	7.10	0.00	1
ASPEN *(Populus tremuloides)*	18.50	0.40	18

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (13), Mesic (fresh) (19), Hygric (moist) (27), Subhygric (moderately moist) (39)

Nutrient Regime: Permesotrophic (rich) (9), Mesotrophic (medium) (43), Submesotrophic (poor) (48)

Elevation (range): 1037.33 (869-1450) M

Slope (%): strong slope (1), very strong slope (2), moderate slope (3), gentle slope (6), level (26), very gentle slope (28), nearly level (33)

Aspect: Southerly (8), Easterly (9), Level (16), Westerly (18), Northerly (31)

Topographic Position:Depression (1), Upper Slope (2), Crest (4), Lower Slope (8), Midslope (18), Level (22)

Successional Relationships

Young and mature stands developing in this ecosite often have a component of black spruce. The black spruce is often the same age as the pine but forms a secondary canopy due to slower growth rates. Successionally mature stands are dominated by black spruce with a small component of old residual pine.

Soil Variables

Soil Drainage: Well drained (2), Very poorly drained (5), Moderately well drained (8), Poorly drained (22), Imperfectly drained (64)

Soil Subgroup: DYSTRIC BRUNISOL (2), HUMIC GLEYSOL (2), EUTRIC BRUNISOL (9), GLEYSOL (18), LUVIC GLEYSOL (33), GRAY LUVISOL (34)

Surface Texture: Fine sand (1), Fine Sandy Clay Loam (1), Humic (1), Loamy fine sand (1), Loamy sand (2), Fibric (2), Sandy loam (2), Very fine sandy loam (2), Silt (3), Sandy clay loam (3), Clay (4), Sand (5), Silty clay (6), Clay loam (10), Loam (11), Silt loam (14), Silty clay loam (16)

Effective Texture: Humic (1), Sandy loam (1), Very Fine Sandy Clay (1), Loamy sand (2), Sandy clay (3), Sand (4), Loam (4), Silt loam (4), Heavy clay (6), Sandy clay loam (6), Silty clay (8), Silty clay loam (10), Clay loam (15), Clay (18)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (7), 0 - 25 (35)

Organic Thickness: 40 - 59 cm (1), 6 - 15 cm (1), 16 - 25 cm (3), 0 - 5 cm (100)

Parent Material: Fen (1), Fluviolacustrine (1), Saprolite (1), Rock (3), Lacustrine (6), Fluvial (9), Eolian (10), Glaciofluvial (14), Glaciolacustrine (23), Morainal (63)

Soil Type: Moist/Silty-Loamy (2), Moist/Coarse (3), Moist/Sandy (4), Moist/Peaty (8), Wet/Peaty (9), Wet/Mineral (12), Moist/Fine (39)

Humus Form FIBRIC PEATYMOR (1), HUMIC PEATYMOR (1), MESIC PEATYMOR (1), MODER (1), PEATYMOR (1), MOR (2), HUMIFIBRIMOR (4), FIBRIMOR (10), FIBRIHUMIMOR (11)

Indicator Species

Tree

BLACK SPRUCE
Picea mariana

LODGEPOLE PINE
Pinus contorta

Shrub

COMMON LABRADOR TEA
Ledum groenlandicum

BOG CRANBERRY
Vaccinium vitis-idaea

GREEN ALDER
Alnus crispa

Lichen

REINDEER LICHEN
Cladina mitis

Moss and Liverwort

STAIR-STEP MOSS
Hylocomium splendens

SCHREBER'S MOSS
Pleurozium schreberi

LFH Thickness

	Mean	Min	Max	Count
cm:	10.33	1.00	30.00	80

h1 Labrador tea-subhygric Sb-Pl (n=105)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: h Labrador tea (subhygric/poor)

Characteristic Species

Tree

[206]LODGEPOLE PINE*
Pinus contorta

[23.3]BLACK SPRUCE*
Picea mariana

Shrub

[14.1]COMMON LABRADOR TEA*
Ledum groenlandicum

[7.0]BOG CRANBERRY*
Vaccinium vitis-idaea

[5.4]COMMON BLUEBERRY
Vaccinium myrtilloides

[3.7]BUNCHBERRY
Cornus canadensis

[3.2]GREEN ALDER*
Alnus crispa

[1.8]PRICKLY ROSE
Rosa acicularis

[1.5]TWINFLOWER
Linnaea borealis

Lichen

[1.1]REINDEER LICHEN*
Cladina mitis

Moss and Liverwort

[34.2]SCHREBER'S MOSS*
Pleurozium schreberi

[20.2]STAIR-STEP MOSS*
Hylocomium splendens

[19.3]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (13), Mesic (fresh) (19), Hygric (moist) (27), Subhygric (moderately moist) (39)

Nutrient Regime: Permesotrophic (rich) (9), Mesotrophic (medium) (43), Submesotrophic (poor) (48)

Elevation (range): 1037.33 (869-1450) M

Slope (%): strong slope (1), very strong slope (2), moderate slope (3), gentle slope (6), level (26), very gentle slope (28), nearly level (33)

Aspect: Southerly (8), Easterly (9), Level (16), Westerly (18), Northerly (31)

Topographic Position:Depression (1), Upper Slope (2), Crest (4), Lower Slope (8), Midslope (18), Level (22)

Soil Variables

Soil Drainage: Well drained (2), Very poorly drained (5), Moderately well drained (8), Poorly drained (22), Imperfectly drained (64)

Soil Subgroup: HUMIC GLEYSOL (2), DYSTRIC BRUNISOL (2), EUTRIC BRUNISOL (9), GLEYSOL (18), LUVIC GLEYSOL (33), GRAY LUVISOL (34)

Surface Texture: Fine sand (1), Fine Sandy Clay Loam (1), Humic (1), Loamy fine sand (1), Very fine sandy loam (2), Sandy loam (2), Loamy sand (2), Fibric (2), Sandy clay loam (3), Silt (3), Clay (4), Sand (5), Silty clay (6), Clay loam (10), Loam (11), Silt loam (14), Silty clay loam (16)

Effective Texture: Humic (1), Sandy loam (1), Very Fine Sandy Clay (1), Loamy sand (2), Sandy clay (3), Silt loam (4), Sand (4), Loam (4), Sandy clay loam (6), Heavy clay (6), Silty clay (8), Silty clay loam (10), Clay loam (15), Clay (18)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (7), 0 - 25 (35)

Organic Thickness: 40 - 59 cm (1), 6 - 15 cm (1), 16 - 25 cm (3), 0 - 5 cm (100)

Parent Material: Fen (1), Fluviolacustrine (1), Saprolite (1), Rock (3), Lacustrine (6), Fluvial (9), Eolian (10), Glaciofluvial (14), Glaciolacustrine (23), Morainal (63)

Soil Type: Moist/Silty-Loamy (2), Moist/Coarse (3), Moist/Sandy (4), Moist/Peaty (8), Wet/Peaty (9), Wet/Mineral (12), Moist/Fine (39)

Humus Form FIBRIC PEATYMOR (1), HUMIC PEATYMOR (1), MESIC PEATYMOR (1), MODER (1), PEATYMOR (1), MOR (2), HUMIFIBRIMOR (4), FIBRIMOR (10), FIBRIHUMIMOR (11)

LFH Thickness	Mean	Min	Max	Count
cm:	10.33	1.00	30.00	80

LFj16 Sb-Pl/Feather moss (n=35)

(Picea mariana-Pinus contorta/Pleurozium schreberi)

This community type is characterized by dense coniferous forest cover and sparse understory cover. The sites that this community type occur on are moist in the spring and dry out, somewhat, later in the growing season. According to Corns and Annas (1986), these forests are rare due to the high fire frequency. They are part of the Labrador tea ecosite described by Beckinham et al (1996). This ecosite generally has a subhygric moisture regime and relatively acidic surface soil conditions.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: h Labrador tea (subhygric/poor)
Ecosite Phase: h1 Labrador tea-subhygric Sb-Pl

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE BIRCH *(Betula papyrifera)*	1.4	0.0-30.0	6
BLACK SPRUCE *(Picea mariana)*	16.6	0.0-60.0	71
LODGEPOLE PINE *(Pinus contorta)*	17.6	0.0-45.0	89
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	1.6	0.0-25.0	26
BLACK SPRUCE *(Picea mariana)*	10.8	0.0-40.0	77
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	1.9	0.0-12.0	71
TWINFLOWER *(Linnaea borealis)*	2.1	0.0-12.0	89
PRICKLY ROSE *(Rosa acicularis)*	2.4	0.0-12.0	80
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	2.9	0.0-25.0	71
COMMON LABRADOR TEA *(Ledum groenlandicum)*	3.9	0.0-45.0	89
BOG CRANBERRY *(Vaccinium vitis-idaea)*	4.6	0.0-40.0	69
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	4.8	0.0-15.0	89
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	20.4	1.0-75.0	100
STAIR-STEP MOSS *(Hylocomium splendens)*	21.3	0.0-75.0	89
SCHREBER'S MOSS *(Pleurozium schreberi)*	35.8	5.0-75.0	100

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (4), Subhydric (moderately wet) (6), Mesic (fresh) (9), Subhygric (moderately moist) (14)

Nutrient Regime: Permesotrophic (rich) (2), Submesotrophic (poor) (15), Mesotrophic (medium) (16)

Elevation (range): 1033 (869-1354) M

Slope (%): 31 - 45.99 (1), 10 - 15.99 (1), 6 - 9.99 (2), 0 - 0.49 (7), 2.5 - 5.99 (10), 0.5 - 2.49 (12)

Aspect: Easterly (2), Southerly (2), Westerly (6), Level (8), Northerly (12)

Topographic Position: Upper Slope (1), Crest (1), Lower Slope (4), Midslope (6), Level (8)

Soil Variables

Soil Drainage: Well drained (2), Moderately well drained (4), Poorly drained (9), Imperfectly drained (19)

Soil Subgroup: EUTRIC BRUNISOL GLEYED (1), EUTRIC BRUNISOL ELUVIATED (1), EUTRIC BRUNISOL GLEYED ELUVIATED (2), GRAY LUVISOL BRUNISOLIC (2), GRAY LUVISOL ORTHIC (4), GLEYSOL ORTHIC (5), LUVIC GLEYSOL ORTHIC (7), GRAY LUVISOL GLEYED (9)

Surface Texture: Sand (1), Sandy clay loam (1), Very fine sandy loam (1), Fine Sandy Clay Loam (1), Loamy sand (1), Clay (2), Loam (3), Silty clay (3), Clay loam (4), Silt loam (4), Silty clay loam (8)

Effective Texture: Sand (1), Silt loam (1), Sandy clay loam (2), Loam (2), Heavy clay (3), Silty clay loam (3), Clay loam (5), Silty clay (5), Clay (6)

Depth to Mottles/Gley: 0 - 25 (15)

Organic Thickness: 0 - 5 cm (35)

Parent Material: Eolian (2), Rock (2), Glaciofluvial (2), Fluvial (3), Lacustrine (4), Glaciolacustrine (5), Morainal (21)

Soil Type: Wet/Peaty (1), Moist/Sandy (1), Moist/Peaty (2), Moist/Silty-Loamy (2), Wet/Mineral (4), Moist/Fine (18)

Humus Form HUMIFIBRIMOR (2), FIBRIMOR (4), FIBRIHUMIMOR (6)

LFH Thickness	Mean	Min	Max	Count
cm:	10.00	1.00	30.00	29

LFj27 Sb-Pl/Labrador tea/Feather moss (n=60)

(Picea mariana-Pinus contorta/Ledum groenlandicum/Pleurozium schreberi)

This community is similar to the Pl-Sb/Labrador tea-mesic community, but is found on more subhygric sites with Gleysolic soils. This community is dominated by Labrador tea and feather moss in the understory. Succession in the absence of disturbance will be to black spruce.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: h Labrador tea (subhygric/poor)
Ecosite Phase: h1 Labrador tea-subhygric Sb-Pl

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	13.1	0.0-75.0	63
LODGEPOLE PINE *(Pinus contorta)*	16.6	0.0-63.0	82
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	11.3	0.0-63.0	75
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	1.6	0.0-15.0	70
TWINFLOWER *(Linnaea borealis)*	2.5	0.0-15.0	77
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	5.1	0.0-60.0	68
BOG CRANBERRY *(Vaccinium vitis-idaea)*	6.7	0.0-29.0	80
COMMON LABRADOR TEA *(Ledum groenlandicum)*	23.2	0.0-88.0	97
Low Shrub (< 0.5m)			
DWARF BRAMBLE *(Rubus pedatus)*	1.5	0.0-25.0	13
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.5	0.0-10.0	75
Graminoid			
HAIRY WILD RYE *(Elymus innovatus)*	1.1	0.0-15.0	37
Moss			
STAIR-STEP MOSS *(Hylocomium splendens)*	19.7	0.0-90.0	77
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	20.3	0.0-85.0	80
SCHREBER'S MOSS *(Pleurozium schreberi)*	32.3	0.0-85.0	90
Lichen			
REINDEER LICHEN *(Cladina mitis)*	1.5	0.0-70.0	22

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhydric (moderately wet) (6), Mesic (fresh) (8), Hygric (moist) (20), Subhygric (moderately moist) (22)

Nutrient Regime: Permesotrophic (rich) (5), Mesotrophic (medium) (24), Submesotrophic (poor) (28)

Elevation (range): 995 (892-1450) M

Slope (%): 31 - 45.99 (1), 16 - 30.99 (1), 10 - 15.99 (2), 6 - 9.99 (3), 2.5 - 5.99 (15), 0.5 - 2.49 (16), 0 - 0.49 (18)

Aspect: Southerly (5), Easterly (6), Level (7), Westerly (8), Northerly (17)

Topographic Position: Depression (1), Upper Slope (1), Lower Slope (3), Crest (3), Midslope (10), Level (11)

Soil Variables

Soil Drainage: Moderately well drained (3), Very poorly drained (5), Poorly drained (11), Imperfectly drained (38)

Soil Subgroup: GRAY LUVISOL ORTHIC (1), GRAY LUVISOL BRUNISOLIC (1), EUTRIC BRUNISOL ELUVIATED (1), GRAY LUVISOL DARK (1), DYSTRIC BRUNISOL ELUVIATED (2), HUMIC GLEYSOL ORTHIC (2), LUVIC GLEYSOL HUMIC (2), GRAY LUVISOL GLEYED DARK (3), GLEYSOL REGO (4), EUTRIC BRUNISOL GLEYED ELUVIATED (4), GRAY LUVISOL GLEYED BRUNISOLIC (4), GRAY LUVISOL GLEYED (5), GLEYSOL ORTHIC (7), LUVIC GLEYSOL ORTHIC (20)

Surface Texture: Loamy sand (1), Sandy loam (1), Fine sand (1), Loamy fine sand (1), Humic (1), Very fine sandy loam (1), Clay (2), Fibric (2), Sandy clay loam (2), Sand (3), Silt (3), Silty clay (3), Clay loam (4), Silt loam (6), Loam (7), Silty clay loam (8)

Effective Texture: Loamy sand (1), Sandy loam (1), Humic (1), Very Fine Sandy Clay (1), Silt loam (2), Sandy clay (2), Loam (2), Heavy clay (2), Sand (3), Sandy clay loam (3), Silty clay (3), Silty clay loam (6), Clay loam (9), Clay (10)

Depth to Mottles/Gley: 26 - 50 (7), 0 - 25 (14)

Organic Thickness: 6 - 15 cm (1), 40 - 59 cm (1), 16 - 25 cm (3), 0 - 5 cm (55)

Parent Material: Fluviolacustrine (1), Fen (1), Rock (1), Saprolite (1), Lacustrine (2), Fluvial (6), Eolian (8), Glaciofluvial (10), Glaciolacustrine (17), Morainal (34)

Soil Type: Moist/Sandy (2), Moist/Coarse (3), Wet/Mineral (4), Moist/Peaty (5), Wet/Peaty (8), Moist/Fine (18)

Humus Form MODER (1), PEATYMOR (1), HUMIFIBRIMOR (1), MESIC PEATYMOR (1), FIBRIC PEATYMOR (1), HUMIC PEATYMOR (1), MOR (2), FIBRIHUMIMOR (4), FIBRIMOR (5)

LFH Thickness	Mean	Min	Max	Count
cm:	11.00	2.00	30.00	42

LFj28 Sb-Pl/Green alder/Feather moss (n=10)

(Picea mariana-Pinus contorta/Alnus crispa/Pleurozium schreberi)

This community type is not common in the Lower Foothills subregion. The understory tends to be dominated by feather moss species. Green alder is present in this community type, but the cover tends to be quite low because the sites are too wet and poorly drained. Succession in the absence of disturbance will be to black spruce.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: h Labrador tea (subhygric/poor)
Ecosite Phase: h1 Labrador tea-subhygric Sb-Pl

Plant Composition

	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	3.7	0.0-20.0	40
LODGEPOLE PINE *(Pinus contorta)*	24.2	5.0-40.0	100
Understory Tree			
LODGEPOLE PINE *(Pinus contorta)*	2.2	0.0-5.0	60
BLACK SPRUCE *(Picea mariana)*	8.5	0.0-35.0	80
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	8.5	0.0-30.0	80
Medium Shrub (0.5 to 2 m)			
GREEN ALDER *(Alnus crispa)*	1.3	0.0-5.0	40
PRICKLY ROSE *(Rosa acicularis)*	1.6	0.0-3.0	80
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	8.4	0.0-35.0	90
BOG CRANBERRY *(Vaccinium vitis-idaea)*	9.8	0.0-25.0	80
COMMON LABRADOR TEA *(Ledum groenlandicum)*	15.4	1.0-40.0	100
Tall Forb (>= 30 cm)			
COMMON FIREWEED *(Epilobium angustifolium)*	1.7	0.0-5.0	80
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	6.5	3.0-15.0	100
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	1.4	0.0-5.0	40
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	17.4	1.0-41.0	100
STAIR-STEP MOSS *(Hylocomium splendens)*	19.6	0.0-80.0	90
SCHREBER'S MOSS *(Pleurozium schreberi)*	34.6	3.0-80.0	100
Lichen			
REINDEER LICHEN *(Cladina mitis)*	1.8	0.0-15.0	30
N/A *(Cladonia gracilis)*	2.1	0.0-20.0	20

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhydric (moderately wet) (1), Mesic (fresh) (2), Hygric (moist) (3), Subhygric (moderately moist) (3)

Nutrient Regime: Permesotrophic (rich) (2), Mesotrophic (medium) (3), Submesotrophic (poor) (5)

Elevation (range): 1084 (869-1340) M

Slope (%): 0 - 0.49 (1), 6 - 9.99 (1), 2.5 - 5.99 (3), 0.5 - 2.49 (5)

Aspect: Easterly (1), Southerly (1), Level (1), Northerly (2), Westerly (4)

Topographic Position: Lower Slope (1), Midslope (2), Level (3)

Soil Variables

Soil Drainage: Moderately well drained (1), Poorly drained (2), Imperfectly drained (7)

Soil Subgroup: LUVIC GLEYSOL HUMIC (1), GRAY LUVISOL BRUNISOLIC (1), GRAY LUVISOL GLEYED (1), GRAY LUVISOL GLEYED BRUNISOLIC (2), GLEYSOL ORTHIC (2), LUVIC GLEYSOL ORTHIC (3)

Surface Texture: Sandy loam (1), Loam (1), Sand (1), Clay loam (2), Silt loam (4)

Effective Texture: Clay loam (1), Heavy clay (1), Loamy sand (1), Sandy clay (1), Sandy clay loam (1), Silty clay loam (1), Silt loam (1), Clay (2)

Depth to Mottles/Gley: 51 - 100 (1), 0 - 25 (6)

Organic Thickness: 0 - 5 cm (10)

Parent Material: Glaciolacustrine (1), Glaciofluvial (2), Morainal (8)

Soil Type: Moist/Sandy (1), Moist/Peaty (1), Moist/Fine (3), Wet/Mineral (4)

Humus Form FIBRIMOR (1), HUMIFIBRIMOR (1), FIBRIHUMIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	10.00	4.00	26.00	9

i horsetail (hygric/rich) (n=60)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The horsetail ecosite is wet and nutrient rich. These sites are commonly found on fluvial or glaciolacustrine parent materials where flooding or seepage enhances the substrate nutrient supply. With high water tables, wet soil conditions, and Gleysolic soils, organic matter tends to accumulate. Horsetails commonly form a blanket over the forest floor and marsh reed grass was abundant on approximately half the plots sampled

Successional Relationships

Succession on these sites is largely controlled by high soil water content. Some sites that have peaty soils may have taken hundreds of years to develop. When the trees are removed, the water table may rise making tree establishment difficult. White spruce forms the canopy in the last successional stage.

Indicator Species

Tree

BALSAM FIR
Abies balsamea

WHITE BIRCH
Betula papyrifera

WHITE SPRUCE
Picea glauca

BALSAM POPLAR
Populus balsamifera

ASPEN
Populus tremuloides

Shrub

PRICKLY ROSE
Rosa acicularis

SCOULER'S WILLOW
Salix scouleriana

SALIX SPECIES
Salix

RIVER ALDER
Alnus tenuifolia

Forb

COMMON HORSETAIL
Equisetum arvense

MEADOW HORSETAIL
Equisetum pratense

WOODLAND HORSETAIL
Equisetum sylvaticum

COW PARSNIP
Heracleum lanatum

NARROW SPINULOSE SHIELD FERN
Dryopteris carthusiana

Graminoid

BLUEJOINT
Calamagrostis canadensis

Site Index at 50 Years	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	15.80	0.50	83
LODGEPOLE PINE *(Pinus contorta)*	16.70	1.60	6
BLACK SPRUCE *(Picea mariana)*	15.50	0.90	7
BALSAM POPLAR *(Populus balsamifera)*	25.80	1.20	2
ASPEN *(Populus tremuloides)*	23.10	0.10	3

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (8), Mesic (fresh) (10), Hygric (moist) (13), Subhygric (moderately moist) (23)

Nutrient Regime: Mesotrophic (medium) (8), Eutrophic (very rich) (11), Permesotrophic (rich) (34)

Elevation (range): 959.25 (660-1450) M

Slope (%): very strong slope (1), strong slope (2), gentle slope (2), moderate slope (4), very gentle slope (7), nearly level (14), level (21)

Aspect: Westerly (1), Level (7), Southerly (8), Easterly (9), Northerly (9)

Topographic Position:Toe (1), Upper Slope (1), Midslope (5), Lower Slope (6), Depression (6), Level (14)

Soil Variables

Soil Drainage: Very poorly drained (4), Well drained (6), Imperfectly drained (13), Poorly drained (14), Moderately well drained (19)

Soil Subgroup: GRAY LUVISOL (1), DYSTRIC BRUNISOL (2), GLEYSOL (3), EUTRIC BRUNISOL (4), HUMIC GLEYSOL (7), LUVIC GLEYSOL (7), REGOSOL (13)

Surface Texture: Clay loam (1), Fibric (1), Fine sandy loam (1), Sandy clay loam (1), Silty clay loam (1), Silty clay (2), Loam (2), Sand (2), Sandy loam (2), Humic (3), Silt (5), Silt loam (5)

Effective Texture: Fine sand (1), Loam (1), Loamy sand (1), Mesic (1), Very fine sandy loam (1), Clay loam (2), Sand (2), Sandy loam (2), Silt (2), Silt loam (3), Sandy clay loam (3), Clay (3), Silty clay (4)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (2)

Organic Thickness: 26 - 39 cm (2), 40 - 59 cm (2), 0 - 5 cm (44)

Parent Material: Fluvioeolian (1), Rock (1), Undifferentiated Organic (2), Fluviolacustrine (2), Glaciofluvial (2), Lacustrine (3), Morainal (8), Glaciolacustrine (10), Fluvial (24)

Soil Type: Dry/Sandy (1), Dry/Silty-Loamy (1), Moist/Peaty (2), Moist/Sandy (3), Moist/Silty-Loamy (3), Wet/Mineral (3), Wet/Peaty (4), Moist/Fine (8)

Humus Form HUMIC PEATYMOR (1), HUMIFIBRIMOR (1), HUMIMOR (1), PEATYMOR (1), RAW MODER (1), ANMOOR (1), TYPICAL MODER (1), FIBRIHUMIMOR (2), FIBRIMOR (2), RHIZOMULL (2)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	2.00	36.00	21

i1 horsetail Pb-Aw (n=18)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)

Characteristic Species

Tree

[29.4]ASPEN*
Populus tremuloides

[7.6]BALSAM POPLAR*
Populus balsamifera

[6.0]WHITE BIRCH
Betula papyrifera

[2.2]WHITE SPRUCE
Picea glauca

Shrub

[11.3]PRICKLY ROSE*
Rosa acicularis

[2.3]GREEN ALDER
Alnus crispa

[2.2]BRACTED HONEYSUCKLE
Lonicera involucrata

Forb

[15.0]COMMON HORSETAIL*
Equisetum arvense

[6.2]COMMON FIREWEED
Epilobium angustifolium

[3.6]WOODLAND HORSETAIL*
Equisetum sylvaticum

[3.2]TALL LUNGWORT
Mertensia paniculata

[3.1]PALMATE-LEAVED COLTSFOOT
Petasites palmatus

[2.1]LINDLEY'S ASTER
Aster ciliolatus

[2.0]WILD STRAWBERRY
Fragaria virginiana

[2.0]MEADOW HORSETAIL*
Equisetum pratense

[1.8]CREAM-COLORED VETCHLING
Lathyrus ochroleucus

[1.7]WESTERN CANADA VIOLET
Viola canadensis

[1.3]WILD SARSAPARILLA
Aralia nudicaulis

[1.1]COW PARSNIP*
Heracleum lanatum

Graminoid

[15.2]BLUEJOINT*
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Hygric (moist) (3), Subhygric (moderately moist) (5), Mesic (fresh) (6)

Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (12)

Elevation (range): 999 (869-1450) M

Slope (%): gentle slope (1), strong slope (1), very gentle slope (2), moderate slope (2), level (3), nearly level (5)

Aspect: Northerly (2), Level (2), Easterly (3), Southerly (5)

Topographic Position:Lower Slope (1), Depression (2), Midslope (3), Level (4)

Soil Variables

Soil Drainage: Poorly drained (1), Well drained (2), Very poorly drained (2), Imperfectly drained (4), Moderately well drained (6)

Soil Subgroup: HUMIC GLEYSOL (1), REGOSOL (2), LUVIC GLEYSOL (2), EUTRIC BRUNISOL (2)

Surface Texture: Sand (1), Silt loam (1), Silty clay (1), Silty clay loam (1), Loam (2)

Effective Texture: Clay (1), Loamy sand (1), Sand (1), Sandy clay loam (1), Silt loam (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (12)

Parent Material: Fluviolacustrine (1), Glaciofluvial (1), Lacustrine (1), Morainal (1), Glaciolacustrine (4), Fluvial (5)

Soil Type: Dry/Silty-Loamy (1), Wet/Mineral (1), Moist/Sandy (2), Moist/Fine (2)

Humus Form FIBRIHUMIMOR (1), RHIZOMULL (1), TYPICAL MODER (1)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	3.00	13.00	5

LFe16 Aw-Pb/Rose/Horsetail (n=18)

(Populus tremuloides-Populus balsamifera/Rosa acicularis/Equisetum arvense)

This community type is moister and richer than the modal Aw/Rose/Low Forbs and Aw/Rose/Tall Forbs community types. It is similar to Beckingham et al (1996) Aw-Pb/Horsetail community type and will likely succeed to the Sw/Horsetail/Step Moss ecosystem association of Corns and Annas (1986).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)
Ecosite Phase: i1 horsetail Pb-Aw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
WHITE BIRCH *(Betula papyrifera)*	6.0	0.0-40.0	28
BALSAM POPLAR *(Populus balsamifera)*	7.6	0.0-80.0	44
ASPEN *(Populus tremuloides)*	29.4	0.0-65.0	67
Understory Tree			
ASPEN *(Populus tremuloides)*	1.1	0.0-10.0	28
WHITE SPRUCE *(Picea glauca)*	2.2	0.0-15.0	33
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	2.3	0.0-15.0	33
Medium Shrub (0.5 to 2 m)			
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.2	0.0-12.0	50
PRICKLY ROSE *(Rosa acicularis)*	11.3	0.0-40.0	89
Tall Forb (>= 30 cm)			
COW PARSNIP *(Heracleum lanatum)*	1.1	0.0-8.0	33
WILD SARSAPARILLA *(Aralia nudicaulis)*	1.3	0.0-11.2	28
CREAM-COLORED VETCHLING *(Lathyrus ochroleucus)*	1.8	0.0-8.9	50
MEADOW HORSETAIL *(Equisetum pratense)*	2.0	0.0-20.0	22
LINDLEY'S ASTER *(Aster ciliolatus)*	2.1	0.0-7.0	67
TALL LUNGWORT *(Mertensia paniculata)*	3.2	0.0-23.2	83
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	3.6	0.0-20.0	28
COMMON FIREWEED *(Epilobium angustifolium)*	6.2	0.0-35.0	67
COMMON HORSETAIL *(Equisetum arvense)*	15.0	0.0-75.0	72
Low Forb (< 30 cm)			
WESTERN CANADA VIOLET *(Viola canadensis)*	1.7	0.0-19.3	33
WILD STRAWBERRY *(Fragaria virginiana)*	2.0	0.0-12.0	78
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	3.1	0.0-25.0	83
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	15.2	0.0-70.0	83

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (3), Subhygric (moderately moist) (5), Mesic (fresh) (6)

Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (12)

Elevation (range): 999 (869-1450) M

Slope (%): 16 - 30.99 (1), 6 - 9.99 (1), 2.5 - 5.99 (2), 10 - 15.99 (2), 0 - 0.49 (3), 0.5 - 2.49 (5)

Aspect: Level (2), Northerly (2), Easterly (3), Southerly (5)

Topographic Position: Lower Slope (1), Depression (2), Midslope (3), Level (4)

Soil Variables

Soil Drainage: Poorly drained (1), Very poorly drained (2), Well drained (2), Imperfectly drained (4), Moderately well drained (6)

Soil Subgroup: LUVIC GLEYSOL HUMIC (1), HUMIC GLEYSOL ORTHIC (1), REGOSOL GLEYED CUMULIC (1), LUVIC GLEYSOL ORTHIC (1), REGOSOL CUMULIC (1), EUTRIC BRUNISOL ORTHIC (2)

Surface Texture: Silt loam (1), Silty clay (1), Silty clay loam (1), Sand (1), Loam (2)

Effective Texture: Clay (1), Loamy sand (1), Sand (1), Sandy clay loam (1), Silt loam (2)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (12)

Parent Material: Lacustrine (1), Fluviolacustrine (1), Glaciofluvial (1), Morainal (1), Glaciolacustrine (4), Fluvial (5)

Soil Type: Wet/Mineral (1), Dry/Silty-Loamy (1), Moist/Sandy (2), Moist/Fine (2)

Humus Form RHIZOMULL (1), TYPICAL MODER (1), FIBRIHUMIMOR (1)

LFH Thickness	Mean	Min	Max	Count
cm:	8.00	3.00	13.00	5

i2 horsetail Pb-Sw (n=6)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)

Characteristic Species

Tree

[19.5]WHITE BIRCH*
Betula papyrifera

[20.8]WHITE SPRUCE
Picea glauca

[5.6]BLACK SPRUCE
Picea mariana

[4.3]BALSAM POPLAR
Populus balsamifera

[4.1]ASPEN
Populus tremuloides

Shrub

[10.8]COMMON LABRADOR TEA
Ledum groenlandicum

[5.0]BOG CRANBERRY
Vaccinium vitis-idaea

[3.8]BRACTED HONEYSUCKLE
Lonicera involucrata

[3.0]PRICKLY ROSE
Rosa acicularis

[2.8]GREEN ALDER
Alnus crispa

Forb

[15.3]COMMON HORSETAIL
Equisetum arvense

[6.5]WOODLAND HORSETAIL
Equisetum sylvaticum

[6.0]MEADOW HORSETAIL
Equisetum pratense

[3.6]TALL LUNGWORT
Mertensia paniculata

[1.6]STIFF CLUB-MOSS
Lycopodium annotinum

[1.5]PALMATE-LEAVED COLTSFOOT
Petasites palmatus

Moss and Liverwort

[11.5]STAIR-STEP MOSS
Hylocomium splendens

[7.8]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[11.3]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Hygric (moist) (1), Subhydric (moderately wet) (2), Subhygric (moderately moist) (3)

Nutrient Regime: Permesotrophic (rich) (6)

Elevation (range): 963 (792-1090) M

Slope (%): level (1), moderate slope (1), nearly level (1), very gentle slope (2)

Aspect: Level (1), Northerly (1), Easterly (3)

Topographic Position:Level (1), Lower Slope (1), Upper Slope (1), Depression (2)

Soil Variables

Soil Drainage: Very poorly drained (1), Poorly drained (2), Moderately well drained (2)

Soil Subgroup: DYSTRIC BRUNISOL (1), REGOSOL (1)

Surface Texture: Silt loam (1)

Effective Texture: Silty clay (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (6)

Parent Material: Morainal (2), Fluvial (2)

Soil Type: Moist/Fine (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	4.00	4.00	4.00	1

LFf15 Pb-Sw/Horsetail (n=6)

(Populus balsamifera-Picea glauca/Equisetum arvense)

This community type is found on moist- rich Gleysolic soils in level and lower slope positions. These sites are characterized by high water tables and will likely succeed to white spruce.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)
Ecosite Phase: i2 horsetail Pb-Sw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
ASPEN *(Populus tremuloides)*	4.1	0.0-25.0	17
BALSAM POPLAR *(Populus balsamifera)*	4.3	0.0-15.0	50
WHITE BIRCH *(Betula papyrifera)*	15.0	0.0-40.0	67
WHITE SPRUCE *(Picea glauca)*	17.3	3.0-30.0	100
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	3.5	0.0-8.0	67
WHITE BIRCH *(Betula papyrifera)*	4.5	0.0-15.0	50
BLACK SPRUCE *(Picea mariana)*	5.6	0.0-29.0	33
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	2.8	0.0-15.0	33
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	3.0	0.0-8.0	83
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	3.8	3.0-5.0	100
BOG CRANBERRY *(Vaccinium vitis-idaea)*	5.0	0.0-29.0	33
COMMON LABRADOR TEA *(Ledum groenlandicum)*	10.8	0.0-63.0	50
Tall Forb (>= 30 cm)			
TALL LUNGWORT *(Mertensia paniculata)*	3.6	0.0-8.0	83
MEADOW HORSETAIL *(Equisetum pratense)*	6.0	0.0-35.0	33
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	6.5	0.0-20.0	50
COMMON HORSETAIL *(Equisetum arvense)*	15.3	0.0-40.0	67
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	1.5	0.0-8.0	33
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.5	0.0-5.0	67
STIFF CLUB-MOSS *(Lycopodium annotinum)*	1.6	0.0-10.0	17
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	11.3	0.0-60.0	67
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	7.8	0.0-42.0	50
STAIR-STEP MOSS *(Hylocomium splendens)*	11.5	0.0-42.0	50

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (1), Subhydric (moderately wet) (2), Subhygric (moderately moist) (3)

Nutrient Regime: Permesotrophic (rich) (6)

Elevation (range): 963 (792-1090) M

Slope (%): 0.5 - 2.49 (1), 0 - 0.49 (1), 10 - 15.99 (1), 2.5 - 5.99 (2)

Aspect: Northerly (1), Level (1), Easterly (3)

Topographic Position: Level (1), Upper Slope (1), Lower Slope (1), Depression (2)

Soil Variables

Soil Drainage: Very poorly drained (1), Moderately well drained (2), Poorly drained (2)

Soil Subgroup: REGOSOL CUMULIC (1), DYSTRIC BRUNISOL ELUVIATED (1)

Surface Texture: Silt loam (1)

Effective Texture: Silty clay (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (6)

Parent Material: Fluvial (2), Morainal (2)

Soil Type: Moist/Fine (1)

Humus Form

LFH Thickness	Mean	Min	Max	Count
cm:	4.00	4.00	4.00	1

i3 horsetail Sw (n=31)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)

Characteristic Species

Tree

[41.1]WHITE SPRUCE*
Picea glauca

[2.6]BLACK SPRUCE
Picea mariana

[1.0]BALSAM FIR*
Abies balsamea

Shrub

[3.8]BUNCHBERRY
Cornus canadensis

[3.2]PRICKLY ROSE
Rosa acicularis

[2.8]BRACTED HONEYSUCKLE
Lonicera involucrata

[2.6]DEWBERRY
Rubus pubescens

[1.8]LOW-BUSH CRANBERRY
Viburnum edule

Forb

[17.9]MEADOW HORSETAIL
Equisetum pratense

[10.5]COMMON HORSETAIL
Equisetum arvense

[3.3]TALL LUNGWORT
Mertensia paniculata

[2.4]BISHOP'S-CAP
Mitella nuda

[2.3]WOODLAND HORSETAIL
Equisetum sylvaticum

[2.1]COMMON FIREWEED
Epilobium angustifolium

[1.7]PALMATE-LEAVED COLTSFOOT
Petasites palmatus

[1.1]DWARF SCOURING-RUSH
Equisetum scirpoides

[1.0]COW PARSNIP
Heracleum lanatum

Moss and Liverwort

[25.7]STAIR-STEP MOSS
Hylocomium splendens

[10.8]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

[7.9]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[8.1]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Mesic (fresh) (4), Subhydric (moderately wet) (5), Hygric (moist) (8), Subhygric (moderately moist) (12)

Nutrient Regime: Mesotrophic (medium) (7), Eutrophic (very rich) (8), Permesotrophic (rich) (14)

Elevation (range): 959 (720-1435) M

Slope (%): gentle slope (1), moderate slope (1), very gentle slope (3), nearly level (8), level (16)

Aspect: Westerly (1), Easterly (2), Southerly (3), Northerly (4), Level (4)

Topographic Position:Toe (1), Depression (2), Lower Slope (4), Level (7)

Soil Variables

Soil Drainage: Very poorly drained (1), Well drained (4), Imperfectly drained (7), Moderately well drained (8), Poorly drained (11)

Soil Subgroup: DYSTRIC BRUNISOL (1), EUTRIC BRUNISOL (2), GLEYSOL (3), LUVIC GLEYSOL (4), HUMIC GLEYSOL (6), REGOSOL (10)

Surface Texture: Clay loam (1), Fibric (1), Fine sandy loam (1), Sand (1), Sandy clay loam (1), Silty clay (1), Sandy loam (2), Humic (3), Silt loam (3), Silt (5)

Effective Texture: Fine sand (1), Loam (1), Mesic (1), Sand (1), Silt loam (1), Very fine sandy loam (1), Sandy loam (2), Silt (2), Sandy clay loam (2), Clay loam (2), Clay (2), Silty clay (3)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (2)

Organic Thickness: 40 - 59 cm (2), 26 - 39 cm (2), 0 - 5 cm (24)

Parent Material: Fluvioeolian (1), Fluviolacustrine (1), Glaciofluvial (1), Rock (1), Undifferentiated Organic (2), Lacustrine (2), Morainal (3), Glaciolacustrine (5), Fluvial (17)

Soil Type: Dry/Sandy (1), Moist/Sandy (1), Wet/Mineral (2), Moist/Peaty (2), Moist/Silty-Loamy (3), Wet/Peaty (4), Moist/Fine (5)

Humus Form ANMOOR (1), FIBRIHUMIMOR (1), HUMIC PEATYMOR (1), HUMIFIBRIMOR (1), HUMIMOR (1), PEATYMOR (1), RAW MODER (1), FIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	12.00	2.00	36.00	15

LFj17 Sw/Horsetail/Feather moss (n=31)

(Picea glauca/Equisetum arvense/Pleurosium schreberi)

This community is wet and nutrient rich, organic material tends to accumulate and forms a blanket of horsetail over the forest floor (Beckingham 1996)..

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)
Ecosite Phase: i3 horsetail Sw

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BALSAM FIR *(Abies balsamea)*	1.0	0.0-3.0	17
BLACK SPRUCE *(Picea mariana)*	2.6	0.0-63.0	16
WHITE SPRUCE *(Picea glauca)*	32.5	0.0-70.0	97
Understory Tree			
WHITE SPRUCE *(Picea glauca)*	7.6	0.0-38.0	74
Medium Shrub (0.5 to 2 m)			
LOW-BUSH CRANBERRY *(Viburnum edule)*	1.8	0.0-10.0	61
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.8	0.0-10.0	74
PRICKLY ROSE *(Rosa acicularis)*	3.2	0.0-15.0	94
Low Shrub (< 0.5m)			
DEWBERRY *(Rubus pubescens)*	2.6	0.0-12.0	81
Tall Forb (>= 30 cm)			
COW PARSNIP *(Heracleum lanatum)*	1.0	0.0-15.0	29
COMMON FIREWEED *(Epilobium angustifolium)*	2.1	0.0-20.0	68
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	2.3	0.0-30.0	29
TALL LUNGWORT *(Mertensia paniculata)*	3.3	0.0-20.0	84
COMMON HORSETAIL *(Equisetum arvense)*	10.5	0.0-42.0	74
MEADOW HORSETAIL *(Equisetum pratense)*	17.9	0.0-70.0	68
Low Forb (< 30 cm)			
DWARF SCOURING-RUSH *(Equisetum scirpoides)*	1.1	0.0-10.0	48
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.7	0.0-6.7	84
BISHOP'S-CAP *(Mitella nuda)*	2.4	0.0-18.0	84
BUNCHBERRY *(Cornus canadensis)*	3.8	0.0-15.0	87
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	8.1	0.0-60.0	74
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	7.9	0.0-40.0	68
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	10.8	0.0-42.0	71
STAIR-STEP MOSS *(Hylocomium splendens)*	25.7	0.0-75.0	77

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Mesic (fresh) (4), Subhydric (moderately wet) (5), Hygric (moist) (8), Subhygric (moderately moist) (12)

Nutrient Regime: Mesotrophic (medium) (7), Eutrophic (very rich) (8), Permesotrophic (rich) (14)

Elevation (range): 959 (720-1435) M

Slope (%): 10 - 15.99 (1), 6 - 9.99 (1), 2.5 - 5.99 (3), 0.5 - 2.49 (8), 0 - 0.49 (16)

Aspect: Westerly (1), Easterly (2), Southerly (3), Level (4), Northerly (4)

Topographic Position: Toe (1), Depression (2), Lower Slope (4), Level (7)

Soil Variables

Soil Drainage: Very poorly drained (1), Well drained (4), Imperfectly drained (7), Moderately well drained (8), Poorly drained (11)

Soil Subgroup: REGOSOL GLEYED (1), EUTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (1), LUVIC GLEYSOL HUMIC (1), HUMIC GLEYSOL FERA (1), REGOSOL ORTHIC (1), DYSTRIC BRUNISOL ELUVIATED (1), REGOSOL GLEYED CUMULIC (2), HUMIC GLEYSOL REGO (2), HUMIC GLEYSOL ORTHIC (3), LUVIC GLEYSOL ORTHIC (3), GLEYSOL ORTHIC (3), REGOSOL CUMULIC (6)

Surface Texture: Fine sandy loam (1), Sandy clay loam (1), Sand (1), Fibric (1), Clay loam (1), Silty clay (1), Sandy loam (2), Humic (3), Silt loam (3), Silt (5)

Effective Texture: Fine sand (1), Loam (1), Sand (1), Silt loam (1), Very fine sandy loam (1), Mesic (1), Sandy loam (2), Silt (2), Sandy clay loam (2), Clay loam (2), Clay (2), Silty clay (3)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (2)

Organic Thickness: 40 - 59 cm (2), 26 - 39 cm (2), 0 - 5 cm (24)

Parent Material: Rock (1), Fluvioeolian (1), Fluviolacustrine (1), Glaciofluvial (1), Undifferentiated Organic (2), Lacustrine (2), Morainal (3), Glaciolacustrine (5), Fluvial (17)

Soil Type: Dry/Sandy (1), Moist/Sandy (1), Wet/Mineral (2), Moist/Peaty (2), Moist/Silty-Loamy (3), Wet/Peaty (4), Moist/Fine (5)

Humus Form RAW MODER (1), PEATYMOR (1), HUMIMOR (1), HUMIFIBRIMOR (1), FIBRIHUMIMOR (1), HUMIC PEATYMOR (1), ANMOOR (1), FIBRIMOR (2)

LFH Thickness	Mean	Min	Max	Count
cm:	12.00	2.00	36.00	15

i4 horsetail shrubland (n=5)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)

Characteristic Species

Shrub

[16.4]SALIX SPECIES*
Salix

[16.4]RIVER ALDER*
Alnus tenuifolia

[9.1]BRACTED HONEYSUCKLE
Lonicera involucrata

[6.8]BEAKED WILLOW
Salix bebbiana

[6.0]SCOULER'S WILLOW*
Salix scouleriana

[5.0]GREEN ALDER
Alnus crispa

[3.7]WILD RED RASPBERRY
Rubus idaeus

[2.1]PRICKLY ROSE
Rosa acicularis

[2.0]TWINFLOWER
Linnaea borealis

Forb

[8.8]COMMON HORSETAIL
Equisetum arvense

[8.8]COW PARSNIP
Heracleum lanatum

[5.0]COMMON NETTLE
Urtica dioica

[2.3]BISHOP'S-CAP
Mitella nuda

[2.2]LARGE-LEAVED YELLOW AVENS
Geum macrophyllum

[2.1]WESTERN CANADA VIOLET
Viola canadensis

[1.6]RED AND WHITE BANEBERRY
Actaea rubra

[1.5]NARROW SPINULOSE SHIELD FERN*
Dryopteris carthusiana

[1.4]TALL LUNGWORT
Mertensia paniculata

[1.0]WOODLAND HORSETAIL
Equisetum sylvaticum

Graminoid

[25.6]BLUEJOINT
Calamagrostis canadensis

[1.4]FRINGED BROME
Bromus ciliatus

Environmental Variables

Moisture Regime: Hygric (moist) (1), Subhydric (moderately wet) (1), Subhygric (moderately moist) (3)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (1), Permesotrophic (rich) (2)

Elevation (range): 916 (660-1417) M

Slope (%): level (1), strong slope (1), very strong slope (1)

Aspect: Easterly (1), Northerly (2)

Topographic Position:Midslope (2), Level (2)

Soil Variables

Soil Drainage: Imperfectly drained (2), Moderately well drained (3)

Soil Subgroup: GRAY LUVISOL (1), LUVIC GLEYSOL (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material: Glaciolacustrine (1), Morainal (2)

Soil Type:

Humus Form RHIZOMULL (1)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

LFc9 Willow-River alder/Horsetail-Fern (n=5)

(Salix spp.-Alnus tenuifolia/Equisetum arvense-Dryopteris carthusiana)

This community type was described on north and east facing slopes in the Saddle Hills northwest of Grande Prairie and in the Lower Foothills subregion west of Sundre and is a combination of plant communities c7, c8 and c9 in Lawrence et al 2005. This community appears to occupy areas that receive some nutrient seepage throughout the growing season. There are some trees growing on these sites, but they are generally restricted to the drier areas.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: i horsetail (hygric/rich)
Ecosite Phase: i4 horsetail shrubland

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
GREEN ALDER *(Alnus crispa)*	5.0	0.0-15.3	60
BEAKED WILLOW *(Salix bebbiana)*	6.8	0.0-33.0	40
RIVER ALDER *(Alnus tenuifolia)*	16.4	0.0-42.0	60
Medium Shrub (0.5 to 2 m)			
PRICKLY ROSE *(Rosa acicularis)*	2.1	0.0-5.0	80
WILD RED RASPBERRY *(Rubus idaeus)*	3.7	0.0-10.0	60
SCOULER'S WILLOW *(Salix scouleriana)*	6.0	0.0-30.0	20
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	9.1	0.0-19.0	80
SALIX SPECIES *(Salix)*	16.4	0.0-55.0	60
Low Shrub (< 0.5m)			
TWINFLOWER *(Linnaea borealis)*	2.0	0.0-10.0	20
Tall Forb (>= 30 cm)			
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.0	0.0-5.0	20
TALL LUNGWORT *(Mertensia paniculata)*	1.4	0.0-7.0	40
NARROW SPINULOSE SHIELD FERN *(Dryopteris carthusiana)*	1.5	0.0-7.0	40
RED AND WHITE BANEBERRY *(Actaea rubra)*	1.6	0.0-5.0	40
LARGE-LEAVED YELLOW AVENS *(Geum macrophyllum)*	2.2	0.0-11.0	20
COMMON NETTLE *(Urtica dioica)*	5.0	0.0-18.0	40
COMMON HORSETAIL *(Equisetum arvense)*	8.8	0.0-19.0	80
COW PARSNIP *(Heracleum lanatum)*	8.8	0.0-20.0	80
Low Forb (< 30 cm)			
WESTERN CANADA VIOLET *(Viola canadensis)*	2.1	0.0-10.7	20
BISHOP'S-CAP *(Mitella nuda)*	2.3	0.0-10.0	60
Graminoid			
FRINGED BROME *(Bromus ciliatus)*	1.4	0.0-6.0	40
BLUEJOINT *(Calamagrostis canadensis)*	25.6	12.0-34.1	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Subhydric (moderately wet) (1), Hygric (moist) (1), Subhygric (moderately moist) (3)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (1), Permesotrophic (rich) (2)

Elevation (range): 916 (660-1417) M

Slope (%): 0 - 0.49 (1), 16 - 30.99 (1), 31 - 45.99 (1)

Aspect: Easterly (1), Northerly (2)

Topographic Position: Level (2), Midslope (2)

Soil Variables

Soil Drainage: Imperfectly drained (2), Moderately well drained (3)

Soil Subgroup: LUVIC GLEYSOL ORTHIC (1), GRAY LUVISOL DARK (1)

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material: Glaciolacustrine (1), Morainal (2)

Soil Type:

Humus Form RHIZOMULL (1)

LFH Thickness	Mean	Min	Max	Count
cm:	0.00	0.00	0.00	0

j Labrador tea/horsetail (hygric/medium) (n=39)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The Labrador tea/horsetail ecosite is wet and commonly has a medium to rich nutrient regime. These sites are commonly found on lower topographic positions on level glaciolacustrine, till, or organic parent materials. With wet substrate conditions, Gleysolic soils are common and organic matter tends to accumulate. The Labrador tea/horsetail ecosite, as the name suggests, is intermediate in species composition and nutrient regime between the Labrador tea-subhygric ecosite (h) and the horsetail ecosite (i). Along with Labrador tea, horsetails commonly form a blanket over the forest floor.

Successional Relationships

This ecosite has only one phase and community that represent an edaphic climax for the Labrador tea/horsetail ecosite. These sites are wet and can become difficult to manage once the tree canopy is removed and the water table rises. After disturbance, they are commonly colonized by hydrophytic species such as willow, marsh reed grass, and sedges.

Indicator Species

Tree

WHITE SPRUCE
Picea glauca

BLACK SPRUCE
Picea mariana

Shrub

COMMON LABRADOR TEA
Ledum groenlandicum

BOG CRANBERRY
Vaccinium vitis-idaea

Forb

COMMON HORSETAIL
Equisetum arvense

DWARF SCOURING-RUSH
Equisetum scirpoides

WOODLAND HORSETAIL
Equisetum sylvaticum

Moss and Liverwort

STAIR-STEP MOSS
Hylocomium splendens

SCHREBER'S MOSS
Pleurozium schreberi

Site Index at 50 Years

	Height (m)	Variation (m)	Count
WHITE SPRUCE *(Picea glauca)*	10.80	0.60	9
BLACK SPRUCE *(Picea mariana)*	9.90	0.40	25

Environmental Variables

Moisture Regime: Mesic (fresh) (3), Hydric (wet) (4), Subhygric (moderately moist) (5), Subhydric (moderately wet) (11), Hygric (moist) (16)

Nutrient Regime: Eutrophic (very rich) (3), Permesotrophic (rich) (9), Submesotrophic (poor) (10), Mesotrophic (medium) (16)

Elevation (range): 1003 (627-1410) M

Slope (%): strong slope (1), gentle slope (2), moderate slope (5), very gentle slope (7), level (9), nearly level (11)

Aspect: Southerly (1), Level (2), Easterly (7), Northerly (8), Westerly (10)

Topographic Position:Crest (1), Depression (1), Upper Slope (1), Toe (2), Lower Slope (2), Midslope (5), Level (6)

Soil Variables

Soil Drainage: Moderately well drained (3), Well drained (3), Imperfectly drained (6), Very poorly drained (10), Poorly drained (18)

Soil Subgroup: LUVIC GLEYSOL (1), SOMBRIC BRUNISOL (1), FIBRISOL (2), HUMISOL (4), GRAY LUVISOL (5), HUMIC GLEYSOL (5), MESISOL (9), GLEYSOL (10)

Surface Texture: Heavy clay (1), Loamy sand (1), Sandy clay (1), Sandy loam (1), Silty clay loam (1), Silty clay (2), Clay loam (2), Silt loam (3), Mesic (4), Humic (4), Loam (4), Fibric (5)

Effective Texture: Fibric (1), Sandy clay (1), Sandy clay loam (1), Sandy loam (1), Silt loam (1), Humic (1), Loam (1), Heavy clay (2), Clay loam (3), Clay (4), Silty clay (4), Mesic (4), Silty clay loam (5)

Depth to Mottles/Gley: 26 - 50 (1), 51 - 100 (1), 0 - 25 (5)

Organic Thickness: >= 80 cm (1), 26 - 39 cm (1), 60 - 79 cm (3), 16 - 25 cm (4), 40 - 59 cm (6), 0 - 5 cm (24)

Parent Material: Colluvial (1), Lacustromoraine (1), Lacustrine (2), Fen (2), Eolian (3), Fluvial (4), Bog (5), Morainal (9), Undifferentiated Organic (11), Glaciolacustrine (15)

Soil Type: Dry/Fine (1), Moist/Peaty (1), Moist/Silty-Loamy (1), Wet/Mineral (2), Moist/Fine (3), Wet/Peaty (7), Organic (11)

Humus Form HUMIFIBRIMOR (1), MOR (1), PEATYMOR (1), FIBRIHUMIMOR (2), HUMIC PEATYMOR (5)

LFH Thickness

	Mean	Min	Max	Count
cm:	19.00	1.00	85.00	15

j1 Labrador tea/horsetail Sb-Sw (n=39)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: j Labrador tea/horsetail (hygric/medium)

Characteristic Species

Tree

[36.1]BLACK SPRUCE*
Picea mariana

[7.3]WHITE SPRUCE*
Picea glauca

Shrub

[20.9]COMMON LABRADOR TEA*
Ledum groenlandicum

[3.3]BUNCHBERRY
Cornus canadensis

[2.5]PRICKLY ROSE
Rosa acicularis

[2.4]TWINFLOWER
Linnaea borealis

[2.3]BRACTED HONEYSUCKLE
Lonicera involucrata

[2.1]BOG CRANBERRY*
Vaccinium vitis-idaea

Forb

[10.9]COMMON HORSETAIL*
Equisetum arvense

[3.1]MEADOW HORSETAIL
Equisetum pratense

[2.9]WOODLAND HORSETAIL*
Equisetum sylvaticum

[2.6]DWARF SCOURING-RUSH*
Equisetum scirpoides

[1.8]PALMATE-LEAVED COLTSFOOT
Petasites palmatus

[1.3]TALL LUNGWORT
Mertensia paniculata

Moss and Liverwort

[30.5]STAIR-STEP MOSS*
Hylocomium splendens

[18.8]SCHREBER'S MOSS*
Pleurozium schreberi

[14.9]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Graminoid

[1.4]BLUEJOINT
Calamagrostis canadensis

[1.4]SEDGE SPECIES
Carex

Environmental Variables

Moisture Regime: Mesic (fresh) (3), Hydric (wet) (4), Subhygric (moderately moist) (5), Subhydric (moderately wet) (11), Hygric (moist) (16)

Nutrient Regime: Eutrophic (very rich) (3), Permesotrophic (rich) (9), Submesotrophic (poor) (10), Mesotrophic (medium) (16)

Elevation (range): 1003 (627-1410) M

Slope (%): strong slope (1), gentle slope (2), moderate slope (5), very gentle slope (7), level (9), nearly level (11)

Aspect: Southerly (1), Level (2), Easterly (7), Northerly (8), Westerly (10)

Topographic Position:Crest (1), Depression (1), Upper Slope (1), Toe (2), Lower Slope (2), Midslope (5), Level (6)

Soil Variables

Soil Drainage: Moderately well drained (3), Well drained (3), Imperfectly drained (6), Very poorly drained (10), Poorly drained (18)

Soil Subgroup: LUVIC GLEYSOL (1), SOMBRIC BRUNISOL (1), FIBRISOL (2), HUMISOL (4), HUMIC GLEYSOL (5), GRAY LUVISOL (5), MESISOL (9), GLEYSOL (10)

Surface Texture: Heavy clay (1), Loamy sand (1), Sandy clay (1), Sandy loam (1), Silty clay loam (1), Silty clay (2), Clay loam (2), Silt loam (3), Mesic (4), Loam (4), Humic (4), Fibric (5)

Effective Texture: Fibric (1), Humic (1), Loam (1), Sandy clay (1), Sandy clay loam (1), Sandy loam (1), Silt loam (1), Heavy clay (2), Clay loam (3), Silty clay (4), Mesic (4), Clay (4), Silty clay loam (5)

Depth to Mottles/Gley: 26 - 50 (1), 51 - 100 (1), 0 - 25 (5)

Organic Thickness: >= 80 cm (1), 26 - 39 cm (1), 60 - 79 cm (3), 16 - 25 cm (4), 40 - 59 cm (6), 0 - 5 cm (24)

Parent Material: Colluvial (1), Lacustromoraine (1), Lacustrine (2), Fen (2), Eolian (3), Fluvial (4), Bog (5), Morainal (9), Undifferentiated Organic (11), Glaciolacustrine (15)

Soil Type: Dry/Fine (1), Moist/Peaty (1), Moist/Silty-Loamy (1), Wet/Mineral (2), Moist/Fine (3), Wet/Peaty (7), Organic (11)

Humus Form HUMIFIBRIMOR (1), MOR (1), PEATYMOR (1), FIBRIHUMIMOR (2), HUMIC PEATYMOR (5)

LFH Thickness	Mean	Min	Max	Count
cm:	19.00	1.00	85.00	15

LFj18 Sb-Sw/Labrador tea/Horsetail (n=39)

(Picea mariana-Picea glauca/Ledum groenlandicum/Equisetum arvense)

This community type occurs in association with lowland bog areas. The water table under this community type is high during the entire growing season, but flooding is rare. Succession within this community type is to white spruce but is inhibited due to poor drainage, acidic soils, and oligotrophic conditions (Beckingham 1993). Therefore, this community type is considered to be successionally mature.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: j Labrador tea/horsetail (hygric/medium)
Ecosite Phase: j1 Labrador tea/horsetail Sb-Sw

Plant Composition	Canopy Cover (%)		
	Mean	Range	Const.
Overstory Tree			
WHITE SPRUCE *(Picea glauca)*	7.3	0.0-60.0	46
BLACK SPRUCE *(Picea mariana)*	28.7	0.0-65.0	87
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	7.4	0.0-45.0	62
Medium Shrub (0.5 to 2 m)			
BOG CRANBERRY *(Vaccinium vitis-idaea)*	2.1	0.0-10.0	72
BRACTED HONEYSUCKLE *(Lonicera involucrata)*	2.3	0.0-10.0	64
TWINFLOWER *(Linnaea borealis)*	2.4	0.0-18.0	74
PRICKLY ROSE *(Rosa acicularis)*	2.5	0.0-12.0	74
COMMON LABRADOR TEA *(Ledum groenlandicum)*	20.9	0.0-80.0	92
Tall Forb (>= 30 cm)			
TALL LUNGWORT *(Mertensia paniculata)*	1.3	0.0-10.0	56
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	2.9	0.0-42.0	36
MEADOW HORSETAIL *(Equisetum pratense)*	3.1	0.0-20.0	39
COMMON HORSETAIL *(Equisetum arvense)*	10.9	0.0-70.0	62
Low Forb (< 30 cm)			
PALMATE-LEAVED COLTSFOOT *(Petasites palmatus)*	1.8	0.0-8.0	77
DWARF SCOURING-RUSH *(Equisetum scirpoides)*	2.6	0.0-30.0	51
BUNCHBERRY *(Cornus canadensis)*	3.3	0.0-15.0	77
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	1.4	0.0-20.0	56
SEDGE SPECIES *(Carex)*	1.4	0.0-36.0	23
Moss			
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	14.9	0.0-70.0	72
SCHREBER'S MOSS *(Pleurozium schreberi)*	18.8	0.0-70.0	77
STAIR-STEP MOSS *(Hylocomium splendens)*	30.5	0.0-85.0	87

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Mesic (fresh) (3), Hydric (wet) (4), Subhygric (moderately moist) (5), Subhydric (moderately wet) (11), Hygric (moist) (16)

Nutrient Regime: Eutrophic (very rich) (3), Permesotrophic (rich) (9), Submesotrophic (poor) (10), Mesotrophic (medium) (16)

Elevation (range): 1003 (627-1410) M

Slope (%): 16 - 30.99 (1), 6 - 9.99 (2), 10 - 15.99 (5), 2.5 - 5.99 (7), 0 - 0.49 (9), 0.5 - 2.49 (11)

Aspect: Southerly (1), Level (2), Easterly (7), Northerly (8), Westerly (10)

Topographic Position: Upper Slope (1), Crest (1), Depression (1), Toe (2), Lower Slope (2), Midslope (5), Level (6)

Soil Variables

Soil Drainage: Well drained (3), Moderately well drained (3), Imperfectly drained (6), Very poorly drained (10), Poorly drained (18)

Soil Subgroup: SOMBRIC BRUNISOL ORTHIC (1), LUVIC GLEYSOL HUMIC (1), FIBRISOL TERRIC (1), FIBRISOL TYPIC (1), MESISOL TYPIC (1), MESISOL TERRIC FIBRIC (1), MESISOL TERRIC HUMIC (1), GLEYSOL FERA (1), GRAY LUVISOL ORTHIC (1), GRAY LUVISOL GLEYED (1), GLEYSOL REGO (2), HUMIC GLEYSOL ORTHIC (2), HUMIC GLEYSOL REGO (3), GRAY LUVISOL BRUNISOLIC (3), HUMISOL TERRIC (4), MESISOL TERRIC (6), GLEYSOL ORTHIC (7)

Surface Texture: Sandy clay (1), Loamy sand (1), Silty clay loam (1), Sandy loam (1), Heavy clay (1), Clay loam (2), Silty clay (2), Silt loam (3), Mesic (4), Humic (4), Loam (4), Fibric (5)

Effective Texture: Loam (1), Sandy clay (1), Sandy clay loam (1), Silt loam (1), Sandy loam (1), Fibric (1), Humic (1), Heavy clay (2), Clay loam (3), Mesic (4), Silty clay (4), Clay (4), Silty clay loam (5)

Depth to Mottles/Gley: 51 - 100 (1), 26 - 50 (1), 0 - 25 (5)

Organic Thickness: 26 - 39 cm (1), >= 80 cm (1), 60 - 79 cm (3), 16 - 25 cm (4), 40 - 59 cm (6), 0 - 5 cm (24)

Parent Material: Colluvial (1), Lacustromoraine (1), Fen (2), Lacustrine (2), Eolian (3), Fluvial (4), Bog (5), Morainal (9), Undifferentiated Organic (11), Glaciolacustrine (15)

Soil Type: Moist/Silty-Loamy (1), Dry/Fine (1), Moist/Peaty (1), Wet/Mineral (2), Moist/Fine (3), Wet/Peaty (7), Organic (11)

Humus Form MOR (1), PEATYMOR (1), HUMIFIBRIMOR (1), FIBRIHUMIMOR (2), HUMIC PEATYMOR (5)

LFH Thickness	Mean	Min	Max	Count
cm:	19.00	1.00	85.00	15

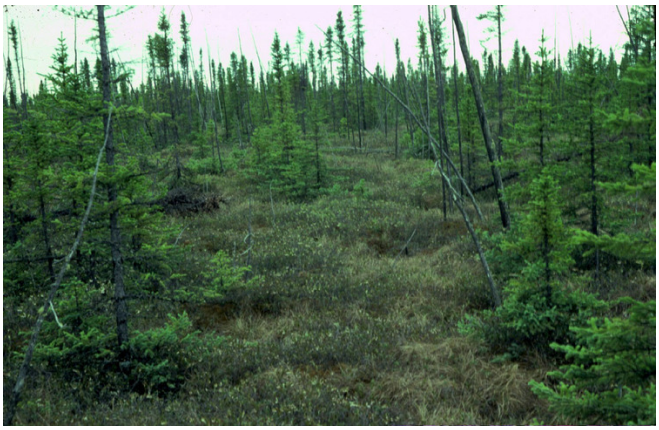
k bog (subhydric/poor) (n=22)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The bog ecosite commonly has organic soils consisting of slowly decomposing peat moss. They are poorly to very poorly drained and have a very poor to poor nutrient regime. This ecosite occupies level areas and depressions where water tends to be stagnant and impeded drainage or high water tables enhance the accumulation of organic matter. Stunted black spruce form a sparse canopy on the treed phase (k1) of the bog ecosite.



Site Index at 50 Years

	Height (m)	Variation (m)	Count
TAMARACK *(Larix laricina)*	9.30	0.00	1
BLACK SPRUCE *(Picea mariana)*	9.50	0.70	14

Environmental Variables

Moisture Regime: Hygric (moist) (1), Subhygric (moderately moist) (2), Subhydric (moderately wet) (8), Hydric (wet) (10)

Nutrient Regime: Mesotrophic (medium) (3), Oligotrophic (very poor) (6), Submesotrophic (poor) (8)

Elevation (range): 922 (720-1230) M

Slope (%): very gentle slope (1), nearly level (2), level (17)

Aspect: Easterly (1), Level (1), Northerly (1)

Topographic Position:Depression (5), Level (5)

Soil Variables

Soil Drainage: Imperfectly drained (3), Poorly drained (7), Very poorly drained (11)

Soil Subgroup: LUVIC GLEYSOL (1), FIBRISOL (2), HUMISOL (4), MESISOL (11)

Surface Texture: Humic (2), Mesic (3), Fibric (10)

Effective Texture: Fibric (1), Silty clay (1), Humic (4), Mesic (8)

Depth to Mottles/Gley:

Organic Thickness: 26 - 39 cm (1), 60 - 79 cm (2), 0 - 5 cm (8), >= 80 cm (10)

Parent Material: Fluviolacustrine (1), Lacustrine (1), Swamp (1), Morainal (2), Glaciofluvial (2), Fen (3), Glaciolacustrine (5), Undifferentiated Organic (12)

Soil Type: Organic (15)

Humus Form HUMIC PEATYMOR (1), MESIC PEATYMOR (2), FIBRIC PEATYMOR (2)

Successional Relationships

The bog ecosite is an edaphic climax that is maintained by high water tables. The hydrarch succession to the bog ecosite is extremely slow.

Indicator Species

Tree

BLACK SPRUCE
Picea mariana

Shrub

COMMON LABRADOR TEA
Ledum groenlandicum

CLOUDBERRY
Rubus chamaemorus

BOG BIRCH
Betula glandulosa

Moss and Liverwort

PEAT MOSS
Sphagnum angustifolium

RUSTY PEAT MOSS
Sphagnum fuscum

MIDWAY PEAT MOSS
Sphagnum magellanicum

WIDE-TONGUED PEAT MOSS
Sphagnum russowii

PEAT MOSS
Sphagnum warnstorfii

Graminoid

SHEATHED COTTON GRASS
Eriophorum vaginatum

k1 treed bog (n=20)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: k bog (subhydric/poor)

Characteristic Species

Tree

[37.3]BLACK SPRUCE*
Picea mariana

Shrub

[29.2]COMMON LABRADOR TEA*
Ledum groenlandicum

[4.2]BOG CRANBERRY
Vaccinium vitis-idaea

[4.1]BOG BIRCH*
Betula glandulosa

[3.4]CLOUDBERRY*
Rubus chamaemorus

[1.3]BUNCHBERRY
Cornus canadensis

Forb

[1.8]WOODLAND HORSETAIL
Equisetum sylvaticum

[1.1]COMMON HORSETAIL
Equisetum arvense

Moss and Liverwort

[14.4]SCHREBER'S MOSS
Pleurozium schreberi

[13.3]STAIR-STEP MOSS
Hylocomium splendens

[9.9]PEAT MOSS*
Sphagnum angustifolium

[7.3]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

[7.2]RUSTY PEAT MOSS*
Sphagnum fuscum

[3.7]PEAT MOSS*
Sphagnum warnstorfii

[3.2]WIDE-TONGUED PEAT MOSS*
Sphagnum russowii

[2.0]N/A
Sphagnum nemoreum

[1.4]MIDWAY PEAT MOSS
Sphagnum magellanicum

Graminoid

[2.1]SEDGE SPECIES
Carex

Environmental Variables

Moisture Regime: Hygric (moist) (1), Subhygric (moderately moist) (1), Subhydric (moderately wet) (8), Hydric (wet) (9)

Nutrient Regime: Mesotrophic (medium) (3), Oligotrophic (very poor) (6), Submesotrophic (poor) (7)

Elevation (range): 954 (810-1230) M

Slope (%): very gentle slope (1), nearly level (2), level (15)

Aspect: Easterly (1), Level (1), Northerly (1)

Topographic Position:Depression (5), Level (5)

Soil Variables

Soil Drainage: Imperfectly drained (2), Poorly drained (7), Very poorly drained (10)

Soil Subgroup: FIBRISOL (1), HUMISOL (4), MESISOL (11)

Surface Texture: Humic (2), Mesic (3), Fibric (9)

Effective Texture: Fibric (1), Silty clay (1), Humic (4), Mesic (7)

Depth to Mottles/Gley:

Organic Thickness: 26 - 39 cm (1), 60 - 79 cm (2), 0 - 5 cm (7), >= 80 cm (9)

Parent Material: Fluviolacustrine (1), Glaciofluvial (1), Lacustrine (1), Morainal (1), Swamp (1), Fen (3), Glaciolacustrine (5), Undifferentiated Organic (11)

Soil Type: Organic (14)

Humus Form HUMIC PEATYMOR (1), MESIC PEATYMOR (2), FIBRIC PEATYMOR (2)

LFj19 Sb/Labrador tea/Cloudberry/Peat moss (n=20)

(Picea mariana/Ledum groenlandicum/Rubus chamaemorus/Sphagnum spp.)

This community type is similar to the Sb/Ledum/Rubus chamaemorus ecosystem association of Corns and Annas (1986). It is the result of infilling a bog with peat deposits as vegetation dies or by the accumulation of organic deposits in poorly drained terrain (Corns and Annas 1986). As this community type ages and accumulates more organic matter, it may move toward a drier Black Spruce/Labrador Tea/Moss community type.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: k bog (subhydric/poor)
Ecosite Phase: k1 treed bog

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	27.4	0.0-80.0	80
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	5.0	0.0-20.0	55
Tall Shrub (2 to 5m)			
BLACK SPRUCE *(Picea mariana)*	4.9	0.0-30.0	80
Medium Shrub (0.5 to 2 m)			
BOG BIRCH *(Betula glandulosa)*	4.1	0.0-35.7	50
BOG CRANBERRY *(Vaccinium vitis-idaea)*	4.2	0.0-15.0	65
COMMON LABRADOR TEA *(Ledum groenlandicum)*	29.2	2.0-75.0	100
Low Shrub (< 0.5m)			
CLOUDBERRY *(Rubus chamaemorus)*	3.4	0.0-15.0	60
Tall Forb (>= 30 cm)			
COMMON HORSETAIL *(Equisetum arvense)*	1.1	0.0-4.0	50
WOODLAND HORSETAIL *(Equisetum sylvaticum)*	1.8	0.0-18.0	45
Low Forb (< 30 cm)			
BUNCHBERRY *(Cornus canadensis)*	1.3	0.0-12.0	30
Graminoid			
SEDGE SPECIES *(Carex)*	2.1	0.0-32.3	20
Moss			
MIDWAY PEAT MOSS *(Sphagnum magellanicum)*	1.4	0.0-10.0	30
N/A *(Sphagnum nemoreum)*	2.0	0.0-18.0	15
WIDE-TONGUED PEAT MOSS *(Sphagnum russowii)*	3.2	0.0-65.0	5
PEAT MOSS *(Sphagnum warnstorfii)*	3.7	0.0-40.0	20
RUSTY PEAT MOSS *(Sphagnum fuscum)*	7.2	0.0-75.0	30
KNIGHT'S PLUME MOSS *(Ptilium crista-castrensis)*	7.3	0.0-35.0	55
PEAT MOSS *(Sphagnum angustifolium)*	9.9	0.0-80.0	35
STAIR-STEP MOSS *(Hylocomium splendens)*	13.3	0.0-60.0	55
SCHREBER'S MOSS *(Pleurozium schreberi)*	14.4	0.0-75.0	75

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hygric (moist) (1), Subhygric (moderately moist) (1), Subhydric (moderately wet) (8), Hydric (wet) (9)

Nutrient Regime: Mesotrophic (medium) (3), Oligotrophic (very poor) (6), Submesotrophic (poor) (7)

Elevation (range): 954 (810-1230) M

Slope (%): 2.5 - 5.99 (1), 0.5 - 2.49 (2), 0 - 0.49 (15)

Aspect: Northerly (1), Easterly (1), Level (1)

Topographic Position: Depression (5), Level (5)

Soil Variables

Soil Drainage: Imperfectly drained (2), Poorly drained (7), Very poorly drained (10)

Soil Subgroup: MESISOL HUMIC (1), MESISOL TERRIC FIBRIC (1), HUMISOL TYPIC (1), HUMISOL MESIC (1), FIBRISOL TERRIC HUMIC (1), MESISOL TERRIC HUMIC (2), HUMISOL TERRIC (2), MESISOL TERRIC (3), MESISOL TYPIC (4)

Surface Texture: Humic (2), Mesic (3), Fibric (9)

Effective Texture: Silty clay (1), Fibric (1), Humic (4), Mesic (7)

Depth to Mottles/Gley:

Organic Thickness: 26 - 39 cm (1), 60 - 79 cm (2), 0 - 5 cm (7), >= 80 cm (9)

Parent Material: Swamp (1), Lacustrine (1), Morainal (1), Glaciofluvial (1), Fluviolacustrine (1), Fen (3), Glaciolacustrine (5), Undifferentiated Organic (11)

Soil Type: Organic (14)

Humus Form HUMIC PEATYMOR (1), MESIC PEATYMOR (2), FIBRIC PEATYMOR (2)

k2 shrubby bog (n=2)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: k bog (subhydric/poor)

Characteristic Species

Tree

[8.0]BLACK SPRUCE
Picea mariana

[2.5]LODGEPOLE PINE
Pinus contorta

Shrub

[57.5]COMMON LABRADOR TEA*
Ledum groenlandicum

[20.0]COMMON BLUEBERRY
Vaccinium myrtilloides

[1.0]BOG BIRCH
Betula glandulosa

Forb

[3.5]THREE-LEAVED SOLOMON'S-SEAL
Smilacina trifolia

Moss and Liverwort

[44.0]MIDWAY PEAT MOSS*
Sphagnum magellanicum

[32.5]COMMON HAIR-CAP
Polytrichum commune

[6.5]LIVERWORT
Mylia anomala

[5.0]N/A
Sphagnum nemoreum

[3.5]SCHREBER'S MOSS
Pleurozium schreberi

[1.0]SLENDER HAIR-CAP
Polytrichum strictum

Graminoid

[1.0]SHEATHED COTTON GRASS*
Eriophorum vaginatum

[1.0]FEW-FLOWERED SEDGE
Carex pauciflora

Environmental Variables

Moisture Regime: Hydric (wet) (1), Subhygric (moderately moist) (1)

Nutrient Regime: Submesotrophic (poor) (1)

Elevation (range): 890 (720-1060) M

Slope (%): level (2)

Aspect:

Topographic Position:

Soil Variables

Soil Drainage: Imperfectly drained (1), Very poorly drained (1)

Soil Subgroup: FIBRISOL (1), LUVIC GLEYSOL (1)

Surface Texture: Fibric (1)

Effective Texture: Mesic (1)

Depth to Mottles/Gley:

Organic Thickness: >= 80 cm (1), 0 - 5 cm (1)

Parent Material: Glaciofluvial (1), Morainal (1), Undifferentiated Organic (1)

Soil Type: Organic (1)

Humus Form

LFc14 Labrador tea/Peat moss (n=2)

(Ledum groenlandicum/Sphagnum spp.)

LFc14 is a shrubby phase of a bog, because it has plants associated with bog communities (e.g. peat moss species, cloud berry and small bog cranberry). If conditions are favorable for tree growth, black spruce will become prominent changing the plant community to a treed bog (e.g. LFj19).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: k bog (subhydric/poor)
Ecosite Phase: k2 shrubby bog

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	1.5	0.0-3.0	50
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	2.5	0.0-5.0	50
Tall Shrub (2 to 5m)			
LODGEPOLE PINE *(Pinus contorta)*	2.5	0.0-5.0	50
Medium Shrub (0.5 to 2 m)			
BOG BIRCH *(Betula glandulosa)*	1.0	0.0-2.0	50
BLACK SPRUCE *(Picea mariana)*	4.0	4.0-4.0	100
COMMON BLUEBERRY *(Vaccinium myrtilloides)*	20.0	0.0-40.0	50
COMMON LABRADOR TEA *(Ledum groenlandicum)*	57.5	40.0-75.0	100
Low Forb (< 30 cm)			
THREE-LEAVED SOLOMON'S-SEAL *(Smilacina trifolia)*	3.5	0.0-7.0	50
Graminoid			
FEW-FLOWERED SEDGE *(Carex pauciflora)*	1.0	0.0-2.0	50
SHEATHED COTTON GRASS *(Eriophorum vaginatum)*	1.0	0.0-2.0	50
Moss			
SLENDER HAIR-CAP *(Polytrichum strictum)*	1.0	0.0-2.0	50
SCHREBER'S MOSS *(Pleurozium schreberi)*	3.5	0.0-7.0	50
N/A *(Sphagnum nemoreum)*	5.0	0.0-10.0	50
LIVERWORT *(Mylia anomala)*	6.5	1.0-12.0	100
COMMON HAIR-CAP *(Polytrichum commune)*	32.5	0.0-65.0	50
MIDWAY PEAT MOSS *(Sphagnum magellanicum)*	44.0	0.0-88.0	50

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Hydric (wet) (1), Subhygric (moderately moist) (1)

Nutrient Regime: Submesotrophic (poor) (1)

Elevation (range): 890 (720-1060) M

Slope (%): 0 - 0.49 (2)

Aspect:

Topographic Position:

Soil Variables

Soil Drainage: Very poorly drained (1), Imperfectly drained (1)

Soil Subgroup: FIBRISOL TYPIC (1), LUVIC GLEYSOL ORTHIC (1)

Surface Texture: Fibric (1)

Effective Texture: Mesic (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1), >= 80 cm (1)

Parent Material: Undifferentiated Organic (1), Morainal (1), Glaciofluvial (1)

Soil Type: Organic (1)

Humus Form

l poor fen (subhydric/medium) (n=72)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The poor fen ecosite is intermediate in nutrient regime between the bog (k) and the rich fen (m) ecosites and as such has species characteristics of both. Drainage is poor to very poor; however, there is some movement of water through the substratum. This ecosite occupies level and depressional areas where impeded drainage or high water tables enhance the accumulation of organic matter. This organic matter consists of a combination of bog-type organic matter (peat moss) and fen-type organic matter (sedges, golden moss, tufted moss, and brown moss). Both the black spruce and/or tamarack that dominate a sparse canopy on the treed phase (l1) of the poor fen ecosite are stunted and generally considered unmerchantable).

Successional Relationships

The hydrarch succession characteristic of this ecosite occurs over a period of hundreds to thousands of years. Thus, recovery from disturbance is extremely slow. Changing hydrologic regimes that can result from disturbances influence the direction and rate of succession. As these systems depend on water flow through them, impeding this flow can result in reduction or elimination of tree coverage and changes in shrub, forb, and grass layers.

Indicator Species

Tree

BLACK SPRUCE
Picea mariana

TAMARACK
Larix laricina

Shrub

COMMON LABRADOR TEA
Ledum groenlandicum

MYRTLE-LEAVED WILLOW
Salix myrtillifolia

BOG WILLOW
Salix pedicellaris

BOG CRANBERRY
Vaccinium vitis-idaea

DWARF BIRCH
Betula pumila

BOG BIRCH
Betula glandulosa

Forb

COMMON HORSETAIL
Equisetum arvense

Moss and Liverwort

GOLDEN MOSS
Tomenthypnum nitens

PEAT MOSS
Sphagnum warnstorfii

Graminoid

WATER SEDGE
Carex aquatilis

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (2), Hygric (moist) (7), Hydric (wet) (26), Subhydric (moderately wet) (29)

Nutrient Regime: Oligotrophic (very poor) (1), Eutrophic (very rich) (2), Permesotrophic (rich) (13), Submesotrophic (poor) (20), Mesotrophic (medium) (20)

Elevation (range): 1014.5 (580-1400) M

Slope (%): gentle slope (2), very gentle slope (3), nearly level (16), level (41)

Aspect: Southerly (3), Northerly (4), Westerly (6), Easterly (6), Level (6)

Topographic Position:Lower Slope (2), Level (10), Depression (12)

Soil Variables

Soil Drainage: Imperfectly drained (2), Poorly drained (18), Very poorly drained (43)

Soil Subgroup: LUVIC GLEYSOL (1), REGOSOL (1), HUMISOL (3), GLEYSOL (4), HUMIC GLEYSOL (4), FIBRISOL (9), MESISOL (33)

Surface Texture: Clay loam (1), Fine sand (1), Loam (3), Humic (7), Mesic (17), Fibric (18)

Effective Texture: Clay loam (1), Clay (2), Loam (2), Silt loam (2), Silty clay loam (2), Humic (4), Fibric (9), Mesic (25)

Depth to Mottles/Gley: 26 - 50 (1), 51 - 100 (2)

Organic Thickness: 16 - 25 cm (1), 26 - 39 cm (3), 40 - 59 cm (4), 60 - 79 cm (14), >= 80 cm (17), 0 - 5 cm (32)

Parent Material: Lacustrine (1), Lacustromoraine (1), Fluviolacustrine (2), Bog (3), Eolian (3), Fluvial (3), Glaciofluvial (4), Morainal (6), Glaciolacustrine (7), Fen (10), Undifferentiated Organic (39)

Soil Type: Wet/Peaty (7), Organic (39)

Humus Form HUMIC PEATYMOR (1), MESIC PEATYMOR (2), PEATYMOR (3)

l1 treed poor fen (n=59)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: l poor fen (subhydric/medium)

Characteristic Species

Tree

[17.0]BLACK SPRUCE*
Picea mariana

[10.8]TAMARACK
Larix laricina

Shrub

[17.6]COMMON LABRADOR TEA*
Ledum groenlandicum

[9.0]DWARF BIRCH*
Betula pumila

[5.0]BOG BIRCH*
Betula glandulosa

[4.0]BOG CRANBERRY*
Vaccinium vitis-idaea

[1.9]MYRTLE-LEAVED WILLOW*
Salix myrtillifolia

[1.6]SALIX SPECIES
Salix

Forb

[3.6]THREE-LEAVED SOLOMON'S-SEAL
Smilacina trifolia

[3.4]COMMON HORSETAIL*
Equisetum arvense

[2.0]SWAMP HORSETAIL
Equisetum fluviatile

Moss and Liverwort

[12.1]GOLDEN MOSS*
Tomenthypnum nitens

[9.2]PEAT MOSS*
Sphagnum warnstorfii

[9.0]STAIR-STEP MOSS
Hylocomium splendens

[6.1]SCHREBER'S MOSS
Pleurozium schreberi

[6.0]PEAT MOSS
Sphagnum angustifolium

[4.8]RUSTY PEAT MOSS
Sphagnum fuscum

Graminoid

[3.7]SEDGE SPECIES
Carex

[3.6]BLUEJOINT
Calamagrostis canadensis

[3.4]WATER SEDGE
Carex aquatilis

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (2), Hygric (moist) (5), Hydric (wet) (22), Subhydric (moderately wet) (25)

Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (12), Mesotrophic (medium) (16), Submesotrophic (poor) (17)

Elevation (range): 1020 (580-1400) M

Slope (%): gentle slope (1), very gentle slope (2), nearly level (13), level (33)

Aspect: Southerly (2), Northerly (3), Westerly (4), Easterly (5), Level (5)

Topographic Position:Lower Slope (1), Level (10), Depression (11)

Soil Variables

Soil Drainage: Imperfectly drained (1), Poorly drained (14), Very poorly drained (38)

Soil Subgroup: LUVIC GLEYSOL (1), REGOSOL (1), HUMISOL (2), GLEYSOL (3), HUMIC GLEYSOL (4), FIBRISOL (9), MESISOL (26)

Surface Texture: Clay loam (1), Loam (3), Humic (6), Mesic (12), Fibric (17)

Effective Texture: Silty clay loam (2), Silt loam (2), Loam (2), Clay (2), Humic (3), Fibric (8), Mesic (20)

Depth to Mottles/Gley: 26 - 50 (1), 51 - 100 (2)

Organic Thickness: 16 - 25 cm (1), 26 - 39 cm (3), 40 - 59 cm (4), 60 - 79 cm (10), >= 80 cm (16), 0 - 5 cm (24)

Parent Material: Lacustrine (1), Lacustromoraine (1), Fluviolacustrine (2), Fluvial (2), Bog (3), Eolian (3), Glaciofluvial (4), Morainal (5), Glaciolacustrine (7), Fen (10), Undifferentiated Organic (28)

Soil Type: Wet/Peaty (7), Organic (32)

Humus Form HUMIC PEATYMOR (1), MESIC PEATYMOR (1), PEATYMOR (3)

LFj20 Sb-Lt/Bog birch/Sedge/Peat moss (n=59)

(Picea mariana-Larix laricina/Betula glandulosa/Carex spp./Sphagnum spp.)

This community type is associated with lowland bogs with a slightly higher nutrient and water flowing slowly through the site. The water table is usually at or near the soil surface in the spring and slightly below it for the remainder of the year. As organics accumulate and the site becomes drier, black spruce may eventually dominate the tree canopy (Beckingham 1993). Although tamarack benefits from the better drainage that results from sphagnum accumulation, it cannot tolerate the lack of nutrients and acidity that accompanies succession to black spruce dominance (Kocaoglu and Bennett 1983).

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: l poor fen (subhydric/medium)
Ecosite Phase: l1 treed poor fen

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Overstory Tree			
TAMARACK *(Larix laricina)*	4.8	0.0-42.0	71
BLACK SPRUCE *(Picea mariana)*	12.1	0.0-35.0	85
Tall Shrub (2 to 5m)			
TAMARACK *(Larix laricina)*	3.5	0.0-29.0	56
BLACK SPRUCE *(Picea mariana)*	4.9	0.0-30.0	78
Medium Shrub (0.5 to 2 m)			
SALIX SPECIES *(Salix)*	1.6	0.0-35.0	25
MYRTLE-LEAVED WILLOW *(Salix myrtillifolia)*	1.9	0.0-20.0	27
BOG CRANBERRY *(Vaccinium vitis-idaea)*	4.0	0.0-30.0	66
BOG BIRCH *(Betula glandulosa)*	5.0	0.0-75.0	32
DWARF BIRCH *(Betula pumila)*	9.0	0.0-40.0	51
COMMON LABRADOR TEA *(Ledum groenlandicum)*	17.6	0.0-80.0	92
Tall Forb (>= 30 cm)			
SWAMP HORSETAIL *(Equisetum fluviatile)*	2.0	0.0-25.0	29
COMMON HORSETAIL *(Equisetum arvense)*	3.4	0.0-65.0	36
Low Forb (< 30 cm)			
THREE-LEAVED SOLOMON'S-SEAL *(Smilacina trifolia)*	3.6	0.0-30.0	73
Graminoid			
WATER SEDGE *(Carex aquatilis)*	3.4	0.0-30.0	46
BLUEJOINT *(Calamagrostis canadensis)*	3.6	0.0-75.0	31
SEDGE SPECIES *(Carex)*	3.7	0.0-50.0	34
Moss			
RUSTY PEAT MOSS *(Sphagnum fuscum)*	4.8	0.0-50.0	22
PEAT MOSS *(Sphagnum angustifolium)*	6.0	0.0-99.0	19
SCHREBER'S MOSS *(Pleurozium schreberi)*	6.1	0.0-55.0	42
STAIR-STEP MOSS *(Hylocomium splendens)*	9.0	0.0-60.0	48
PEAT MOSS *(Sphagnum warnstorfii)*	9.2	0.0-75.0	32
GOLDEN MOSS *(Tomenthypnum nitens)*	12.1	0.0-65.0	71

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Subhygric (moderately moist) (2), Hygric (moist) (5), Hydric (wet) (22), Subhydric (moderately wet) (25)

Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (12), Mesotrophic (medium) (16), Submesotrophic (poor) (17)

Elevation (range): 1020 (580-1400) M

Slope (%): 6 - 9.99 (1), 2.5 - 5.99 (2), 0.5 - 2.49 (13), 0 - 0.49 (33)

Aspect: Southerly (2), Northerly (3), Westerly (4), Easterly (5), Level (5)

Topographic Position: Lower Slope (1), Level (10), Depression (11)

Soil Variables

Soil Drainage: Imperfectly drained (1), Poorly drained (14), Very poorly drained (38)

Soil Subgroup: MESISOL TERRIC HUMIC (1), FIBRISOL TERRIC MESIC (1), GLEYSOL REGO (1), MESISOL HUMIC (1), REGOSOL ORTHIC (1), FIBRISOL MESIC (1), LUVIC GLEYSOL HUMIC (1), MESISOL TERRIC FIBRIC (1), HUMIC GLEYSOL ORTHIC (2), HUMISOL TERRIC (2), GLEYSOL ORTHIC (2), FIBRISOL TERRIC (2), HUMIC GLEYSOL REGO (2), MESISOL FIBRIC (3), FIBRISOL TYPIC (5), MESISOL TERRIC (8), MESISOL TYPIC (12)

Surface Texture: Clay loam (1), Loam (3), Humic (6), Mesic (12), Fibric (17)

Effective Texture: Silt loam (2), Silty clay loam (2), Loam (2), Clay (2), Humic (3), Fibric (8), Mesic (20)

Depth to Mottles/Gley: 26 - 50 (1), 51 - 100 (2)

Organic Thickness: 16 - 25 cm (1), 26 - 39 cm (3), 40 - 59 cm (4), 60 - 79 cm (10), >= 80 cm (16), 0 - 5 cm (24)

Parent Material: Lacustromoraine (1), Lacustrine (1), Fluvial (2), Fluviolacustrine (2), Eolian (3), Bog (3), Glaciofluvial (4), Morainal (5), Glaciolacustrine (7), Fen (10), Undifferentiated Organic (28)

Soil Type: Wet/Peaty (7), Organic (32)

Humus Form MESIC PEATYMOR (1), HUMIC PEATYMOR (1), PEATYMOR (3)

l2 shrubby poor fen (n=13)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: l poor fen (subhydric/medium)

Characteristic Species

Tree

[4.6]TAMARACK
Larix laricina

[4.5]BLACK SPRUCE
Picea mariana

Shrub

[25.7]BOG BIRCH
Betula glandulosa

[8.6]DWARF BIRCH
Betula pumila

[4.2]BOG WILLOW*
Salix pedicellaris

[1.6]COMMON LABRADOR TEA
Ledum groenlandicum

[1.5]MYRTLE-LEAVED WILLOW
Salix myrtillifolia

[1.5]FLAT-LEAVED WILLOW
Salix planifolia

Forb

[4.1]BUCK-BEAN
Menyanthes trifoliata

[2.1]PURPLE AVENS
Geum rivale

[1.7]SWAMP HORSETAIL
Equisetum fluviatile

Moss and Liverwort

[19.0]PEAT MOSS
Sphagnum warnstorfii

[10.1]TUFTED MOSS
Aulacomnium palustre

[8.7]GOLDEN MOSS
Tomenthypnum nitens

[6.9]PEAT MOSS
Sphagnum

[5.7]PEAT MOSS
Sphagnum angustifolium

[4.2]SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

[6.2]WATER SEDGE*
Carex aquatilis

[5.3]SEDGE SPECIES
Carex

[3.0]BLUEJOINT
Calamagrostis canadensis

[1.7]SMALL-WINGED SEDGE
Carex microptera

Environmental Variables

Moisture Regime: Hygric (moist) (2), Subhydric (moderately wet) (4), Hydric (wet) (4)

Nutrient Regime: Oligotrophic (very poor) (1), Permesotrophic (rich) (1), Submesotrophic (poor) (3), Mesotrophic (medium) (4)

Elevation (range): 1009 (815-1400) M

Slope (%): gentle slope (1), very gentle slope (1), nearly level (3), level (8)

Aspect: Easterly (1), Level (1), Northerly (1), Southerly (1), Westerly (2)

Topographic Position:Depression (1), Lower Slope (1)

Soil Variables

Soil Drainage: Imperfectly drained (1), Poorly drained (4), Very poorly drained (5)

Soil Subgroup: GLEYSOL (1), HUMISOL (1), MESISOL (7)

Surface Texture: Fibric (1), Fine sand (1), Humic (1), Mesic (5)

Effective Texture: Clay loam (1), Fibric (1), Humic (1), Mesic (5)

Depth to Mottles/Gley:

Organic Thickness: >= 80 cm (1), 60 - 79 cm (4), 0 - 5 cm (8)

Parent Material: Fluvial (1), Morainal (1), Undifferentiated Organic (11)

Soil Type: Organic (7)

Humus Form MESIC PEATYMOR (1)

LFc13 Bog birch-Willow/Sedge/Peat moss (n=13)

(Betula glandulosa-Salix spp./Carex spp./Sphagnum spp.)

This community type was described on the boundary between the Upper and Lower Foothills subregions in West-central Alberta. The presence of both willow and bog birch in this community type indicate a medium nutrient regime.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: l poor fen (subhydric/medium)
Ecosite Phase: l2 shrubby poor fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
TAMARACK *(Larix laricina)*	4.6	3.0-15.0	100
Medium Shrub (0.5 to 2 m)			
MYRTLE-LEAVED WILLOW *(Salix myrtillifolia)*	1.5	0.0-10.0	23
FLAT-LEAVED WILLOW *(Salix planifolia)*	1.5	0.0-20.0	8
COMMON LABRADOR TEA *(Ledum groenlandicum)*	1.6	0.0-12.0	39
BOG WILLOW *(Salix pedicellaris)*	4.2	0.0-40.0	15
BLACK SPRUCE *(Picea mariana)*	4.5	0.0-30.0	62
DWARF BIRCH *(Betula pumila)*	8.6	0.0-35.0	46
BOG BIRCH *(Betula glandulosa)*	25.7	0.0-63.0	54
Tall Forb (>= 30 cm)			
SWAMP HORSETAIL *(Equisetum fluviatile)*	1.7	0.0-15.0	46
PURPLE AVENS *(Geum rivale)*	2.1	0.0-18.0	23
Low Forb (< 30 cm)			
BUCK-BEAN *(Menyanthes trifoliata)*	4.1	0.0-20.0	39
Graminoid			
SMALL-WINGED SEDGE *(Carex microptera)*	1.7	0.0-15.0	23
BLUEJOINT *(Calamagrostis canadensis)*	3.0	0.0-18.0	31
SEDGE SPECIES *(Carex)*	5.3	0.0-45.0	46
WATER SEDGE *(Carex aquatilis)*	6.2	0.0-29.0	39
Moss			
SCHREBER'S MOSS *(Pleurozium schreberi)*	4.2	0.0-55.0	8
PEAT MOSS *(Sphagnum angustifolium)*	5.7	0.0-40.0	23
PEAT MOSS *(Sphagnum)*	6.9	0.0-50.0	23
GOLDEN MOSS *(Tomenthypnum nitens)*	8.7	0.0-35.0	54
TUFTED MOSS *(Aulacomnium palustre)*	10.1	0.0-30.0	77
PEAT MOSS *(Sphagnum warnstorfii)*	19.0	0.0-75.0	46

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Hygric (moist) (2), Subhydric (moderately wet) (4), Hydric (wet) (4)

Nutrient Regime: Permesotrophic (rich) (1), Oligotrophic (very poor) (1), Submesotrophic (poor) (3), Mesotrophic (medium) (4)

Elevation (range): 1009 (815-1400) M

Slope (%): 2.5 - 5.99 (1), 6 - 9.99 (1), 0.5 - 2.49 (3), 0 - 0.49 (8)

Aspect: Level (1), Southerly (1), Northerly (1), Easterly (1), Westerly (2)

Topographic Position: Depression (1), Lower Slope (1)

Soil Variables

Soil Drainage: Imperfectly drained (1), Poorly drained (4), Very poorly drained (5)

Soil Subgroup: MESISOL TERRIC FIBRIC (1), GLEYSOL ORTHIC (1), HUMISOL MESIC (1), MESISOL TERRIC (2), MESISOL TYPIC (4)

Surface Texture: Humic (1), Fine sand (1), Fibric (1), Mesic (5)

Effective Texture: Clay loam (1), Fibric (1), Humic (1), Mesic (5)

Depth to Mottles/Gley:

Organic Thickness: >= 80 cm (1), 60 - 79 cm (4), 0 - 5 cm (8)

Parent Material: Morainal (1), Fluvial (1), Undifferentiated Organic (11)

Soil Type: Organic (7)

Humus Form MESIC PEATYMOR (1)

m rich fen (subhydric/rich) (n=79)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The rich fen ecosite is characterized by flowing water and alkaline, nutrient-rich conditions. The soil is composed of organic matter from decomposing sedges, golden, tufted, and brown mosses. This ecosite occupies level and depressional areas where moving water is at or near the surface for a portion of the growing season. Tamarack dominates the canopy of the treed phase (m1), while dwarf birch or willow form the canopy of the shrubby phase (m2), and sedges dominate the graminoid phase (m3) of the rich fen ecosite.

Successional Relationships

The rich fen is an early stage in hydrarch succession. Species composition, and direction and rate of succession changes with the changing hydrologic regime. As with other wetlands, rich fens have slow successional rates so recovery from disturbance may also be slow.

Indicator Species

Tree

TAMARACK
Larix laricina

Shrub

SANDBAR WILLOW
Salix exigua

MYRTLE-LEAVED WILLOW
Salix myrtillifolia

FLAT-LEAVED WILLOW
Salix planifolia

SALIX SPECIES
Salix

BOG BIRCH
Betula glandulosa

Forb

MARSH-MARIGOLD
Caltha palustris

SWAMP HORSETAIL
Equisetum fluviatile

Moss and Liverwort

GOLDEN MOSS
Tomenthypnum nitens

Graminoid

WATER SEDGE
Carex aquatilis

SMALL BOTTLE SEDGE
Carex utriculata

BLUEJOINT
Calamagrostis canadensis

UNDIFFERENTIATED SCIRPUS
Scirpus

Environmental Variables

Moisture Regime: Mesic (fresh) (2), Subhygric (moderately moist) (5), Hygric (moist) (12), Subhydric (moderately wet) (23), Hydric (wet) (36)

Nutrient Regime: Eutrophic (very rich) (5), Submesotrophic (poor) (7), Mesotrophic (medium) (25), Permesotrophic (rich) (26)

Elevation (range): 978.71 (555-1410) M

Slope (%): moderate slope (2), very gentle slope (2), nearly level (10), level (50)

Aspect: Easterly (2), Northerly (2), Westerly (3), Southerly (5), Level (20)

Topographic Position:Toe (3), Depression (15), Level (27)

Soil Variables

Soil Drainage: Moderately well drained (3), Well drained (3), Imperfectly drained (9), Poorly drained (15), Very poorly drained (47)

Soil Subgroup: GRAY LUVISOL (1), LUVIC GLEYSOL (1), HUMISOL (3), REGOSOL (3), HUMIC GLEYSOL (5), FIBRISOL (7), GLEYSOL (8), MESISOL (21)

Surface Texture: Clay (1), Clay loam (1), Sand (1), Sandy clay (1), Silty clay loam (1), Silt loam (2), Silty clay (2), Humic (2), Heavy clay (3), Mesic (10), Fibric (18)

Effective Texture: Clay (1), Clay loam (1), Sandy clay (2), Sandy clay loam (2), Silt loam (2), Silty clay loam (2), Heavy clay (3), Humic (6), Fibric (7), Mesic (16)

Depth to Mottles/Gley: 0 - 25 (1), 26 - 50 (1)

Organic Thickness: 16 - 25 cm (1), 6 - 15 cm (1), 26 - 39 cm (2), 40 - 59 cm (4), 60 - 79 cm (7), >= 80 cm (17), 0 - 5 cm (30)

Parent Material: Eolian (1), Marsh (1), Rock (1), Swamp (1), Glaciofluvial (2), Bog (3), Morainal (5), Glaciolacustrine (6), Fen (7), Lacustrine (8), Fluvial (10), Undifferentiated Organic (28)

Soil Type: Wet/Mineral (7), Wet/Peaty (7), Organic (29)

Humus Form ANMOOR (1), FIBRIHUMIMOR (1), FIBRIMOR (1), HUMIFIBRIMOR (1), RAW MODER (1), RHIZOMULL (2), MESIC PEATYMOR (2), FIBRIC PEATYMOR (2), HUMIC PEATYMOR (3)

m1 treed rich fen (n=18)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)

Characteristic Species

Tree

[20.2]TAMARACK
Larix laricina

[3.7]BLACK SPRUCE
Picea mariana

Shrub

[18.3]DWARF BIRCH
Betula pumila

[8.1]COMMON LABRADOR TEA
Ledum groenlandicum

[6.6]BOG BIRCH*
Betula glandulosa

[4.4]MYRTLE-LEAVED WILLOW*
Salix myrtillifolia

[1.5]SALIX SPECIES
Salix

Forb

[2.8]BUCK-BEAN
Menyanthes trifoliata

[2.5]THREE-LEAVED SOLOMON'S-SEAL
Smilacina trifolia

[1.7]MARSH-MARIGOLD*
Caltha palustris

Moss and Liverwort

[24.7]GOLDEN MOSS*
Tomenthypnum nitens

[11.4]TUFTED MOSS
Aulacomnium palustre

[2.5]STAIR-STEP MOSS
Hylocomium splendens

[1.1]PEAT MOSS
Sphagnum warnstorfii

Graminoid

[3.7]WATER SEDGE*
Carex aquatilis

[2.7]TWO-STAMENED SEDGE
Carex diandra

[2.5]SEDGE SPECIES
Carex

Environmental Variables

Moisture Regime: Hydric (wet) (6), Subhydric (moderately wet) (9)

Nutrient Regime: Submesotrophic (poor) (2), Permesotrophic (rich) (4), Mesotrophic (medium) (8)

Elevation (range): 1152 (910-1410) M

Slope (%): very gentle slope (1), nearly level (5), level (11)

Aspect: Northerly (1), Southerly (1), Westerly (2), Level (2), Easterly (2)

Topographic Position:Depression (2), Level (3)

Soil Variables

Soil Drainage: Poorly drained (2), Very poorly drained (13)

Soil Subgroup: REGOSOL (1), FIBRISOL (3), MESISOL (9)

Surface Texture: Clay (1), Humic (1), Mesic (1), Fibric (8)

Effective Texture: Sandy clay (1), Fibric (2), Mesic (8)

Depth to Mottles/Gley:

Organic Thickness: 60 - 79 cm (4), >= 80 cm (5), 0 - 5 cm (8)

Parent Material: Fen (1), Glaciofluvial (1), Lacustrine (1), Morainal (1), Rock (1), Swamp (1), Bog (2), Undifferentiated Organic (11)

Soil Type: Wet/Peaty (1), Organic (10)

Humus Form FIBRIHUMIMOR (1)

LFj21 Lt/Bog birch/Sedge/Golden moss (n=18)

(Larix laricina/Betula glandulosa/Carex spp./Tomenthypnum nitens)

This community type is found on topographic low positions within minerotrophic peatlands. The water table is near the soil surface, although the flowing water creates a rich nutrient regime the decomposition of the sedges and mosses creates a thick organic soil.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)
Ecosite Phase: m1 treed rich fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Overstory Tree			
BLACK SPRUCE *(Picea mariana)*	2.3	0.0-20.0	56
TAMARACK *(Larix laricina)*	6.3	0.0-15.0	72
Understory Tree			
BLACK SPRUCE *(Picea mariana)*	1.4	0.0-8.0	28
TAMARACK *(Larix laricina)*	5.1	0.0-63.0	44
Tall Shrub (2 to 5m)			
TAMARACK *(Larix laricina)*	8.8	2.0-38.0	100
Medium Shrub (0.5 to 2 m)			
SALIX SPECIES *(Salix)*	1.5	0.0-11.0	39
MYRTLE-LEAVED WILLOW *(Salix myrtillifolia)*	4.4	0.0-40.0	17
BOG BIRCH *(Betula glandulosa)*	6.6	0.0-38.0	39
COMMON LABRADOR TEA *(Ledum groenlandicum)*	8.1	0.0-30.0	67
DWARF BIRCH *(Betula pumila)*	18.3	0.0-60.0	50
Low Forb (< 30 cm)			
MARSH-MARIGOLD *(Caltha palustris)*	1.7	0.0-20.0	33
THREE-LEAVED SOLOMON'S-SEAL *(Smilacina trifolia)*	2.5	0.0-10.0	67
BUCK-BEAN *(Menyanthes trifoliata)*	2.8	0.0-27.0	39
Graminoid			
SEDGE SPECIES *(Carex)*	2.5	0.0-14.0	39
TWO-STAMENED SEDGE *(Carex diandra)*	2.7	0.0-40.0	17
WATER SEDGE *(Carex aquatilis)*	3.7	0.0-15.0	44
Moss			
PEAT MOSS *(Sphagnum warnstorfii)*	1.1	0.0-7.0	28
STAIR-STEP MOSS *(Hylocomium splendens)*	2.5	0.0-30.0	28
TUFTED MOSS *(Aulacomnium palustre)*	11.4	0.0-50.0	56
GOLDEN MOSS *(Tomenthypnum nitens)*	24.7	0.0-80.0	56

Environmental Variables

Ecological Status Score: 25-25

Moisture Regime: Hydric (wet) (6), Subhydric (moderately wet) (9)

Nutrient Regime: Submesotrophic (poor) (2), Permesotrophic (rich) (4), Mesotrophic (medium) (8)

Elevation (range): 1152 (910-1410) M

Slope (%): 2.5 - 5.99 (1), 0.5 - 2.49 (5), 0 - 0.49 (11)

Aspect: Southerly (1), Northerly (1), Easterly (2), Westerly (2), Level (2)

Topographic Position: Depression (2), Level (3)

Soil Variables

Soil Drainage: Poorly drained (2), Very poorly drained (13)

Soil Subgroup: FIBRISOL TERRIC MESIC (1), REGOSOL ORTHIC (1), FIBRISOL HUMIC (1), FIBRISOL TERRIC (1), MESISOL TERRIC (1), MESISOL HUMIC (2), MESISOL TYPIC (6)

Surface Texture: Humic (1), Clay (1), Mesic (1), Fibric (8)

Effective Texture: Sandy clay (1), Fibric (2), Mesic (8)

Depth to Mottles/Gley:

Organic Thickness: 60 - 79 cm (4), >= 80 cm (5), 0 - 5 cm (8)

Parent Material: Glaciofluvial (1), Rock (1), Swamp (1), Morainal (1), Fen (1), Lacustrine (1), Bog (2), Undifferentiated Organic (11)

Soil Type: Wet/Peaty (1), Organic (10)

Humus Form FIBRIHUMIMOR (1)

m2 shrubby rich fen (n=45)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)

Characteristic Species

Shrub

[8.7]SALIX SPECIES*
Salix

[4.9]DWARF BIRCH
Betula pumila

[4.4]SANDBAR WILLOW*
Salix exigua

[4.4]BOG BIRCH
Betula glandulosa

[4.2]BEAKED WILLOW
Salix bebbiana

[3.6]FLAT-LEAVED WILLOW*
Salix planifolia

[2.5]DRUMMOND'S WILLOW
Salix drummondiana

[1.3]BOG WILLOW
Salix pedicellaris

Forb

[2.5]BUCK-BEAN
Menyanthes trifoliata

[1.3]MARSH CINQUEFOIL
Potentilla palustris

Moss and Liverwort

[8.6]GOLDEN MOSS
Tomenthypnum nitens

[4.0]TUFTED MOSS
Aulacomnium palustre

Graminoid

[11.4]BLUEJOINT*
Calamagrostis canadensis

[6.9]WATER SEDGE
Carex aquatilis

[2.3]SEDGE SPECIES
Carex

[2.1]SMALL BOTTLE SEDGE*
Carex utriculata

[1.4]KENTUCKY BLUEGRASS
Poa pratensis

[1.0]AWNED SEDGE
Carex atherodes

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (2), Mesic (fresh) (2), Hygric (moist) (10), Subhydric (moderately wet) (11), Hydric (wet) (20)

Nutrient Regime: Eutrophic (very rich) (5), Submesotrophic (poor) (5), Permesotrophic (rich) (11), Mesotrophic (medium) (15)

Elevation (range): 1010 (555-1374) M

Slope (%): moderate slope (2), nearly level (4), level (30)

Aspect: Northerly (1), Westerly (1), Southerly (3), Level (9)

Topographic Position:Toe (3), Depression (8), Level (15)

Soil Variables

Soil Drainage: Well drained (2), Moderately well drained (2), Imperfectly drained (6), Poorly drained (9), Very poorly drained (25)

Soil Subgroup: GRAY LUVISOL (1), LUVIC GLEYSOL (1), REGOSOL (2), HUMISOL (2), FIBRISOL (3), HUMIC GLEYSOL (4), GLEYSOL (4), MESISOL (11)

Surface Texture: Clay loam (1), Humic (1), Sand (1), Sandy clay (1), Silty clay (1), Silty clay loam (1), Silt loam (2), Fibric (6), Mesic (9)

Effective Texture: Clay (1), Clay loam (1), Sandy clay (1), Silt loam (2), Sandy clay loam (2), Fibric (3), Humic (5), Mesic (8)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 16 - 25 cm (1), 6 - 15 cm (1), 26 - 39 cm (2), 40 - 59 cm (3), 60 - 79 cm (3), >= 80 cm (9), 0 - 5 cm (14)

Parent Material: Bog (1), Eolian (1), Glaciofluvial (1), Marsh (1), Fen (3), Lacustrine (3), Morainal (3), Glaciolacustrine (4), Fluvial (8), Undifferentiated Organic (15)

Soil Type: Wet/Mineral (4), Wet/Peaty (4), Organic (16)

Humus Form MESIC PEATYMOR (1), RAW MODER (1), RHIZOMULL (2), HUMIC PEATYMOR (2)

LFc10 Willow-Bog birch/Sedge/Golden moss (n=34)

(Salix spp.-Betula glandulosa/Carex spp./Tomenthypnum nitens)

This community type is found along the edges of sedge meadows and in moist depressions. Willow and bog birch becomes established at the edges of the sedge meadow due to the shorter duration of standing water. Increased flooding and prolonged water logging may result in the disappearance of willow and bog birch and a transition to wet sedge meadows. As organic matter accumulates these sites dry out, black spruce, tamarack, balsam poplar or paper birch establish (Beckingham 1993). Indeed this process had started to occur on some of the described sites.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)
Ecosite Phase: m2 shrubby rich fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
BEAKED WILLOW *(Salix bebbiana)*	4.2	0.0-67.0	12
Medium Shrub (0.5 to 2 m)			
TAMARACK *(Larix laricina)*	1.5	0.0-10.0	38
BOG WILLOW *(Salix pedicellaris)*	2.7	0.0-30.0	27
SALIX SPECIES *(Salix)*	4.1	0.0-50.0	27
BOG BIRCH *(Betula glandulosa)*	4.3	0.0-45.0	29
DWARF BIRCH *(Betula pumila)*	9.8	0.0-50.0	44
Tall Forb (>= 30 cm)			
SWAMP HORSETAIL *(Equisetum fluviatile)*	1.1	0.0-21.0	32
MARSH CINQUEFOIL *(Potentilla palustris)*	1.6	0.0-17.0	47
Low Forb (< 30 cm)			
BUCK-BEAN *(Menyanthes trifoliata)*	2.9	0.0-30.0	38
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	3.0	0.0-30.5	24
SMALL BOTTLE SEDGE *(Carex utriculata)*	3.2	0.0-35.0	24
SEDGE SPECIES *(Carex)*	4.6	0.0-60.0	24
WATER SEDGE *(Carex aquatilis)*	13.8	0.0-65.0	59
Moss			
TUFTED MOSS *(Aulacomnium palustre)*	8.1	0.0-75.0	44
GOLDEN MOSS *(Tomenthypnum nitens)*	17.2	0.0-75.0	50

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Mesic (fresh) (1), Hygric (moist) (6), Subhydric (moderately wet) (7), Hydric (wet) (20)

Nutrient Regime: Permesotrophic (rich) (4), Eutrophic (very rich) (4), Submesotrophic (poor) (5), Mesotrophic (medium) (14)

Elevation (range): 1034 (795-1374) M

Slope (%): 0.5 - 2.49 (3), 0 - 0.49 (22)

Aspect: Southerly (1), Westerly (1), Level (4)

Topographic Position: Toe (1), Depression (6), Level (10)

Soil Variables

Soil Drainage: Well drained (1), Moderately well drained (1), Imperfectly drained (2), Poorly drained (6), Very poorly drained (24)

Soil Subgroup: MESISOL Limnic (1), FIBRISOL MESIC (1), GLEYSOL ORTHIC (1), GRAY LUVISOL ORTHIC (1), MESISOL TERRIC (1), MESISOL TERRIC HUMIC (1), HUMISOL TERRIC (2), FIBRISOL TYPIC (2), MESISOL FIBRIC (2), GLEYSOL REGO (3), MESISOL TYPIC (6)

Surface Texture: Silty clay (1), Sandy clay (1), Clay loam (1), Humic (1), Fibric (6), Mesic (9)

Effective Texture: Clay (1), Clay loam (1), Sandy clay (1), Fibric (3), Humic (5), Mesic (8)

Depth to Mottles/Gley: 0 - 25 (1)

Organic Thickness: 6 - 15 cm (1), 16 - 25 cm (1), 26 - 39 cm (1), 40 - 59 cm (3), 60 - 79 cm (3), 0 - 5 cm (8), >= 80 cm (9)

Parent Material: Marsh (1), Bog (1), Glaciofluvial (1), Eolian (1), Glaciolacustrine (2), Morainal (2), Lacustrine (2), Fluvial (3), Fen (3), Undifferentiated Organic (14)

Soil Type: Wet/Mineral (2), Wet/Peaty (2), Organic (16)

Humus Form MESIC PEATYMOR (1), HUMIC PEATYMOR (2)

LFc6 Willow/Marsh reed grass (Bluejoint) (n=9)

(Salix spp./Calamagrostis canadensis)

This community type occurs as small willow pockets in depressions on upland sites and as a transitional community type between wet lowland community types and drier upland community types. It occurs in areas where the water table is high in the spring (with frequent flooding). As organic matter accumulates and these sites begin to dry out, black spruce, tamarack, balsam poplar, or paper birch may establish (Beckingham 1993). These community types tend to persist for long periods of time before they undergo succession to forest.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)
Ecosite Phase: m2 shrubby rich fen

Plant Composition	Canopy Cover (%)		
	Mean	**Range**	**Const.**
Understory Tree			
WHITE BIRCH *(Betula papyrifera)*	1.6	0.0-10.0	22
Tall Shrub (2 to 5m)			
BEAKED WILLOW *(Salix bebbiana)*	4.3	0.0-38.7	11
SANDBAR WILLOW *(Salix exigua)*	8.8	0.0-60.0	22
Medium Shrub (0.5 to 2 m)			
SHRUBBY WILLOW *(Salix arbusculoides)*	1.1	0.0-10.0	11
NORTHERN GOOSEBERRY *(Ribes oxyacanthoides)*	1.2	0.0-5.0	33
BOG BIRCH *(Betula glandulosa)*	4.5	0.0-39.7	22
DRUMMOND'S WILLOW *(Salix drummondiana)*	5.0	0.0-45.0	11
FLAT-LEAVED WILLOW *(Salix planifolia)*	7.2	0.0-65.0	11
SALIX SPECIES *(Salix)*	13.3	0.0-54.0	66
Tall Forb (>= 30 cm)			
MARSH CINQUEFOIL *(Potentilla palustris)*	1.1	0.0-10.0	11
COMMON HORSETAIL *(Equisetum arvense)*	1.4	0.0-8.0	22
LARGE-LEAVED YELLOW AVENS *(Geum macrophyllum)*	1.7	0.0-12.1	22
COMMON FIREWEED *(Epilobium angustifolium)*	1.8	0.0-6.5	56
Low Forb (< 30 cm)			
BUCK-BEAN *(Menyanthes trifoliata)*	2.2	0.0-20.0	11
Graminoid			
SMALL BOTTLE SEDGE *(Carex utriculata)*	1.1	0.0-10.0	11
AWNED SEDGE *(Carex atherodes)*	2.1	0.0-18.0	22
KENTUCKY BLUEGRASS *(Poa pratensis)*	2.8	0.0-24.3	33
BLUEJOINT *(Calamagrostis canadensis)*	19.8	0.0-51.0	89

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Mesic (fresh) (1), Subhygric (moderately moist) (1), Hygric (moist) (3), Subhydric (moderately wet) (4)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (1), Permesotrophic (rich) (5)

Elevation (range): 986 (555-1309) M

Slope (%): 0.5 - 2.49 (1), 10 - 15.99 (1), 0 - 0.49 (7)

Aspect: Northerly (1), Southerly (1), Level (5)

Topographic Position: Depression (1), Toe (2), Level (4)

Soil Variables

Soil Drainage: Very poorly drained (1), Moderately well drained (1), Poorly drained (3), Imperfectly drained (4)

Soil Subgroup: LUVIC GLEYSOL ORTHIC (1), HUMIC GLEYSOL ORTHIC (1), REGOSOL GLEYED CUMULIC (1), HUMIC GLEYSOL REGO (3)

Surface Texture: Silt loam (1), Silty clay loam (1), Sand (1)

Effective Texture: Silt loam (1), Sandy clay loam (2)

Depth to Mottles/Gley:

Organic Thickness: 26 - 39 cm (1), 0 - 5 cm (5)

Parent Material: Undifferentiated Organic (1), Morainal (1), Lacustrine (1), Glaciolacustrine (2), Fluvial (4)

Soil Type: Wet/Mineral (1), Wet/Peaty (2)

Humus Form RAW MODER (1), RHIZOMULL (2)

m3 graminoid rich fen (n=16)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)

Characteristic Species

Shrub

[3.0]MYRTLE-LEAVED WILLOW
Salix myrtillifolia

Forb

[10.0]SWAMP HORSETAIL*
Equisetum fluviatile

[1.6]COMMON FIREWEED
Epilobium angustifolium

Moss and Liverwort

[5.3]GOLDEN MOSS
Tomenthypnum nitens

Graminoid

[32.6]BLUEJOINT*
Calamagrostis canadensis

[7.7]SMALL BOTTLE SEDGE*
Carex utriculata

[2.3]PROSTRATE SEDGE
Carex chordorrhiza

[1.4]UNDIFFERENTIATED SCIRPUS*
Scirpus

Environmental Variables

Moisture Regime: Hygric (moist) (2), Subhydric (moderately wet) (3), Subhygric (moderately moist) (3), Hydric (wet) (10)

Nutrient Regime: Mesotrophic (medium) (2), Permesotrophic (rich) (11)

Elevation (range): 919.75 (640-1385) M

Slope (%): nearly level (1), very gentle slope (1), level (9)

Aspect: Southerly (1), Level (9)

Topographic Position:Depression (5), Level (9)

Soil Variables

Soil Drainage: Moderately well drained (1), Well drained (1), Imperfectly drained (3), Poorly drained (4), Very poorly drained (9)

Soil Subgroup: FIBRISOL (1), HUMIC GLEYSOL (1), HUMISOL (1), MESISOL (1), GLEYSOL (4)

Surface Texture: Silty clay (1), Heavy clay (3), Fibric (4)

Effective Texture: Humic (1), Silty clay loam (2), Fibric (2), Heavy clay (3)

Depth to Mottles/Gley: 26 - 50 (1)

Organic Thickness: 40 - 59 cm (1), >= 80 cm (3), 0 - 5 cm (8)

Parent Material: Morainal (1), Undifferentiated Organic (2), Glaciolacustrine (2), Fluvial (2), Fen (3), Lacustrine (4)

Soil Type: Wet/Peaty (2), Organic (3), Wet/Mineral (3)

Humus Form ANMOOR (1), FIBRIMOR (1), HUMIC PEATYMOR (1), HUMIFIBRIMOR (1), MESIC PEATYMOR (1), FIBRIC PEATYMOR (2)

LFb14 Swamp horsetail (n=1)

(Equisetum fluviatile)

This wetland community type is found near fresh water and is often associated with shallow water around lake shores or saturated wet spots in old river channels and sloughs. This community is often only found in small isolated spots or in narrow bands around the edge of lakes. As these areas dry, swamp horsetail is often replaced by sedge species.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)
Ecosite Phase: m3 graminoid rich fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Forb (>= 30 cm)			
SWAMP HORSETAIL *(Equisetum fluviatile)*	30.0	30.0-30.0	100
Graminoid			
SMALL BOTTLE SEDGE *(Carex utriculata)*	5.0	5.0-5.0	100
Moss			
N/A *(Calliergon giganteum)*	1.0	1.0-1.0	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Hydric (wet) (1)

Nutrient Regime: Permesotrophic (rich) (1)

Elevation (range): 1040 (1040-1040) M

Slope (%): 0 - 0.49 (1)

Aspect: Level (1)

Topographic Position: Level (1)

Soil Variables

Soil Drainage: Very poorly drained (1)

Soil Subgroup: GLEYSOL REGO (1)

Surface Texture: Heavy clay (1)

Effective Texture: Heavy clay (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Fluvial (1), Lacustrine (1)

Soil Type: Wet/Mineral (1)

Humus Form ANMOOR (1)

LFb7 Marsh reed grass (Bluejoint) (n=1)

(Calamagrostis canadensis)

This community type occurs on very moist, depressional areas. It will occur on the fringes around marshes or sedge meadows and in the center of willow rings on upland sites. Unlike sedge meadows, these areas are only flooded in the spring and early summer; which allows marsh reed grass to dominate instead of sedges.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)
Ecosite Phase: m3 graminoid rich fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
MYRTLE-LEAVED WILLOW *(Salix myrtillifolia)*	9.0	9.0-9.0	100
Tall Forb (>= 30 cm)			
COMMON HORSETAIL *(Equisetum arvense)*	1.0	1.0-1.0	100
COMMON FIREWEED *(Epilobium angustifolium)*	5.0	5.0-5.0	100
Graminoid			
BLUEJOINT *(Calamagrostis canadensis)*	95.0	95.0-95.0	100
Moss			
GOLDEN MOSS *(Tomenthypnum nitens)*	16.0	16.0-16.0	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Subhygric (moderately moist) (1)

Nutrient Regime: Permesotrophic (rich) (1)

Elevation (range): 914 (914-914) M

Slope (%): 0 - 0.49 (1)

Aspect: Level (1)

Topographic Position: Level (1)

Soil Variables

Soil Drainage: Well drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

LFb8 Sedge rich fen (n=13)

(Carex aquatilis)

This community type is found in areas that are flooded for most of the growing season. It occurs on wetter sites than the Marsh reed grass community type. Succession within this community type is very slow and proceeds with organic matter accumulations (Beckingham 1994). Therefore, this community type can be considered the potential natural vegetation for the site.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: m rich fen (subhydric/rich)
Ecosite Phase: m3 graminoid rich fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Shrub (2 to 5m)			
SALIX SPECIES *(Salix)*	1.9	0.0-24.7	16
Tall Forb (>= 30 cm)			
LARGE-LEAVED YELLOW AVENS *(Geum macrophyllum)*	1.0	0.0-11.6	23
Graminoid			
HAIRY-FRUITED SEDGE *(Carex lasiocarpa)*	1.8	0.0-18.0	39
LIVID SEDGE *(Carex livida)*	2.1	0.0-25.0	15
WATER SEDGE *(Carex aquatilis)*	2.3	0.0-17.0	39
MUD SEDGE *(Carex limosa)*	2.3	0.0-25.0	31
BLUEJOINT *(Calamagrostis canadensis)*	2.8	0.0-31.3	23
UNDIFFERENTIATED SCIRPUS *(Scirpus)*	4.2	0.0-55.0	8
PROSTRATE SEDGE *(Carex chordorrhiza)*	7.0	0.0-45.0	31
SMALL BOTTLE SEDGE *(Carex utriculata)*	18.3	0.0-77.3	62

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Subhygric (moderately moist) (1), Hygric (moist) (2), Subhydric (moderately wet) (3), Hydric (wet) (9)

Nutrient Regime: Mesotrophic (medium) (2), Permesotrophic (rich) (8)

Elevation (range): 1085 (809-1385) M

Slope (%): 2.5 - 5.99 (1), 0.5 - 2.49 (1), 0 - 0.49 (7)

Aspect: Southerly (1), Level (7)

Topographic Position: Depression (4), Level (7)

Soil Variables

Soil Drainage: Imperfectly drained (3), Poorly drained (4), Very poorly drained (8)

Soil Subgroup: MESISOL TERRIC (1), HUMIC GLEYSOL ORTHIC (1), GLEYSOL REGO (1), HUMISOL TERRIC (1), FIBRISOL MESIC (1), GLEYSOL ORTHIC (2)

Surface Texture: Silty clay (1), Heavy clay (2), Fibric (4)

Effective Texture: Humic (1), Fibric (2), Silty clay loam (2), Heavy clay (2)

Depth to Mottles/Gley: 26 - 50 (1)

Organic Thickness: 40 - 59 cm (1), >= 80 cm (3), 0 - 5 cm (7)

Parent Material: Morainal (1), Fluvial (1), Glaciolacustrine (2), Undifferentiated Organic (2), Lacustrine (3), Fen (3)

Soil Type: Wet/Peaty (2), Wet/Mineral (2), Organic (3)

Humus Form FIBRIMOR (1), HUMIFIBRIMOR (1), HUMIC PEATYMOR (1), MESIC PEATYMOR (1), FIBRIC PEATYMOR (2)

n marsh (hydric/rich) (n=3)

Natural Subregion: Lower Foothills

Ecosection: LF Lower Foothills

General Description

The marsh ecosite is found in level and depressional areas along shorelines of water bodies and in riparian zones. The water is above the rooting zone for at least part of the growing season. These ecosites are dominated by a wide variety of emergent sedges and rushes.

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (1), Hydric (wet) (2)

Nutrient Regime: Eutrophic (very rich) (1), Permesotrophic (rich) (2)

Elevation (range): 985 (910-1060) M

Slope (%): level (2)

Aspect: Level (2)

Topographic Position:Depression (1), Level (1)

Soil Variables

Soil Drainage: Poorly drained (1), Very poorly drained (2)

Soil Subgroup: FIBRISOL (1), GLEYSOL (1)

Surface Texture: Clay loam (1)

Effective Texture: Fibric (1), Silty clay (1)

Depth to Mottles/Gley:

Organic Thickness: 26 - 39 cm (1), 0 - 5 cm (2)

Parent Material: Fen (1), Fluvial (1)

Soil Type: Organic (1), Wet/Mineral (1)

Humus Form FIBRIC PEATYMOR (1)

Successional Relationships

The marsh ecosite is near the beginning stages of hydrarch succession. The marsh ecosite can be thought of as successionally stable with changes in plant community composition being determined largely by disturbance regime.

Indicator Species

Forb

COMMON CATTAIL
Typha latifolia

Graminoid

UNDIFFERENTIATED RUSH
Juncus

UNDIFFERENTIATED SCIRPUS
Scirpus

SEDGE SPECIES
Carex

n1 marsh (n=3)

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: n marsh (hydric/rich)

Characteristic Species

Forb

[7.0]COMMON CATTAIL*
Typha latifolia

[1.0]THREE-LEAVED SOLOMON'S-SEAL
Smilacina trifolia

Moss and Liverwort

[1.2]GREVILLE'S FORK MOSS
Dicranella grevilleana

Graminoid

[12.5]HUDSON BAY BULRUSH*
Scirpus hudsonianus

[9.0]PROSTRATE SEDGE*
Carex chordorrhiza

[3.5]MUD SEDGE
Carex limosa

[3.0]HAIRY-FRUITED SEDGE
Carex lasiocarpa

[1.2]SMALL BOTTLE SEDGE
Carex utriculata

[1.0]WATER SEDGE
Carex aquatilis

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (1), Hydric (wet) (2)

Nutrient Regime: Eutrophic (very rich) (1), Permesotrophic (rich) (2)

Elevation (range): 985 (910-1060) M

Slope (%): level (2)

Aspect: Level (2)

Topographic Position:Depression (1), Level (1)

Soil Variables

Soil Drainage: Poorly drained (1), Very poorly drained (2)

Soil Subgroup: FIBRISOL (1), GLEYSOL (1)

Surface Texture: Clay loam (1)

Effective Texture: Fibric (1), Silty clay (1)

Depth to Mottles/Gley:

Organic Thickness: 26 - 39 cm (1), 0 - 5 cm (2)

Parent Material: Fen (1), Fluvial (1)

Soil Type: Organic (1), Wet/Mineral (1)

Humus Form FIBRIC PEATYMOR (1)

LFb11 Cattail marsh (n=2)

(Typha latifolia)

This community type is associated with standing water. Thompson and Hansen (2002) have found that the saturated or inundated conditions tend to limit species diversity.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: n marsh (hydric/rich)
Ecosite Phase: n1 marsh

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Tall Forb (>= 30 cm)			
COMMON CATTAIL *(Typha latifolia)*	14.0	8.0-20.0	100
Graminoid			
WATER SEDGE *(Carex aquatilis)*	2.0	1.0-3.0	100
SMALL BOTTLE SEDGE *(Carex utriculata)*	2.5	1.0-4.0	100
Moss			
GREVILLE'S FORK MOSS *(Dicranella grevilleana)*	2.5	0.0-5.0	50

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Hydric (wet) (1), Subhydric (moderately wet) (1)

Nutrient Regime: Permesotrophic (rich) (2)

Elevation (range): 985 (910-1060) M

Slope (%): 0 - 0.49 (2)

Aspect: Level (2)

Topographic Position: Level (1), Depression (1)

Soil Variables

Soil Drainage: Very poorly drained (1), Poorly drained (1)

Soil Subgroup: FIBRISOL HYDRIC (1), GLEYSOL REGO (1)

Surface Texture: Clay loam (1)

Effective Texture: Silty clay (1), Fibric (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1), 26 - 39 cm (1)

Parent Material: Fen (1), Fluvial (1)

Soil Type: Organic (1), Wet/Mineral (1)

Humus Form FIBRIC PEATYMOR (1)

LFb12 Bulrush marsh (n=1)

(Scirpus hudsonianus)

This community type occurs along the margins of ponds and lakes (Thompson and Hansen 2002). Bulrush tends to be found growing in the water. Often the water is up to 2 m deep.

Natural Subregion: Lower Foothills
Ecosection: LF Lower Foothills

Ecosite: n marsh (hydric/rich)
Ecosite Phase: n1 marsh

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Medium Shrub (0.5 to 2 m)			
BOG WILLOW *(Salix pedicellaris)*	1.0	1.0-1.0	100
Tall Forb (>= 30 cm)			
STICKY FALSE ASPHODEL *(Tofieldia glutinosa)*	1.0	1.0-1.0	100
SEASIDE ARROW-GRASS *(Triglochin maritima)*	1.0	1.0-1.0	100
Low Forb (< 30 cm)			
FLAT-LEAVED BLADDERWORT *(Utricularia intermedia)*	1.0	1.0-1.0	100
THREE-LEAVED SOLOMON'S-SEAL *(Smilacina trifolia)*	2.0	2.0-2.0	100
Graminoid			
HAIRY-FRUITED SEDGE *(Carex lasiocarpa)*	6.0	6.0-6.0	100
MUD SEDGE *(Carex limosa)*	7.0	7.0-7.0	100
PROSTRATE SEDGE *(Carex chordorrhiza)*	18.0	18.0-18.0	100
HUDSON BAY BULRUSH *(Scirpus hudsonianus)*	25.0	25.0-25.0	100
Moss			
GOLDEN MOSS *(Tomenthypnum nitens)*	1.0	1.0-1.0	100

Environmental Variables

Ecological Status Score: 40-40

Moisture Regime: Hydric (wet) (1)

Nutrient Regime: Eutrophic (very rich) (1)

Elevation (range): 0 (0-0) M

Slope (%):

Aspect:

Topographic Position:

Soil Variables

Soil Drainage: Very poorly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material:

Soil Type:

Humus Form

Literature Cited

Adams, B.W., G. Ehlert, C. Stone, D. Lawrence, M. Alexander, M. Willoughby, C. Hincz, D.Moisey, and A.Burkinshaw. 2016. Rangeland Health Assessment for Grassland, Forest and Tame Pasture. Alberta Sustainable Resource Development. Public Lands Division. Edmonton. AB.Pub. No. T/044. 104pp.

AGRASID. Version 4.0. http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/All/sag14653

Alberta Environmental Protection. 1994. Natural Regions of Alberta. Department of Environmental Protection. Edmonton, AB. Pub. no.: I/531. 18pp.

Alberta Rangeland Health Task Group. 1999. Terms of Reference. Alberta Agriculture Food and Rural Development (Public Lands Division), Alberta Environment (Forest Management Division). Edmonton, AB. 49pp.

Alberta Wetland Classification System. 2015. Alberta Environment and Sustainable Resource Development (ESRD), Water Policy Branch, Policy and Planning Division. Edmonton, AB. 66pp.

Archibald, J.H., G.D. Klappstein and I.G.W. Corns. 1996. Field guide to ecosites of Southwestern Alberta. Special report 8. Canadian Forest Service. Northwest Region. Northern Forestry Centre.

Beckingham, J. 1993. Ecosystem associations of Northern Alberta. Environmental Protection, Land and Forest Services, Edmonton, AB. 381pp.

Beckingham, J. 1994. Field guide to the ecosystems of Northern Alberta. Environmental Protection, Land and Forest Services, Edmonton, AB. 352pp.

Beckingham, J.D and Archibald, J.H. 1996. Field Guide to ecosites of northern Alberta. Nat. Resour. Can., Can. For. Serv., Northwest Reg., Northern Forestry Centre. Edmonton, AB. Spec. Rep. 5.

Beckingham, J., I.G.W. Corns and J.H. Archibald. 1996. Field Guide to ecosites of West-Central Alberta. Special report 9. Canadian Forest Service. Northwest Region. Northern Forestry Centre.

Bonner, G.M. 1985. Inventory of forest biomass in Canada. Environ. Can., Can. For. Serv., Petawawa Natl. For. Inst., Chalk River, Ontario.

Corns, I.G.W. and R.M. Annas. 1986. Field guide to forest ecosystems of West-Central Alberta. Northern Forestry Centre, Canadian Forestry Service, Edmonton, AB. 251pp.

Daubenmire, R. 1952. Forest vegetation of Northern Idaho and adjacent Washington and its bearing on concepts of vegetation classification. Ecol. Mongr. 22: 301-330.

Daubenmire, R. 1978. Plant Geography. Academic Press. New York. 338pp.

Ecological Land Survey Site Description Manual (2nd).2003. Resource Data Branch, Strategic Corporate Services Division. Alberta Sustainable Resource Development. Edmonton, AB. Pub. no. T/036. 112 pp.

Environmental Management Associates (EMA). 1993. Deciduous forest types of the Lower Boreal Cordilleran Ecoregion, West Central Alberta. Alberta Forestry, Lands and Wildlife. Resource Information Branch, Edmonton, AB. 159 pp.

Gauch, H.G. 1982. Multivariate analysis in community ecology. Cambridge University Press. Cambridge. 298pp.

Hay, W.K., J.M. Veltman and R.W. Haag. 1985. An integrated resource inventory of the East Beaver Lake Assessment Area, Physical Land and Forage Classifications. Vol. 1, Alberta Energy and Natural Resources, Resource Evaluation and Planning. Edmonton, AB.

Holechek, J.L., R.D. Pieper and C.H.Herbel. 1995. Range management principles and practices. 2. Prentice-Hall Inc. Engewood Cliff. New Jersey. Chapter 8.

Jones, J.R. 1985. Distribution. p. 9-10 In: N.V. DeByle and R.P. Winokur (eds.) Aspen: ecology and management in the western United States. U.S. Dep. Agric., For. Serv., Rocky Mtn. For. Range Exp. Stn., Gen. Tech. Rep. RM-119. Fort Collins, Colo.

Kocaoglu, S.S. and E.J. Bennett. 1983. Integrated Resource Inventory. Physical Land and Forage Classification: Special Lakeland Area. Volume I and II, Appendices, Land Classification and Resource Inventory sections. Resource Inventory and Appraisal. Alberta Energy and Natural Resources. Resource Evaluation and Planning. ENR Report #T/48.

Lane, C. T., M.G. Willoughby and M.J. Alexander. 2000. Range plant community types and carrying capacity for the Lower Foothills subregion of Alberta. Alberta Environment and Alberta Agriculture Food and Rural Development. Edmonton. AB. Pub. no. T/532. 232pp.

Lane, C. 1998. The effects of forest harvesting and cattle utilization on aspen regeneration and forage supply. M.Sc. Thesis, University of Alberta, Edmonton, AB.

La Roi, R.H. 1991. Classification and ordination of southern boreal forests from the Hondo-Slave Lake areas of central Alberta. Can. J. Bot. 70: 614-628.

Lawrence, D. C.T. Lane. M.G. Willoughby. C. Hincz. D. Moisey and C. Stone. 2005. Range plant community types and carrying capacity for the Lower Foothills subregion of Alberta. 4th Approximation. Alberta Sustainable Resource Development. Edmonton. AB. Pub no. T/083.

Lodge, R.W., A. McLean and A. Johnston. 1968. Stock-poisoning plants of Western Canada. Agriculture Canada. Publication # 1361. 35pp.

MacKinnon, A., J. Pojar and R. Coupe. 1992. Plants of Northern British Columbia. Lone Pine Publishing, Edmonton, AB. 345pp.

Marshall, I.B., Smith, C.A.S., Selby, C.J. 1996. A national framework for monitoring and reporting on environmental sustainability in Canada. Environmental Monitoring and Assessment 39: 25-38.

Meidinger, D. and J. Pojar (compilers and editors). 1991. Ecosystems of British Columbia. BC Min. For. Special Report Series 6. Victoria, BC. 330 pp.

Mueggler, W.F. 1988. Aspen community types of the Intermountain Region. USDA Intermountain Research Station. INT-250. 133pp.

Natural Region Committee. 2006. Natural Regions and Subregions of Alberta. Compiled by D.J. Downing and W.W. Pettapiece. Government of Alberta. Pub. No. I/005.

Peterson, E.B. and N.M. Peterson. 1992. Ecology, management and use of aspen and balsam poplar in the prairie provinces. Northern Forestry Centre, Canadian Forestry Service. Edmonton, AB. Special report 1. 252pp.

Range Survey Manual. 1992. Range Management Section. Alberta Forest Service. Edmonton, AB. 39pp.

Still, G. and G. Utzig. 1982. Factors affecting the quality of interpretations. Pages 63-73 in Soil interpretations

for forestry. B.C. Minist. For. Victoria, British Columbia. Land Manage. Rep. 10.

Strong, W.L. and H.G. Anderson. 1980. Ecological land classification and evaluation reference manual. Resource Evaluation reference manual. Resource Evaluation Branch, Energy and Natural Resources. Edmonton, Alta. 160pp.

Strong, W.L. and J.M. Thompson. 1995. Ecodistricts of Alberta: Summary of Biophysical Attributes. Alberta Environmental Protection, Resource Data Division. Edmonton, Alta. Pub. no. T/319. 91pp.

Strong, W.L. and K.R. Leggat. 1992. Ecoregions of Alberta. Alberta Forestry, Lands and Wildlife, Resource Information Branch, Edmonton, AB. T/245. 77pp.

Task Group on Unity and Concept. 1995. New concepts for assessment of rangeland condition. J. Range Manage. 38:220-225.

Westoby, M., B. Walker and I. Noy-Meir. 1989. Opportunistic management for rangelands not at equilibrium. J. of Range Manage. 42:266-274.

Wheeler G.W. and M.G. Willoughby. 1993. Campbell creek aspen regeneration grazing trial. Unpubl. Rep. Range Manage. Sec. For. Manage. Div. Land and For. Serv., Dep. Environmental Protection. Edmonton, AB.

Wilkinson, K. and E.A. Johnson. 1982. Distribution of prairies and solonetzic soils in the Peace River district, Alberta. Can. J. Bot. 61: 1851-1860.

Willoughby, M.G. 1995. The effects of grazing on deciduous plant communities in the Boreal Ecoprovince of Alberta, p. 608-609. In: N.E. West, (eds.), Rangelands in a sustainable biosphere. Proceedings of the 5th International Rangeland Congress Vol. 1. July 23-28, 1995, Salt Lake City, Utah. Society for Range Management, Denver, Colorado.

Willoughby, M.G., M. Alexander, and B. Adams. 2005. Range plant community types and carrying capacity for the Montane Subregion. Sixth approximation. Alberta Sustainable Resource Development. Public Lands and Forests Division. Edmonton. AB. Pub. No. T/071. 235pp.

Willoughby, M.G., C. Stone, C. Hincz, D. Moisey, G.Ehlert and D. Lawrence. 2005. Range plant community types and carrying capacity for the Dry and Central Mixedwood subregions. Fifth approximation. Alberta Sustainable Resource Development. Public Lands and Forests Division. Edmonton. AB. Pub. No. T/074. 231pp.

Willoughby, M.G. 2005. Range plant community types and carrying capacity for the Upper Foothills Subregion. Fifth approximation.Alberta Sustainable Resource Development. Public Lands and Forests Division. Edmonton. AB. Pub.no.: T/068, 129pp.

M.G. Willoughby, J.H. Archibald, G.D. Klappstein, I.G.W. Corns, J.D. Beckingham, B.E. Wilson and D.J. Downing. 2017. Guide to Ecological Sites of the Montane Subregion. Alberta Government, Edmonton, Alberta. ISBN: 978-1-4601-3720-8

Appendix 1. Forest Management Interpretations[1]

Forest Management Interpretations are derived from the limitations of the ecological units in the classification system. These have been developed through literature review and expert opinion from public workshops. They present the user with a general outline of limitations that together with the user's knowledge and experience should be applied in a creative manner. Some management interpretations will change dramatically with time, season of year, economic conditions, existing technology, scale of application, and program objectives (Still and Utzig 1982). Under no circumstances should the information in the dataset be construed as a formal recommendation or guideline for resource management, or as a prescription for specific sites.

Six levels were used to rate the ecosites and soil types: low (L), low to medium (L-M), low to high (L-H), medium (M), medium to high (M-H) and high (H).

Table 2. Forest management interpretations for Ecological sites in the Lower Foothills Subregion (Beckingham et al. 1996).

ECOSITE_CODE	ECOSECTION	DROUGHT	EXCESS_MOIST	RUTTING	COMPACTION	SOIL_TEMP	COMPETITION	WINDTHROW
a	LF	H	L	L	L	L	L	NA
b	LF	H	L	L	L	L	L	L
c	LF	M-H	L	L	L	L	M	L-M
d	LF	L-H	L	L-M	L-M	L	L-M	L
e	LF	L	L	M	M	L	H	L-M
f	LF	L	M-H	H	H	M	H	M
ff	LF	M	L	H	H	L	H	NA
g	LF	L	M-H	H	H	M	H	M
h	LF	L	M-H	H	H	H	H	M-H
i	LF	L	H	H	H	H	H	H
j	LF	L	H	H	H	H	M-H	H
k	LF	L	H	H	L	H	L	H
l	LF	L	H	H	L	H	L	H
m	LF	L	H	H	L	H	L	H
n	LF	L	H	H	L	NA	NA	NA

The relative meaning of a limitation rating and the variables that were used in the rating process are described below. All limiting factors were rated through an assessment of the variability of important site and soil characteristics associated with each ecosite and soil type.

Drought Limitations

Droughty conditions are associated with rapidly drained soils that draw water away from the rooting zone for a significant portion of the growing season. Typically, sites that are limited by drought are associated with coarse-textured soils or are situated on steep south-facing slopes where insolation and surface runoff are high.

[1] Beckingham, J., I.G.W. Corns and J.H. Archibald. 1996. Field guide to ecosites of West-Central Alberta. Special report 9. Canadian Forest Service. Northwest Region. Edmonton, AB

Remedial silviculture efforts such as drought-tolerant species, using stock with small tops and large root systems, and using micro-shelter planting sites can all help alleviate the effects of drought (Strong and Carnell 1995).

Ratings are based on the moisture regime of the ecosites and soil types. A high drought limitation rating indicates severe limitations while low ratings indicate little or no limitations.

Excess Moisture

Excess soil moisture is a concern because serious site degradation can occur if sites are not properly managed. Operating heavy equipment on wet sites can cause serious rutting, compaction and puddling damage and therefore should be avoided. Winter months are suitable for operating on wet sites as the ground is frozen and snow cover acts as a disturbance buffer.

From a silvicultural perspective, excess moisture is a concern because wet soils require more heat to raise rooting zone temperatures and rooting zone aeration is reduced by saturation.

Ratings are based on the moisture regime of the ecosites and soil types. A high excess moisture rating indicates severe limitations while low ratings indicate little or no limitations.

Soil Rutting and Compaction Hazard

Machine traffic most often modifies soil quality through compaction, remoulding, puddling and/or soil displacement, which in turn affects several interrelated soil physical properties. The modification that predominates depends on soil wetness, applied stress and number of passes. Soil texture may also be important, especially when soils are at moisture levels close to field capacity.

The risk of causing soil compaction or rutting by forestry operations should be evaluated before beginning operations as both risks are greatly influenced by the amount of water in the soil at the time of disturbance. Risk assessments are based on soil water content and on estimates of the time it takes a wet soil to drain.

The rating system included in this database does not replace the operational assessment but is designed as a planning tool. It can be used as part of the decision proves when evaluating whether an area has the potential for supporting operations in the summer months.

Soil modifications affect four physical processes important to an organism’s health: water supply and flux, heat flux, soil strength, and gas diffusion. Simply stated, the effects of compaction and rutting are manifested in changed in water infiltration rates, soil heat flux, root penetration, and oxygen supply in the soil. All of these conditions may influence soil quality and ultimately soil productivity.

The rating system is based primarily on moisture regime and related soil drainage with soil texture considered for coarse-textured soils (less than 20% silt and clay). High risk ratings indicate that it is unlikely that summer operations would be possible, medium ratings indicate that operations may be possible in dry periods, while those with low risk ratings are good candidates for summer operations. Current moisture conditions should always be evaluated before initiating operations.

Soil Temperature Limitations

Soil temperature is an important characteristic as it relates to seedling growth and survival. In cold soils, the rate of root development and the ability of plants to uptake water is considerably less than in warm soils. Thus seedlings planted in cold soils are disadvantaged during the critical establishment period. Areas where cold soils are prevalent include depressions, north-facing slopes (300 to 60 degree aspect) greater than 30%, sites located at the base of major slopes and in valleys. Opportunities exist to increase soil temperatures to more than favourable levels using various site preparation methods that create raised microsites and/or exposed mineral soils. Educating tree planters to plant in idealized microsite locations will also help increase the survival rates of seedlings situated in areas where cold soils exist.

Ratings were based on moisture regime, topographic position and surface texture of the ecosites and soil types and on the assumption that organic layers are disturbed during operations. Increase the rating by one level (e.g., medium to high) if organic layers are not disturbed.

Vegetation Competition

Assessing the degree of vegetation competition associated with each ecosite is important as it relates to forestry planning and operations such as choosing an appropriate planting stock, site preparation methods and projected management costs. Research and experience has shown that competition is related to the height and percent cover of shrubs, forbs and grasses and whether a seedling is overtopped by a competitor. Some of the more competitive species include shrubs such as green alder, river alder, willow and bracted honeysuckle, tall prolific forbs such as fireweed and wild sarsaparilla and grasses such as hairy wild rye and most particularly marsh reed grass.

Ratings were based on the moisture regime, nutrient regime, and surface texture of the ecosites and on the assumption that organic layers are disturbed during operations. In general, high ratings were assigned to those ecosites that are moist and rich. Low ratings were assigned to ecosites that are very dry, rapidly drained and/or nutrient poor where dense understorey vegetation is uncommon.

Windthrow Hazard

Several environmental and man-made factors, not particular to an ecosite or soil type, influence the susceptibility of a site to windthrow hazard. These factors include exposure, cutblock layout and topography and should always be considered when assessing the windthrow hazard of a particular site. Shallow root systems evident on sites with thick organic layers or high water tables increases the chance of windthrow while coarse-textured soils can reduce the ability of a root system to anchor trees firmly.

Windthrow hazard ratings for ecosites and soil types were based on organic thickness, presence of water table, tree rooting habit and effective soil texture.

Soil Erosion Hazard

Soil types were rated for surface water erosion hazard. Infiltration capacity and structural stability are regarded as the most important factors in controlling water erosion; therefore, they were central to the evaluation. Numerous soil and site variable affect infiltration capacity and structural stability including the extent and type of vegetation cover, the thickness of the LFH layer, the type of humus form, texture of the surface and C horizons, degree of carbonate cementing, coarse fragment content, slope angle, and length of slope. Climatic factors such as rainfall intensity, duration and seasonal distribution and the rapidity of snow melt affect erosion, but are difficult to relate to a particular ecosite or soil type. Soil erosion hazard decreases as clay or sand content increase, and increases as percent silt increases. As organic matter depth and vegetation increase erosion hazard decreases.

Ratings were based on the moisture regime and surface texture of the soil types and on the assumption that organic layers are disturbed during operations. Reduce the soil hazard rating by one level (e.g. high to medium) if organic layers and/or vegetation are not disturbed.

Appendix 2. Soil Types

Soil types are taxonomic units used to group soils based on soil moisture regime, effective soil texture, organic matter thickness and solum depth. Soil types can be used independently, in association with the hierarchical classification system (ecosite, ecosite phase and plant community type) or to classify disturbed sites.

Along with moisture regime, organic matter thickness, and solum depth, effective texture is central to the soil type classification system. Effective texture for mineral soils is generally defined as the textural class of the finest-textured horizon that occurs 20 to 60 cm below the mineral soil surface and that is at least 10cm thick. The 10-cm minimum thickness stipulation avoids misclassifying soils as fine textured when they are predominantly coarse, but have thin, finer-textured depositional bands.

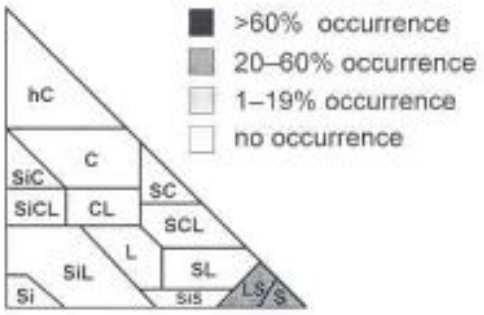
There are 5 major soil types defined by their soil moisture: very dry (SV) (very xeric-xeric-subxeric); dry (SD) (submesic); moist (SM) (mesic-subhygric); wet (SW) (hygric-subhydric-hydric); organic (SR); and shallow (SS). The soil types are further broken down by their texture class, for a total of 17 classes.

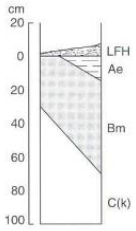
For this guide we have combined the soil type definitions from the field Ecosite guides of West-Central and Southwestern Alberta (Beckingham et al. 1996, Archibald et al. 1996). If there was differences in the soil type descriptions we included them in comments section and described the difference as north (West-Central) and south (Southwestern). The numbers in brackets (8) indicate a rough percentage of all plots representing a particular attribute.

SV1 Very Dry/Sandy (n=32)

General Description

Very dry coarse sandy, sandy and loamy sand soil. As sampled they were found on glaciofluvial, eolian and fluvial deposits





Comments

SV1 soils are rare in southwestern Alberta. As sampled they were on level glaciofluvial and fluvial deposits, however they could be expected on eolian deposits on a range of slope positions. These soils have rapid internal drainage and low moisture and nutrient holding capacity.

Environmental Variables

Moisture Regime: Very Xeric (very dry) (5), Subxeric (4), Xeric (1)

Nutrient Regime: Eutrophic (very rich) (1), Mesotrophic (medium) (2), Submesotrophic (poor) (7)

Soil Variables

Soil Drainage: Rapidly drained (5), Rapid (2), Well (2), Very Rapid (1)

Soil Subgroup: REGOSOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (4) DYSTRIC BRUNISOL ELUVIATED (4) EUTRIC BRUNISOL (1)

Surface Texture: Sand (2), Loamy sand (8)

Effective Texture: Sand (2), Loamy sand (8)

Depth to Mottles/Gley: None (10)

Parent Material: Fluvial (3), Eolian (2), Glaciofluvial (5)

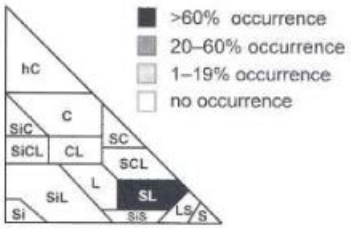
Interpretations

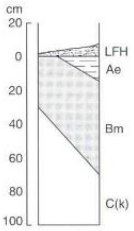
Drought Limitations	H
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	L
Soil Temperature Limitations	L
Windthrow Hazard	L-M

SV2 Very Dry/Coarse Loamy (n=26)

General Description

Very dry coarse loamy materials that develop in a variety of parent materials and slope positions. Samples were found on level fluvial sites and steep coarse-textured moraines or colluvial veneers.





Comments

SV2 are found on any slope position from level to crest. As sampled they were not found on northerly aspects in southern Alberta. These soils are only weakly layered with similar textures throughout the profile. SV2 soils were not extensively sampled in West-Central Alberta. In West-Central Alberta SV2 soils are most commonly associated with grassland Ecosite (aa) in the Montane, the bearberry and hairy wildrye ecosites in the Upper and Lower Foothills and Subalpine subregions.

Environmental Variables

Moisture Regime: Subxeric (7), Xeric (3)

Nutrient Regime: Mesotrophic (medium) (4), Submesotrophic (poor) (5), Oligotrophic (very poor) (1)

Soil Variables

Soil Drainage: Rapidly drained (4), Well (6)

Soil Subgroup: DYSTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (3) DYSTRIC BRUNISOL ELUVIATED (1) EUTRIC BRUNISOL ORTHIC (3) BRUNISOLIC GRAY LUVISOL (1), ORTHIC GRAY LUVISOL (1)

Surface Texture: Sandy Loam (6) Silty Loam (1), Loamy sand (2), Clay Loam (1)

Effective Texture: Sandy Loam (10)

Depth to Mottles/Gley: None (10)

Parent Material: Fluvial (3), Morainal (4), Glaciofluvial (2), Colluvial (1)

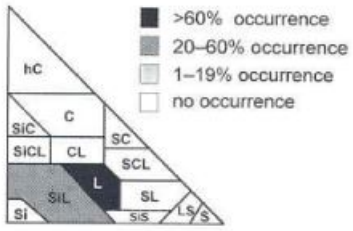
Interpretations

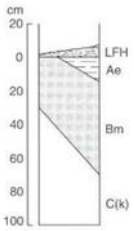
Drought Limitations	H
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	L
Soil Temperature Limitations	L
Windthrow Hazard	L

SV3 Very Dry/Silty Loamy (n=32)

General Description

Very dry silty or loamy materials that develop in a variety of parent materials including colluvial, morainal, fluvial and glaciofluvial.





Comments

The sampled SV3 soils in the south were found on level fluvial sites to steep upper slopes with colluvial veneers. These soils are only weakly layered with similar textures throughout the profile. In the north SV3 soils were not extensively sampled, but were found on level to extremely sloped (46-70%) surfaces, with predominantly southern exposures. The soil type is droughty and is most commonly associated with the grassland (aa) and the bearberry (b) ecosites of the Montane, the bearberry ecosites of the Subalpine, Upper Foothills, and Lower Foothills and the hairy wildrye ecosites in the Upper and Lower Foothills subregions.

Environmental Variables

Moisture Regime: Subxeric (8), Xeric (2)

Nutrient Regime: Mesotrophic (medium) (2), Submesotrophic (poor) (5), Oligotrophic (very poor) (2), Eutrophic (very rich) (1)

Soil Variables

Soil Drainage: Rapidly drained (3), Well (7)

Soil Subgroup: DYSTRIC BRUNISOL ORTHIC (1), EUTRIC BRUNISOL ELUVIATED (3) DYSTRIC BRUNISOL ELUVIATED (1) EUTRIC BRUNISOL ORTHIC (3) BRUNISOLIC GRAY LUVISOL (1), ORTHIC GRAY LUVISOL (1)

Surface Texture: Sandy Loam (1) Silty Loam (3), Loam (6)

Effective Texture: Silty Loam (3), Loam (7)

Depth to Mottles/Gley: None (10)

Parent Material: Fluvial (4), Morainal (1), Glaciofluvial (3), Colluvial (2)

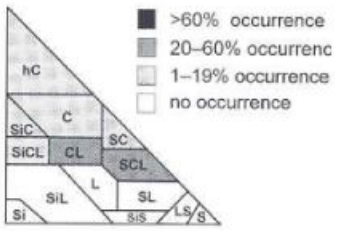
Interpretations

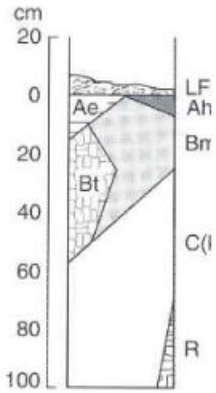
Drought Limitations	H
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L-M
Puddling Hazard	M
Soil Erosion Hazard	H
Frost Heave Hazard	H
Soil Temperature Limitations	L
Windthrow Hazard	L

SV4 Very Dry/Fine Loamy-Clayey (n=80)

General Description

Very dry, fine loamy or clays soils that were found developed in all parent materials. In the north these soils developed in morainal and colluvial parent materials.





Comments

The SV4 soils were found primarily on south, west and east aspects on upper and midslopes greater than 10%. These soils tend to have strong layering in profile, with coarser-textured horizons overlaying a fine-textured B horizon. Sites that were strongly to extremely sloped surfaces are highly susceptible to water erosion.

Environmental Variables

Moisture Regime: Subxeric (8), Xeric (2)

Nutrient Regime: Mesotrophic (medium) (3), Submesotrophic (poor) (6), Permesotrophic (rich) (1)

Soil Variables

Soil Drainage: Rapidly drained (3), Well (5), Moderately well (2)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (3) BRUNISOLIC GRAY LUVISOL (2), ORTHIC GRAY LUVISOL (2), ELUVIATED DYSTRIC BRUNISOL (1)

Surface Texture: Sandy Loam (1) Silty Loam (1), Loam (4), Clay Loam (2), Sandy Clay Loam (2), Silty Clay Loam (1)

Effective Texture: Clay Loam (3), Sandy Clay Loam (3), Silty Clay Loam (2), Silty Clay (1), Clay (1)

Depth to Mottles/Gley: None (10)

Parent Material: Morainal (6), Glaciofluvial (1), Colluvial (3)

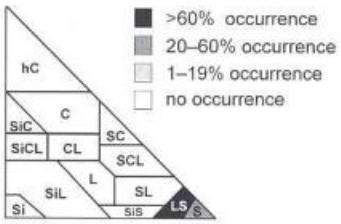
Interpretations

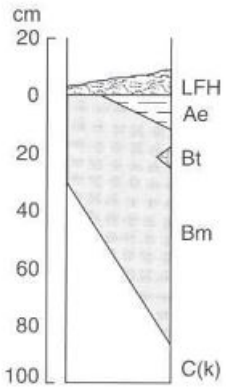
Drought Limitations	H
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L-M
Puddling Hazard	M
Soil Erosion Hazard	H
Frost Heave Hazard	H
Soil Temperature Limitations	L
Windthrow Hazard	L

SD1 Dry/Sandy (n=23)

General Description

Dry, sandy soils that were found on fluvial and glaciofluvial deposits in the south and on glaciofluvial and eolian parent materials in the north.





Comments

This type is rare in the south. The two samples described were found on level fluvial or glaciofluvial deposits. In the north these soils are well drained and occur on crest and level upland positions. In both the south and north the dry nature of this soil type is strongly influenced by its coarse texture. Droughty conditions may persist for part of the growing season.

Environmental Variables

Moisture Regime: Submesic (10)

Nutrient Regime: Mesotrophic (medium) (4), Submesotrophic (poor) (6)

Soil Variables

Soil Drainage: Rapidly drained (6), Well (4)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (5) ORTHIC REGOSOL (2), ELUVIATED DYSTRIC BRUNISOL (1)

Surface Texture: Sandy Loam (1) Loamy Sand (6), Sand (3)

Effective Texture: Loamy Sand (6), Sand (4)

Depth to Mottles/Gley: None (10)

Parent Material: Eolian (2), Glaciofluvial (6), Fluvial (1), Fluvialeolian (1)

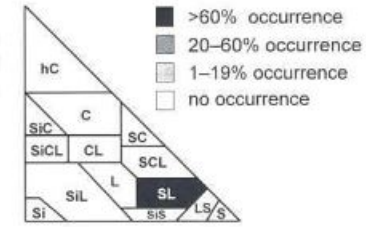
Interpretations

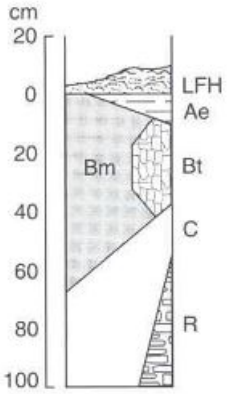
Drought Limitations	M
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	L
Soil Temperature Limitations	L
Windthrow Hazard	L-M

SD2 Dry/Coarse Loamy (n=33)

General Description

Dry, coarse loamy soils that most commonly develop in colluvial or level fluvial or glaciofluvial deposits.





Comments

The SD2 soil type is found on all slope positions and aspects. These soils are weakly layered in profile, with similar textures throughout. SD2 soils in the north are not common.

Environmental Variables

Moisture Regime: Submesic (10)

Nutrient Regime: Mesotrophic (medium) (2), Submesotrophic (poor) (7), Permesotrohic (rich)(1)

Soil Variables

Soil Drainage: Rapidly drained (4), Well (5), Moderately well (1)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (4) ORTHIC REGOSOL (2), ELUVIATED DYSTRIC BRUNISOL (1), BRUNISOLIC GRAY LUVISOL (1)

Surface Texture: Sandy Loam (6) Loam (2), Silty Loam (2)

Effective Texture: Sandy Loam (6) Loam (2), Silty Loam (2)

Depth to Mottles/Gley: None (10)

Parent Material:Colluvial (4), Glaciofluvial (4), Fluvial (1), Morainal (1)

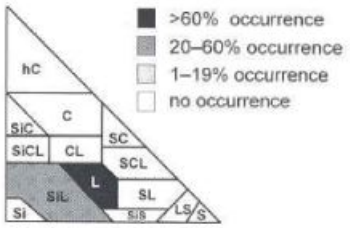
Interpretations

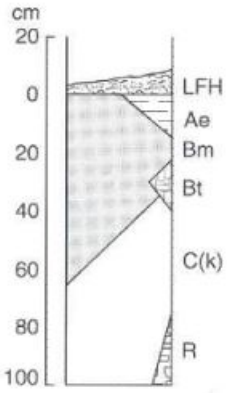
Drought Limitations	M
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	L
Soil Temperature Limitations	L
Windthrow Hazard	L-M

SD3 Dry/Silty-Loamy (n=73)

General Description

Dry, silty loamy soils that most commonly develop in colluvial or level fluvial or glaciofluvial deposits.





Comments

The SD3 soil type is found on all slope positions and aspects. These soils are weakly layered in profile, with similar textures throughout. If slopes are long and straight, the susceptibility of the soils to water erosion is high.

Environmental Variables

Moisture Regime: Submesic (10)

Nutrient Regime: Mesotrophic (medium) (4), Submesotrophic (poor) (5), Permesotrohic (rich)(1)

Soil Variables

Soil Drainage: Rapidly drained (4), Well (5), Moderately well (1)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (4) ORTHIC REGOSOL (1), ELUVIATED DYSTRIC BRUNISOL (1), ORTHIC DYSTRIC BRUNISOL (1), BRUNISOLIC GRAY LUVISOL (1)

Surface Texture: Sandy Loam (5) Loam (2), Silty Loam (3)

Effective Texture: Loam (6), Silty Loam (4)

Depth to Mottles/Gley: None (10)

Parent Material: Residual (2), Colluvial (2), Glaciofluvial (3), Fluvial (2), Eolian/Morainal (1)

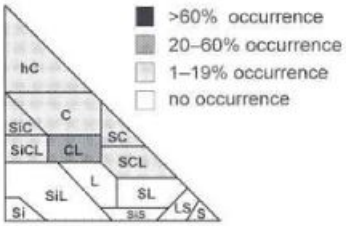
Interpretations

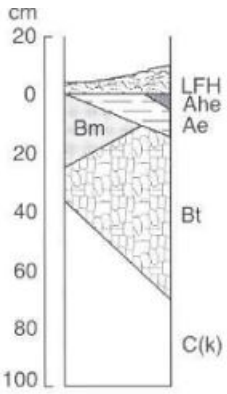
Drought Limitations	M
Excess Moisture	L
Rutting Hazard	L-M
Compaction Hazard	M
Puddling Hazard	M
Soil Erosion Hazard	M-H
Frost Heave Hazard	M
Soil Temperature Limitations	L
Windthrow Hazard	L

SD4 Dry/Fine Loamy-Clayey (n=263)

General Description

Dry, fine loamy to clayey soils that were found developed in all parent materials.





Comments

The SD4 soil type is a common soil type in the south. They are found in all slope positions, parent materials and aspects. These soils tend to be strongly layered in profile, with coarser surface horizons overlaying a fine textured B-horizon. In the north this soil type are generally characterized by moderately coarse to medium textured surface surface layers overlying a moderate fine to fine-textured Bt horizon.

Environmental Variables

Moisture Regime: Submesic (10)

Nutrient Regime: Mesotrophic (medium) (6), Submesotrophic (poor) (3), Permesotrohic (rich)(1)

Soil Variables

Soil Drainage: Well (7), Moderately well (3)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (2), ORTHIC GRAY LUVISOL (1), BRUNISOLIC GRAY LUVISOL (5)

Surface Texture: Sandy Loam (2) Loam (2), Silty Loam (4), Sandy Clay Loam (1), Clay Loam (1)

Effective Texture: Silty Clay Loam (1) Loam (2), Silty Clay (1), Sandy Clay Loam (1), Clay Loam (3), Clay (1), Sandy Clay (1)

Depth to Mottles/Gley: None (10)

Parent Material: Colluvial (1), Glaciofluvial (1), Morainal (8)

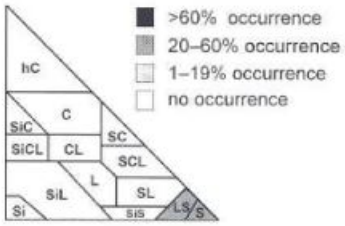
Interpretations

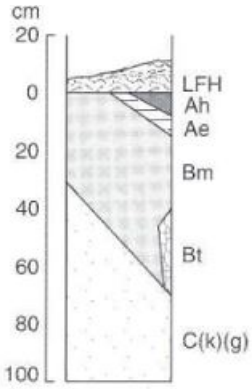
Drought Limitations	M
Excess Moisture	L
Rutting Hazard	M
Compaction Hazard	M
Puddling Hazard	H
Soil Erosion Hazard	H
Frost Heave Hazard	M
Soil Temperature Limitations	L
Windthrow Hazard	L

SM1 Moist/Sandy (n=35)

General Description

Moist sandy and loamy sand soils that develop on a variety of parent materials.





Comments

The SM1 soils are rare in southern Alberta. As described they were found on level to depressional areas in fluvial parent materials. In the north this soil type tends to be located on level to gently sloping topography. The moisture regimes are mesic to subhygric and maybe positively influenced by the presence of fine textured materials at depths of 60cm or more. Faint distinct mottles maybe present in the northern soil type.

Environmental Variables

Moisture Regime: Mesic (7), Subhygric (3)

Nutrient Regime: Mesotrophic (medium) (6), Submesotrophic (poor) (3, Permesotrohic (rich)(1)

Soil Variables

Soil Drainage: Well (3), Moderately well (5), Rapid (2)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (2), EUTRIC BRUNISOL ORTHIC (6), ORTHIC HUMIC REGOSOL (1), BRUNISOLIC GRAY LUVISOL (1)

Surface Texture: Sand (5), Sandy Loam (1), Silty Loam (1), Sandy Loam (1), Loamy Sand (2)

Effective Texture: Loamy Sand (4), Sand (6)

Depth to Mottles/Gley: None (9), (26-50)(1)

Parent Material: Fluvial (4) Eolian (2), Glaciofluvial (2), Morainal (2)

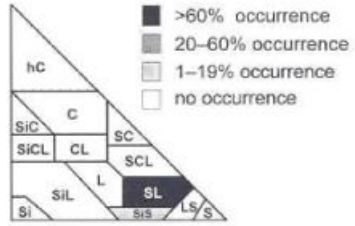
Interpretations

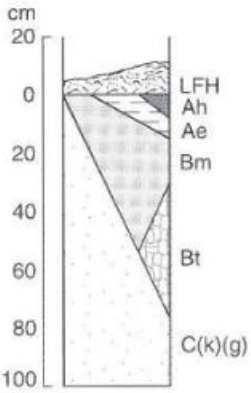
Drought Limitations	L
Excess Moisture	L-M
Rutting Hazard	L
Compaction Hazard	L
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	L
Soil Temperature Limitations	M
Windthrow Hazard	L-M

SM2 Moist/Coarse Loamy (n=55)

General Description

Moist coarse loamy soils that have developed on a variety of parent materials.





Comments

The SM2 soils typically occur on level to very gently sloping topography. The soils that occur in water-receiving topographic positions and have a subhygric moisture regime typically have higher hazard ratings than those soils in better-drained locations.

Environmental Variables

Moisture Regime: Mesic (7), Subhygric (3)

Nutrient Regime: Mesotrophic (medium) (5), Submesotrophic (poor) (3), Permesotrohic (rich)(2)

Soil Variables

Soil Drainage: Well (4), Moderately well (3), Rapid (2), Imperfectly (1)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (4), EUTRIC BRUNISOL ORTHIC (5), ELUVIATED DYSTRIC BRUNISOL (1),

Surface Texture: Loam (2), Sandy Loam (5), Silty Loam (2), Silt (1)

Effective Texture Sandy Loam (10)

Depth to Mottles/Gley: None (8), (26-50)(1), (25-100)(1)

Parent Material: Fluvial (4), Glaciofluvial (1), Morainal (2), Colluvial (3)

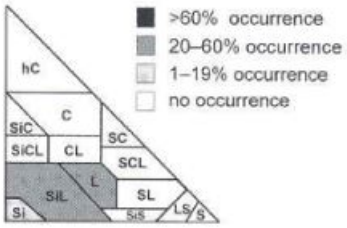
Interpretations

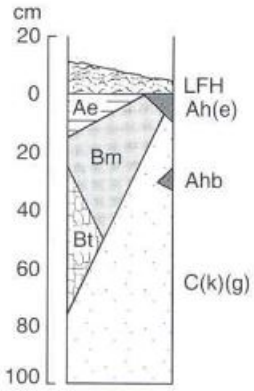
Drought Limitations	L
Excess Moisture	L-M
Rutting Hazard	L-M
Compaction Hazard	L-M
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	L-M
Soil Temperature Limitations	L-M
Windthrow Hazard	L

SM3 Moist/Silty Loamy (n=298)

General Description

Moist silty loamy soils that can develop on a variety of parent materials, but are most common on morainal and fluvial parent materials.





Comments

The SM3 soils has a trend toward occurrence on northerly and easterly aspects with moderate slopes in the south. In the north this soil type occurs on gently sloped to level topography. Till was the most common parent material but this soil type was prevalent in fluvial deposits on river terraces and floodplain landscapes.

Environmental Variables

Moisture Regime: Mesic (7), Subhygric (3)

Nutrient Regime: Mesotrophic (medium) (5), Submesotrophic (poor) (2), Permesotrohic (rich)(3)

Soil Variables

Soil Drainage: Well (5), Moderately well (3), Rapid (1), Imperfectly (1)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (3), EUTRIC BRUNISOL ORTHIC (3), ELUVIATED DYSTRIC BRUNISOL (3), BRUNISOLIC GRAY LUVISOL (1)

Surface Texture: Loam (5), Sandy Loam (1), Silty Loam (3), Silt (1)

Effective Texture Loam (6), Silt (1), Silty Loam (3)

Depth to Mottles/Gley: None (9), (0-25)(1)

Parent Material: Fluvial (3), Morainal (6), Colluvial (1)

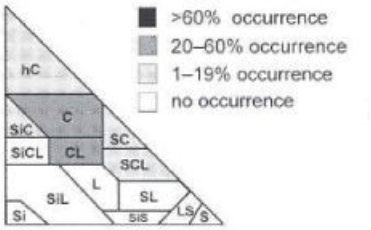
Interpretations

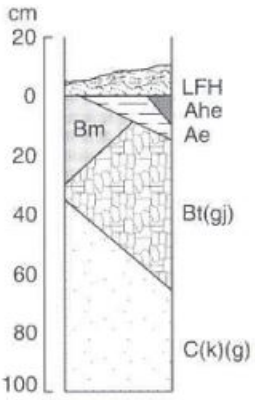
Drought Limitations	L
Excess Moisture	L-M
Rutting Hazard	M-H
Compaction Hazard	M-H
Puddling Hazard	M-H
Soil Erosion Hazard	M
Frost Heave Hazard	M-H
Soil Temperature Limitations	L-M
Windthrow Hazard	L

SM4 Moist/Fine Loamy-Clayey (n=1518)

General Description

Moist silty loamy soils that can develop on a variety of parent materials, but are most common on morainal and fluvial parent materials.





Comments

The SM3 soils has a trend toward occurrence on northerly and easterly aspects with moderate slopes in the south. In the north this soil type occurs on gently sloped to level topography. Till was the most common parent material but this soil type was prevalent in fluvial deposits on river terraces and floodplain landscapes.

Environmental Variables

Moisture Regime: Mesic (7), Subhygric (3)

Nutrient Regime: Mesotrophic (medium) (5), Submesotrophic (poor) (2), Permesotrohic (rich)(3)

Soil Variables

Soil Drainage: Well (4), Moderately well (5), Imperfectly (1)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (3), EUTRIC BRUNISOL ORTHIC (1), ORTHIC GRAY LUVISOL (3), BRUNISOLIC GRAY LUVISOL (3)

Surface Texture: Loam (3), Sandy Loam (1), Silty Loam (3), Silty Clay Loam (1), Sandy Loam (1), Clay Loam (1)

Effective Texture Silty Loam (1), Silty Clay Loam (2), Sandy Clay Loam (1), Clay Loam (6)

Depth to Mottles/Gley: None (7), (0-25)(3)

Parent Material: Fluvial (4), Morainal (6)

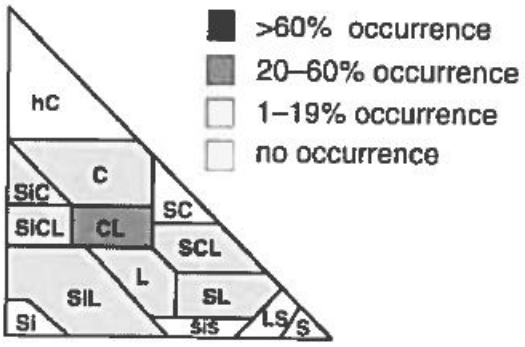
Interpretations

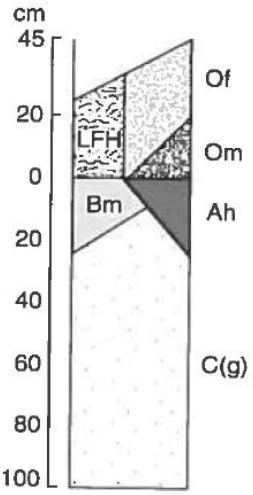
Drought Limitations	L
Excess Moisture	L-M
Rutting Hazard	M-H
Compaction Hazard	H
Puddling Hazard	M-H
Soil Erosion Hazard	M
Frost Heave Hazard	H
Soil Temperature Limitations	L-M
Windthrow Hazard	L

SMp Moist/Peaty (n=51)

General Description

SMp are moist soils with a duff layer thicker than 20cm. They are found most commonly on fluvial and morainal parent materials.





Comments

With a thick organic layer and a higher mean moisture regime rating that other moist soil types (SM1-SM4). SMp is considered transitional to the wet peaty soil type SWp. Faint to distinct mottles may be encountered throughout the soil profile. The effects of forestry operations on soil erosion, rutting, compaction and puddling can be minimized if the thick organic layer of the SMp soil type is not excessively disturbed.

Environmental Variables

Moisture Regime: Mesic (5), Subhygric (5)

Nutrient Regime: Mesotrophic (medium) (5), Eutrophic (very rich) (1), Permesotrohic (rich)(4)

Soil Variables

Soil Drainage: Well (1), Moderately well (6), Imperfectly (2), Poor (1)

Soil Subgroup: EUTRIC BRUNISOL ELUVIATED (3), EUTRIC BRUNISOL ORTHIC (1), ORTHIC GRAY LUVISOL (1), BRUNISOLIC GRAY LUVISOL (1), ORTHIC LUVIC GLEYSOL (1), ORTHIC GLEYSOL (1), ORTHIC HUMIC GLEYSOL (1), GLEYED GRAY LUVISOL (1)

Surface Texture: Loam (2), Silty Loam (2), Silty Clay Loam (1), Sandy Loam (1), Clay Loam (4)

Effective Texture Silty Clay (1), Silty Loam (1), Silty Clay Loam (2), Sandy Clay Loam (1), Clay Loam (5)

Depth to Mottles/Gley: None (17), (0-25)(3)

Parent Material: Fluvial (3), Morainal (5), Glaciolacustrine (1), Lacustrine (1)

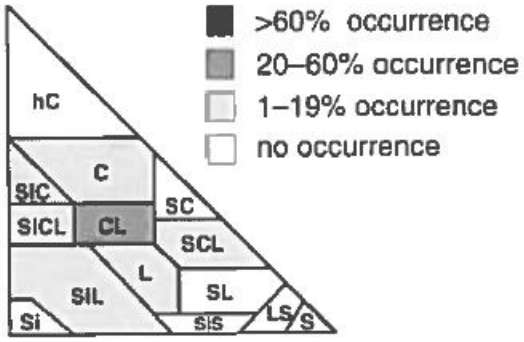
Interpretations

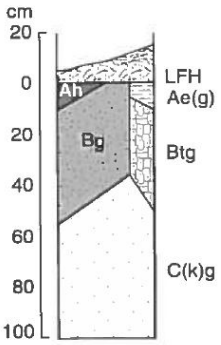
Drought Limitations	L
Excess Moisture	M
Rutting Hazard	H
Compaction Hazard	H
Puddling Hazard	H
Soil Erosion Hazard	L-M
Frost Heave Hazard	M-H
Soil Temperature Limitations	H
Windthrow Hazard	M-H

SWm Wet/Mineral (n=174)

General Description

SWm soils are wet soils with an organic layer thickness of less than 20cm. They are found primarily on fluvial and morainal parent materials





Comments

SWm are commonly associated with the Labrador tea-subhygric Ecosite in the Upper and Lower Foothills subregions and the horsetail ecosite in all subregions The non-forested meadow and marsh ecological sites also tend to have SWm soils. Level landscapes influenced by fluctuating or permanently high water tables, prominent mottles and/or strong gleying.

Environmental Variables

Moisture Regime: Hygric (6), Subhydric (4)

Nutrient Regime: Mesotrophic (medium) (3), Eutrophic (very rich) (2), Permesotrohic (rich)(4), Submestrophic (1)

Soil Variables

Soil Drainage: Moderately well (1), Imperfectly (5), Poor (4)

Soil Subgroup: ORTHIC LUVIC GLEYSOL (5), ORTHIC GLEYSOL (2), ORTHIC HUMIC GLEYSOL (1), GLEYED GRAY LUVISOL (1), REGO HUMIC GLEYSOL (1), REGO GLEYSOL (1)

Surface Texture: Loam (3), Silty Loam (3), Silty Clay Loam (2), Clay Loam (1), Silty Clay (1)

Effective Texture : Silty Loam (1), Silty Clay Loam (1), Clay Loam (5), Silty Clay (1), Clay (1), Sandy Clay Loam (1)

Depth to Mottles/Gley: (0-25)(8), (26-50)(2)

Parent Material: Fluvial (3), Morainal (5), Glaciolacustrine (1), Lacustrine (1)

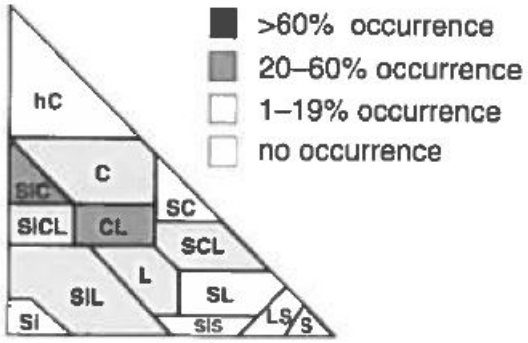
Interpretations

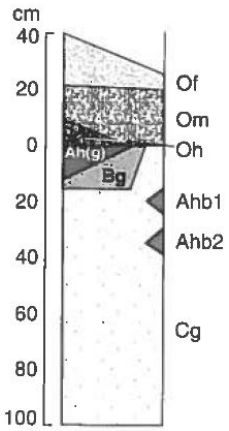
Drought Limitations	L
Excess Moisture	H
Rutting Hazard	H
Compaction Hazard	H
Puddling Hazard	H
Soil Erosion Hazard	H
Frost Heave Hazard	H
Soil Temperature Limitations	H
Windthrow Hazard	H

SWp Wet/Peaty (n=75)

General Description

SWp soils are wet soils with an organic layer thickness of greater than 20cm. They are found primarily on fluvial and lacustrine parent materials





Comments

SWp soils are predominantly poor to very poorly drained and are found in level, lower slope, depressional, and toe slope positions. Prominent mottles or strong gley are typically encountered in all soil horizons. A water table may be present within the upper 100 cm. Most of the tree roots occur in the thick peaty layers of this soil type, increasing the risk of blowdown.

Environmental Variables

Moisture Regime: Hygric (6), Subhydric (3), Hydric (1)

Nutrient Regime: Mesotrophic (medium) (2), Eutrophic (very rich) (2), Permesotrohic (rich)(5), Submestrophic (1)

Soil Variables

Soil Drainage: Very poor (3), Imperfectly (1), Poor (6)

Soil Subgroup: ORTHIC LUVIC GLEYSOL (1), ORTHIC GLEYSOL (2), ORTHIC HUMIC GLEYSOL (2), REGO HUMIC GLEYSOL (4), REGO GLEYSOL (1)

Surface Texture: Loam (3), Silty Loam (2), Silty Clay Loam (2), Clay Loam (1), Silty Clay (2)

Effective Texture : Silty Loam (1), Silty Clay Loam (1), Clay Loam (4), Silty Clay (2), Clay (1), Sandy Clay Loam (1)

Depth to Mottles/Gley: (0-25)(8), (26-50)(2)

Parent Material: Fluvial (2), Morainal (2), Glaciolacustrine (4), Lacustrine (1), Colluvial (1)

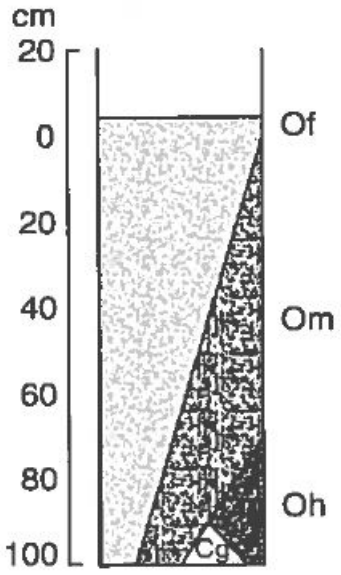
Interpretations

Drought Limitations	L
Excess Moisture	H
Rutting Hazard	H
Compaction Hazard	H
Puddling Hazard	H
Soil Erosion Hazard	H
Frost Heave Hazard	H
Soil Temperature Limitations	H
Windthrow Hazard	H

SR Organic (n=188)

General Description

Organic soils are wet with an organic thickness greater than 60cm if the material is fibric or > 40cm if the material is mesic or humic. On sites with mosses covering the surface substrate, microtopography tends to be hummocky.



Comments

SR soils are typically located on flat or depressional areas in the landscape where regional or local drainage waters accumulate. They exhibit a diverse range of profiles based on organic matter thickness and on the degree of organic matter decomposition. SR soils are strongly associated with unmerchantable lowland ecosites.

Environmental Variables

Moisture Regime: Hygric (2), Subhydric (4), Hydric (4)

Nutrient Regime: Mesotrophic (medium) (3), Eutrophic (very rich) (1), Permesotrohic (rich)(4), Submestrophic (2)

Soil Variables

Soil Drainage: Very poor (7), Poor (3)

Soil Subgroup: T.M (4), TY.M (2), FI.M (1), TY.F (2), T.H (1)

Surface Texture: mesic (4), fibric (5), humic (1)

Effective Texture: mesic (4), fibric (5), humic (1)

Depth to Mottles/Gley: not applicable

Parent Material: Organic (3), Glaciolacustrine (5), Organic/Morainal (1), Fen (1)

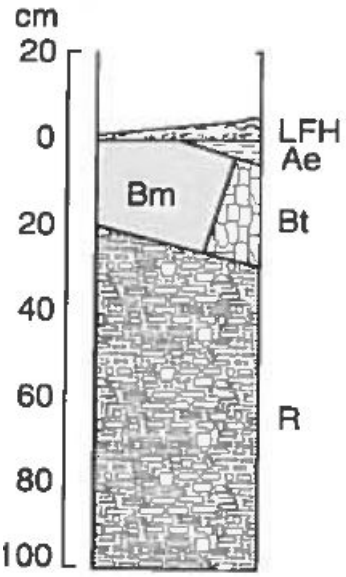
Interpretations

Drought Limitations	L
Excess Moisture	H
Rutting Hazard	H
Compaction Hazard	L
Puddling Hazard	L
Soil Erosion Hazard	L
Frost Heave Hazard	H
Soil Temperature Limitations	H
Windthrow Hazard	H

SS Shallow (n=17)

General Description

Shallow soils with less than or equal to 30 cm of mineral material overlying bedrock. This soil type includes exposed bedrock surfaces.



Comments

SS soils are usually associated with crests and upper slope positions with dry moisture regimes. Although they may occur on mesic sites on midslope positions where seepage may have some influence. This soil type is most frequent in the Subalpine and Upper Foothills subregions.

Environmental Variables

Moisture Regime: Mesic (4), Subxeric (3), Xeric (2), Submesic (1)

Nutrient Regime: Oligotrophic (very poor) (1), Mesotrophic (medium) (6), Submesotrophic (poor) (3)

Soil Variables

Soil Drainage: Rapidly drained (3), Rapid (1), Well (6), Very Rapid (1)

Soil Subgroup: BRUNISOLIC GRAY LUVISOL (1), EUTRIC BRUNISOL ELUVIATED (2) DYSTRIC BRUNISOL ELUVIATED (2) ORTHIC EUTRIC BRUNISOL (5)

Surface Texture: Sandy Loam (3), Loam (2), Sandy Clay Loam (2), Clay Loam (1), Silty Clay Loam (2)

Effective Texture: Sandy Loam (3), Loam (2), Sandy Clay Loam (2), Clay Loam (1), Silty Clay Loam (2)

Depth to Mottles/Gley: None (10)

Parent Material: Morainal/Rock (4), Colluvial/Rock (3), Morainal (3)

Interpretations

Drought Limitations	M-H
Excess Moisture	L
Rutting Hazard	M
Compaction Hazard	M
Puddling Hazard	M
Soil Erosion Hazard	L-M
Frost Heave Hazard	L
Soil Temperature Limitations	L
Windthrow Hazard	H