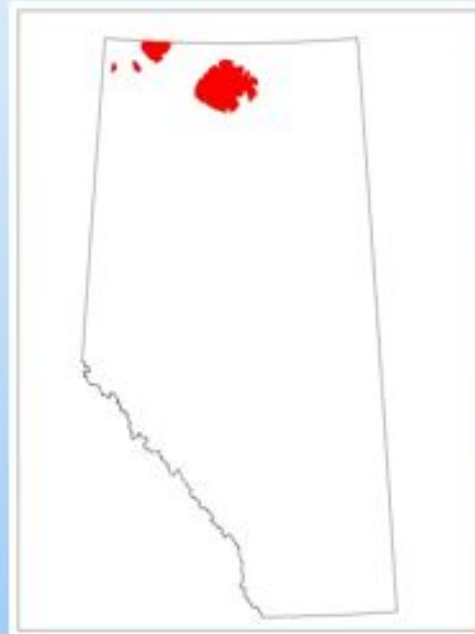


Guide to
**ECOLOGICAL SITES OF THE BOREAL SUBARCTIC
SUBREGION**



Alberta  Government

ECOLOGICAL SITES OF THE BOREAL SUBARCTIC SUBREGION

Second approximation
2020

Prepared by:

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Please note: This is the second approximation of the Ecological Sites of the Boreal Subarctic subregion.

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Executive Summary

The Boreal Subarctic Natural Subregion is found on elevated plateaus of far northern Alberta. It encompasses 3% of the Boreal Forest Natural Region (11,823 km²) with an average elevation of 825 m. It is dominated by open black spruce bogs and peatland complexes with frozen organic soils and permafrost terrain. Moderately well drained upland areas have a variety of upland forests, dominated by pure or mixed aspen, white spruce, black spruce, Alaskan birch and lodgepole pine. It is characterized by short, cool summers and long, very cold winters (Natural Regions Committee 2006). These unique climate conditions found in the higher elevations of the Caribou Mountains and Cameron Hills restrict plant growth; and many subarctic bird, insect, and plant species common to the Northwest Territories occur in Alberta only in this Subregion.

It is hoped this classification system can be used by field staff to assess the ecology of the sites and develop management prescriptions on lands within this region. This guide represents the analysis of 143 grass, shrubland, conifer and deciduous plots described in the Boreal Subarctic Natural Subregion. The 143 plots represent 53 community types. These types are split into:

- A. Native grasslands (11 types)
- B. Native shrublands (12 types)
- C. Deciduous (6 types)
- D. Mixedwood (4 types)
- E. Conifer (20 types)

The dominant plant species, canopy cover, soil group and subgroup, 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 / Klappstien). 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.

These classifications involve taking large amounts of vegetation, soils and landscape inventory data taken from the ECOSYS database and compiling the data into succinct descriptive summaries for each ecological site, ecological site phase and plant community within a subregion.

The creation of this report would not be possible without data collected in other projects. We would like to acknowledge Alberta Parks for allowing us to use data from the Caribou Mountains Wildland Park. The vegetation data from that study was included in this guide. We would also like to acknowledge Diana Horton and Dale Vitt for allowing us to use vegetation data from their studies in the Caribou Mountains.

In 2010 funding was provided by Policy and Planning Division, Alberta Environment and Parks in order to produce hard copy pdf documents from the ECOSYS website.

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 for the province (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 Boreal Subarctic 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 Northern Alberta (Beckingham and Archibald 1996) for the Subarctic subregion. In 2006 (Natural Regions and Subregions of Alberta 2006) the original Subarctic subregion was renamed to Boreal Subarctic subregion. This guide outlines the analysis of 143 plots described in the Boreal Subarctic subregion.

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 Boreal Subarctic Natural Subregion is 11,823km², 3% of the Boreal Forest Region. This subregion occurs on high-elevation plateaus in the Cameron Hills and Caribou Mountains. It is completely surrounded by the Lower Boreal Highlands Natural Subregion except for a very small area in the Cameron Hills where the Northern Mixedwood Natural Region lies adjacent. Elevations range from 575 m to over 1000 m in the eastern Caribou Mountains (Natural Regions Committee 2006). Landscapes are primarily undulating and rolling plateaus and highlands, with extensive low-lying, poorly drained areas. Most of the area is covered by organic deposits; fine textured glacial till deposits are also common. Fires are frequent and open, stunted black spruce stands with shrub, moss and lichen understories occur across large areas, underlain by frozen, poorly drained organic materials. Moderately well drained upland areas occupy minor areas of the Natural Subregion, and a variety of upland forests may occur, dominated by pure or mixed aspen, white spruce, black spruce, Alaska birch and lodgepole pine.

The Boreal Subarctic is the coldest boreal Natural Subregion, having the lowest mean annual temperature. Summers are short, cool and moist, and growing degree-day accumulations are markedly lower than in other boreal Natural Subregions. Winters are long and very cold. The period where the Boreal Subarctic receives the most precipitation is from September to March, mainly as snow. Low temperatures, low sun angles and insulating effect of deep, water-saturated organic and moss layers combine to produce thermal conditions that contribute to permafrost formation and severely restrict plant growth. Table 3-2 in the subregion guide (Natural Regions Committee 2006) provides annual and seasonal climatic statistics, and Figure 4-5.1 gives monthly temperature and precipitation patterns.

Mineral soils are weakly developed in this cold, moist environment. They are a complex of thin Orthic and Gleyed Gray Luvisols over 25% of the area, with Eluviated and Gleyed Eutric Brunisols over 10% of the area. Orthic and Peaty Gleysols are minor components, and are associated with wetlands. Organic soils are a mixture of Organic Cryosols over 35% of the Natural Subregion and Typic Mesisols over about 20%. Terric and Fibric Subgroups are common (Natural Regions Committee 2006).

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) (Derived Ecosite Phase (DEP)) 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 Boreal Subarctic subregion. One hundred and forty-three 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 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) of 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 ability to produce a distinctive kind and amount of vegetation”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 extracted directly from the Natural Subregions guide (Natural Regions Committee 2006) and is presented here for the reader's convenience.

Open black spruce, lodgepole pine or mixed lodgepole pine–aspen stands with lichen understories are associated with very dry, coarse textured glaciofluvial deposits to form the bearberry and blueberry ecological sites. Brunisolic soils are the predominant soils on these ecological sites (Natural Regions Committee 2006).

Pure or mixed stands of aspen, lodgepole pine, white and black spruce and Alaska birch with sparse, species-poor understories of prickly rose, bog cranberry and stair-step/feather moss develop on variable-textured till materials that are moderately well to imperfectly drained and moderately well supplied with nutrients. These sites are usually associated with the Labrador tea-mesic and low bush cranberry/buffaloberry ecological sites. Soils are usually Luvisols.

Moist, rich sites are very uncommon, and are associated with minor fluvial deposits in stream valleys. In such areas, aspen, Alaska birch and white spruce occur with river alder, prickly rose, meadow and common horsetails, and feathermosses are found on the red osier dogwood and horsetail ecological sites. On poorer nutrient sites the Labrador tea - subhygric ecological site is common. The soils of these ecological sites are a complex of thin Gleyed Gray Luvisols and Eluviated and Gleyed Eutric Brunisols. Gleysolic soils maybe common on moisture sites.

Organic soils which are common on the bog and poor fen ecological sites are a mixture of Organic Cryosols over 35 percent of the Natural Subregion and Typic Mesisols over about 20 percent. Terric and Fibric Subgroups are also common on these ecological sites.

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, aspect, moisture regime, and nutrient regime.

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 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 2003).

How to use the Guide

Organization of the guide

This guide is an expansion of the Ecosites of Northern Alberta guide (Beckingham and Archibald 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 Northern Alberta (Beckingham and Archibald 1996), and are similarly arranged (e.g. Table 1). Table 1 is a reproduction of Figure 16 in Ecosites of Northern Alberta with community types in this guide further separated into reference plant communities, successional communities and harvesting and fire communities. The "Successional community types" or "Harvesting and Fire succession" categories outline the successional sequence the community types undergo with heavy grazing pressure, harvesting or fire disturbance. For this subregion no successional community types were described and these categories were not listed on the table.

The bulk of this guide is community descriptions which include information on the dominant plant species, canopy cover, 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
 - a. Boreal Subarctic[BS]
2. Dominant cover type
 - a. A-grassland
 - b. B-shrubland
 - c. C-deciduous
 - d. D-mixedwood
 - e. E-conifer
3. A number- Generally, communities are named/numbered from low moisture /nutrient status to high moisture/nutrient status. For example, BSE1 Sw/Hairy wildrye community on the "b" submesic/medium ecological site, while BSE18 Sb/Cloudberry/Peat moss community type on the "h" subhydric/poor ecological site.

Eg. BSE1 Sw/Hairy wildrye

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.

How to read the fact sheets

The 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 21). 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: Cypress Hills (Mc) of the Montane subregion). A short text description of the site is given under the General Description (pg 21), this is followed by a picture or a cross section diagram and map of the ecosection(pg 21). The section on successional relationships gives a brief note about the spatial locations and differences in ecosections (pg

21). This is followed by a list of environmental variables (elevation), ecodistricts and ecological sites associated with the ecosection (pg 21).

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 22). 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 22), this is followed by a picture or a cross section diagram of the ecological site (pg 22). The section on successional relationships gives a brief note about the temporal development of the ecological site (pg 22). 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 22). Site index at 50 years of age at breast height (1.3 m) is presented next. The mean site index is presented in meters followed by the standard error and the number of trees used to calculate the mean (pg 22). Environment and soil variables are then listed and represent a roll-up from the plant community and ecological site phase descriptions (pg 22). 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 23). 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 23) if it 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 23). 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 23). 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 24). 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 24)). Environment and soil variables are then listed and represent a roll-up from the various plots and assessments (pg 24). 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 143 grass, shrubland, conifer and deciduous plots described in the Boreal Subarctic Natural Subregion. The 143 plots represent 53 community types. These types are split into:

- A. Native grasslands (11 types)
- B. Native shrublands (12 types)
- C. Deciduous (6 types)
- D. Mixedwood (4 types)
- E. Conifer (20 types)

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

General Ecological Descriptions

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.

Forested Communities

Open black spruce, lodgepole pine or mixed lodgepole pine-aspen stands with lichen understories are associated with very dry, coarse textured glaciofluvial deposits and Brunisolic soils, and are uncommon. Pure or mixed stands of aspen, lodgepole pine, white and black spruce and Alaska birch with sparse, species-poor understories of prickly rose, bog cranberry and stair-step feathermoss develop on variable-textured till materials that are moderately well to imperfectly drained and moderately well supplied with nutrients. Fires are frequent and older stands are uncommon. Where they do develop, they tend to be closed black spruce forests with a continuous feather moss carpet and very few vascular understory species (Natural Regions Committee 2006).

Nutrient-poor upland sites are typically forested by black spruce-dominated stands with feather moss understories. Lichens may dominate the understory in more open stands. Common Labrador tea and bog cranberry are typical shrubs, and lodgepole pine may be present with variable cover in the tree canopy. Moist, rich sites are very uncommon, and are associated with minor fluvial deposits in stream valleys. In such areas, aspen, Alaska birch, and white spruce occur with river alder, prickly rose, meadow and common horsetails, and feather mosses (Natural Regions Committee 2006).

Wetlands

The Alberta Wetland Classification System (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 and marsh reedgrass ecological sites because of their moisture regime and species composition are classified as fens and have mineral soils but in the AWCS classification these sites are mineral wetlands which are considered marshes or swamps. Consequently, many fluvial dominated grassland and shrublands with subhygric to hygric moisture regimes are classified as marshes in AWCS, but in the Ecological Site Classification System in the Boreal Subarctic these sites are fens and the marshes are very wet aquatic systems with subhydric and hydric moisture regimes.

Swamps in AWCS are mineral wetlands where the water table is near or above the ground surface for variable periods during the year and must have at least 25% cover of trees or shrubs. In the AWCS classification swamps are further split into conifer, mixedwood, deciduous or shrub dominated types, with the shrubby dominated swamps further being split by hydroperiod and salinity (AWCS 2015). In the Ecological Site classification system many swamp types are further split into types with differing nutrient regimes poor, medium and rich. These swamp types are often distinguished based on leading tree and shrub species with black spruce and Labrador tea growing on poorer sites and larch, white spruce, willow and bog birch growing on richer sites.

Table A. Cross walk of broad AWCS classes to general Ecological site phase for the Boreal Subarctic subregion.

AWCS Class	AWCS Form	AWCS Code for DEP	Subregion and Ecological Site Phase Code
Bog (B)	Coniferous (W)	BW	<i>Boreal Subarctic</i> -BSh1
	Shrubby (S)	BS	<i>Boreal Subarctic</i> -BSh2
	Graminoid (G)	FG	<i>Boreal Subarctic</i> -BSh3
Fen (F)	Wooded Poor (Wp)	FWp	<i>Boreal Subarctic</i> -BSi1
	Wooded Rich (Wr)	FWr	<i>Boreal Subarctic</i> -BSj1
	Shrubby (S)	FS	<i>Boreal Subarctic</i> -BSi2,j2
	Graminoid (G)	FG	<i>Boreal Subarctic</i> -BSi3,j3
Marsh (M)	Graminoid (G)	MG	<i>Boreal Subarctic</i> -BSi1
Open water (W)	Aquatic Veg (A)	WA	
	Bare (B)	WB	
Swamp (S)	Wooded Conifer (Wc)	SWc	<i>Boreal Subarctic</i> -BSe1,f3,g3
	Wooded Mixedwood (Wm)	SWm	<i>Boreal Subarctic</i> -BSf2,g2
	Wooded Deciduous (Wd)	SWd	<i>Boreal Subarctic</i> -BSe2,f1,g1
	Shrubby (S)	SS	<i>Boreal Subarctic</i> -BSe3,f4,g4

About 2 percent of the total area in the Boreal Subarctic Natural Subregion is occupied by water. Drainage is largely internal, but a few streams flow out of the Natural Subregion. The main lakes are Margaret and Wentzel in the Caribou Mountains, and Thurston and Beatty Lakes in the Cameron Hills. Wetlands cover about 65 percent of this Natural Subregion, but can be over 80 percent in some areas. They are essentially a peat plateau complex of open or treed bogs with permafrost and open and wooded fens. Permafrost collapse scars are a diagnostic feature. Wet mineral and shallow peat soils also occur. Characteristic wetland sites in the Boreal Subarctic Natural Subregion are species-poor, open black spruce bogs and fens with common and northern Labrador tea, bog bilberry, cloudberry, reindeer lichen, peat mosses, and feather mosses. Where the permafrost has melted, sheathed cotton grass-midway peat moss bogs are common (Natural Regions Committee 2006).

Patterned fens

Patterned fens can be found in the Boreal Subarctic subregion. Patterned fens are characterized by flowing water, with soils composed of organic matter consisting of a combination of bog-type organic matter (peat moss) and fen-type organic matter (sedges, golden moss, tufted moss and brown moss) depending on location within the fen complex (Halsey et al. 2004). Organic matter accumulations often insulate the soil and allow frozen soil horizons to persist. Patterned fens are defined by alternating peat or moss ridges or 'strings' and water-filled depressions or 'flarks' that are aligned perpendicular to surface water flow. Patterning runs parallel to surface elevation contours, and strings may span the entire fen in arcs that may divide and rejoin. Patterned fens have a widely ranging chemical properties, with pH ranging from 4.2 to >7.0, resulting in a wide cross-section of vegetation and diverse plant communities found in patterned fen complexes (Vitt et al. 1975). Patterned fens are generally split into the poor patterned fen phase (Ppfen) and the rich patterned fen phase (Rpfen). These phases are distinguished by their vegetation, where rich patterned fen areas have string communities composed of tamarack, willow, dwarf birch, golden moss, brown moss, and flark communities of

buckbean, sedges, and brown and golden mosses; while medium nutrient patterned fen areas have string communities of black spruce, cloudberry and peat moss, with flark communities of mud sedges and peat moss (Slack et al. 1980).

Other features of Patterned Fens include Palsas. Palsas are hummocks with frozen cores, and are often found in the flarks in areas with discontinuous permafrost (Sjors 1950). They are raised above the water table and have different vegetation communities than the associated flarks. Nutrient regimes vary widely and palsas may have bog type vegetation, fen type vegetation, and in some cases may support tree growth. Patterned fens have a wide range in ecological site conditions (moisture and nutrients) from medium to rich (Zoltai et al. 1988). Consequently the community types described were organized into the ecological site that best describes (ie bog, poor fen, rich fen) the moisture and nutrient regime for that particular plant community type.

The patterning of strings and flarks seems to develop after peatland initiation, and once the pattern of strings and flarks is established it seems to be quite persistent. Patterning appears to be dependent on the presence of running water in the fen complex - where running water causes debris dams and accumulations of organic debris in rows perpendicular to water flow, resulting in string formation (Halsey et al. 2004).

Patterned fens are a stage in hydrarch succession, where species composition and the direction and rate of succession changes with the hydrologic regime. These systems are dependent on water flow through them and impeding this flow may result in the reduction or elimination of tree cover, along with changes in the shrub, forb and grass layers. These fens have slow successional rates, so recovery from disturbance may be slow.

Shrublands

Upland forest sites disturbed by fire will often have a early successional shrub phase. Labrador tea, lichen and feather moss tend to dominate the poorer sites and rose, saskatoon and beaked willow the more mesic sites. Shrub communities dominated by willow, water birch and bog birch dominate the moister and richer sites. Sedges and reed grasses (*Calamagrostis* spp) dominate the drier edges of marshes or areas that have standing water only during spring runoff (i.e. fens). Willow will invade into these fens to form the Willow/Sedge and Willow/Reed grass plant communities and bog birch and Labrador tea tend to dominate the poorer nutrient sites.

The generally low species diversity of all upland and wetland sites compared to other Natural Subregions also reflect the rigorous climate.

Grasslands

Dry grasslands are not common in the Boreal Subarctic subregion. Small pockets of grasslands can be found on dry sites with coarse textured soils. Allen et al. (2006) described a hairy wildrye-purple oatgrass-hay sedge dominated community type on a sandy terrace near Wentzel Lake in the Caribou Mountains Wildland Park. They also described a bearberry-lichen dominated grassland on steep south and west facing with coarse textured slopes near Wentzel Lake in the Caribou Mountains Wildland Park.

Nutrient Regime

	Very Poor A	Poor B	Med C	Rich D	Very Rich E
Xeric	a				
Subxeric		b			
Submesic					
Mesic	c	d		f	
Subhygric		e		g	
Hygric					
Subhydric	h	i	j		
Hydric				l	

Ecological sites

a=bearberry

subxeric/poor

b=blueberry

submesic/medium

c=Labrador tea – mesic

mesic/poor

d=low bush cranberry

mesic/medium

e=Labrador tea -subhygric

subhygric/medium

f=red osier dogwood

subhygric/rich

g=horsetail

hygric/rich

h=bog

subhydric/very poor

i=poor fen

subhydric/medium

j=rich fen

subhydric/rich

l=marsh

hydric/rich

Figure 1. Edatope grid and Ecological Sites of the Boreal Subarctic Subregion.

Plant Community Keys

1. Boreal Subarctic	2
2. a. (subxeric/poor) hill crests and dry south facing slopes with coarse textured soils dominated by bearberry (ecosite a bearberry).....	3
b. (submesic/medium) coarse textured soils dominated by blueberry in understory (ecosite b blueberry)	6
c. (mesic/poor) mesic sites with poor nutrient regimes dominated by black spruce, pine and Labrador tea (ecosite c Labrador tea - mesic).....	10
d. (mesic/medium) mesic sites with medium nutrient regimes dominated by aspen, pine, white spruce and an understory of low-bush cranberry, buffaloberry, alder and feather mosses (ecosite d low-bush cranberry)	13
e. (subhygric/medium) moist sites with medium nutrient regimes, black spruce and Labrador tea present (ecosite e Labrador tea - subhygric)	17
f. (subhygric/rich) moist, rich sites dominated by balsam poplar, river alder, red osier dogwood and willow species (ecosite f red osier dogwood) ..	21
g. (hygric/rich) moist to wet sites with high nutrients dominated by white spruce and horsetail (ecosite g horsetail)	25
h. (subhydric/poor) bog dominated by black spruce, Labrador tea and sphagnum (ecosite h bog).....	29
i. (subhydric/medium) poor fen site co-dominated by larch and black spruce, understory has bog birch and some sphagnum and some golden moss (ecosite i poor fen).....	33
j. (subhydric/rich) rich fen dominated by larch, willows and bog birch little sphagnum (ecosite j rich fen).....	37
l. (hydric/rich) aquatic sites with open standing water, dominated by cattails, rush species and pondweed (ecosite l marsh)	41
3. shrub and grass dominated phase (ecosite phase a1).....	4
site dominated by conifer species PI or Sb (ecosite phase a2).....	5
4. Bearberry/Lichen (BSB1).....	p 24
5. PI-Sb/Bearberry/Lichen (BSE4)	p 26
6. site dominated by white spruce (Sw) (ecosite phase b2).....	7
site dominated by pine species with some black spruce (ecosite phase b3).....	8
site dominated by grass and low growing shrub species (ecosite phase b4)	9
deciduous dominated phase Aw(Bw) (ecosite phase b1)	
7. Sw/Bog cranberry/Hairy wild rye (BSE1).....	p 30
8. PI/Bog cranberry-Blueberry/Lichen (BSE3).....	p 32
9. Hairy wild rye-Purple oatgrass (BSA1).....	p 34
10. site dominated by conifer species of pine and black spruce (ecosite phase c1)	11
site dominated by a mixture of conifer and deciduous species (Aw-Sb) (ecosite phase c2).....	12
11. Sb/Labrador tea/Feather moss (BSE5).....	p 37
Sb/Lichen (BSE6).....	p 38
Sb/Labrador tea/Lichen (BSE7)	p 86
PI/Labrador tea (BSE8).....	p 39
Sb-PI/Bog cranberry/Feather moss (BSE9).....	p 40
12. Aw/Labrador tea/Stair-step moss (BSC1)	p 42
Aw-Sb/Bog cranberry-Low-bush cranberry (BSD1).....	p 43
13. site dominated by deciduous species Aw(Bw) (ecosite phase d1).....	14
site dominated by a mixture of deciduous and conifer species (with little black spruce)(ecosite phase d2).....	15
site dominated by conifer species (ecosite phase d3)	16
site dominated by shrub species (low bush cranberry/buffaloberry or alder)(ecosite phase d4)	
14. Aw/Low-bush cranberry (BSC2).....	p 46
Aw/Green alder (BSC7)	p 47
15. Aw-Sw/Buffaloberry/Hairy wild rye (BSD2)	p 49
Aw-PI(Sw-Sb)/Buffaloberry-Labrador tea/Stair-step moss (BSD3)	p 50
16. Sw-PI/Low-bush cranberry/Stair-step moss (BSE10)	p 53
Sw/Beaked willow/Feather moss (BSE11)	p 78
Sw/Flat-leaved willow-Bog birch (BSE2).....	p 80
17. site dominated by a mixture of conifer and deciduous species (Sb-Aw) (ecosite phase e1)	18
site dominated by deciduous species (Bw) (ecosite phase e2)	19
site dominated by shrub species (Labrador tea) (ecosite phase e3).....	20
18. Sb-Aw(Ba)/Stair-step moss (BSD4)	p 51
Sb-Sw/Labrador tea/Feather moss (BSE25).....	p 60
19. Bw/Labrador tea-Willow/Tufted moss (BSC3)	p 62
20. Dwarf birch-Labrador tea-Common juniper/Stair-step moss (BSB2)	p 64
Labrador tea/Peat moss (BSB3)	p 88

21. site dominated by deciduous species (ecosite phase f1).....	22
site dominated by conifer species (ecosite phase f3)	23
site dominated by shrub species (ecosite phase f4)	24
site dominated by a mixture of deciduous and conifer species (ecosite phase f2)	
22. Pb/River alder/Horsetail (BSC4)	p 67
Aw-Bw/Scouler's willow-Green alder (BSC5)	p 68
23. Sw/Green alder (BSE12)	p 54
24. Scouler's willow-Green alder (BSB4)	p 72
25. site dominated by deciduous species (ecosite phase g1).....	26
site dominated by conifer species (ecosite phase g3)	27
site dominated by shrub species (ecosite phase g4).....	28
site dominated by a mixture of conifer and deciduous species (ecosite phase g2)	
26. Bw/Horsetail/Marsh reedgrass (Bluejoint) (BSC6).....	p 75
27. Sw/Horsetail/Stair-step moss (BSE13).....	p 79
Sb/Willow/Horsetail/Stair-step moss (BSE14).....	p 58
28. Willow-River alder/Horsetail (BSB5)	p 82
29. bog dominated by trees (ecosite phase h1)	30
bog dominated by shrubs (ecosite phase h2).....	31
bog dominated by graminoid species (ecosite phase h3).....	32
30. Sb/Labrador tea/Peat moss (BSE15).....	p 85
31. Leatherleaf/Peat moss (BSB9)	p 89
32. Mud sedge/Peat moss (BSA5).....	p 91
Few-flower sedge-Water sedge/Peat moss (BSA6)	p 100
33. poor fen site dominated by trees (ecosite phase i1)	34
poor fen site dominated by shrub species (ecosite phase i2)	35
poor fen site dominated by graminoid species (ecosite phase i3).....	36
34. Sb-Lt/Labrador tea-Bog bilberry/Tufted moss (BSE16)	p 59
Sb/Willow/Peat moss (BSE17).....	p 94
Lt-Sb/Bog birch-Willow/Peat moss (BSE22).....	p 95
35. Willow-Bog birch/Peat moss (BSB13).....	p 97
Bog birch/Water sedge/Peat moss (BSB15)	p 98
Willow-Bog birch/Marsh reedgrass (Bluejoint) (BSB18)	p 109
36. Few-flowered spike-rush/Peat moss (BSA7).....	p 101
Buckbean/Mud sedge/Scorpidium moss (BSA8).....	p 113
Mud sedge/Brown moss (BSA9).....	p 102
Buckbean/Sedge/Peat moss (BSB10)	p 103
37. rich fen site dominated by tree species (ecosite phase j1)	38
rich fen site dominated shrub species (ecosite phase j2)	39
rich fen site dominated by graminoid species (ecosite phase j3)	40
38. Lt/Willow-Dwarf birch/Golden moss (BSE20)	p 106
39. Willow/Water sedge (BSB12).....	p 108
40. Marsh reedgrass (Bluejoint)-Water sedge (BSA3)	p 111
Small-bottle sedge-Water sedge meadow (BSA4)	p 112
41. aquatic sites dominated by cattails, rush and pondweed species (ecosite phase l1)	42
42. Pondweed (BSA10)	p 116
Cattail (BSA11).....	p 117
Swamp horsetail (BSA12).....	p 118

Plant Community Tables

Table 1. Boreal Subarctic Communities

Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community	
a bearberry (subxeric/poor)	a1 bearberry shrub	BSB1 Bearberry/Lichen	
	a2 bearberry PI-Sb	BSE4 PI-Sb/Bearberry/Lichen	
b blueberry (submesic/medium)	b1 blueberry Aw(Bw)		
	b2 blueberry Sw	BSE1 Sw/Bog cranberry/Hairy wild rye	
	b3 blueberry PI(Sb)	BSE3 PI/Bog cranberry-Blueberry/Lichen	
	b4 grassland	BSA1 Hairy wild rye-Purple oatgrass	
c labrador tea - mesic (mesic/poor)	c1 labrador tea Sb(PI)	BSE5 Sb/Labrador tea/Feather moss	
		BSE6 Sb/Lichen	
		BSE8 PI/Labrador tea	
		BSE9 Sb-PI/Bog cranberry/Feather moss	
	c2 labrador tea Aw(Sb)	BSC1 Aw/Labrador tea/Stair-step moss	
		BSD1 Aw-Sb/Bog cranberry-Low-bush cranberry	
d low-bush cranberry/buffaloberry (mesic/medium)	d1 low-bush cranberry/buffaloberry Aw(Bw)	BSC2 Aw/Low-bush cranberry	
		BSC7 Aw/Green alder	
	d2 low-bush cranberry/buffaloberry Aw-Sw-Sb-PI	BSD2 Aw-Sw/Buffaloberry/Hairy wild rye	
		BSD3 Aw-PI(Sw-Sb)/Buffaloberry-Labrador tea/Stair-step moss	
		BSD4 Sb-Aw(Ba)/Stair-step moss	
	d3 low bush cranberry/buffaloberry Sw-PI	BSE10 Sw-PI/Low-bush cranberry/Stair-step moss	
		BSE12 Sw/Green alder	
	d4 low bush cranberry/buffaloberry shrub		
	e labrador tea - subhygric (subhygric/medium)	e1 labrador tea Sb-Sw	BSE14 Sb/Willow/Horsetail/Stair-step moss

Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community
		BSE16 Sb-Lt/Labrador tea-Bog bilberry/Tufted moss
		BSE25 Sb-Sw/Labrador tea/Feather moss
	e2 labrador tea Bw-Aw	BSC3 Bw/Labrador tea-Willow/Tufted moss
	e3 labrador tea - shrub	BSB2 Dwarf birch-Labrador tea-Common juniper/Stair-step moss
f river alder (subhygric/rich)	f1 river alder Aw-Pb-Bw	BSC4 Pb/River alder/Horsetail
		BSC5 Aw-Bw/Scouler's willow-Green alder
	f2 river alder Aw-Sw	
	f3 river alder Sw	
	f4 river alder shrub	BSB4 Scouler's willow-Green alder
g horsetail (hygric/rich)	g1 horsetail Bw-Aw	BSC6 Bw/Horsetail/Marsh reedgrass (Bluejoint)
	g2 horsetail Aw-Sw	
	g3 horsetail Sw	BSE11 Sw/Beaked willow/Feather moss
		BSE13 Sw/Horsetail/Stair-step moss
	g4 horsetail - shrub	BSE2 Sw/Flat-leaved willow-Bog birch
h bog (subhygric/very poor)	h1 treed bog	BSE15 Sb/Labrador tea/Peat moss
		BSE7 Sb/Labrador tea/Lichen
	h2 shrubby bog	BSB3 Labrador tea/Peat moss
		BSB9 Leatherleaf/Peat moss
h3 graminoid bog	BSA5 Mud sedge/Peat moss	
i poor fen (subhygric/medium)	i1 treed poor fen	BSE17 Sb/Willow/Peat moss
		BSE22 Lt-Sb/Bog birch-Willow/Peat moss

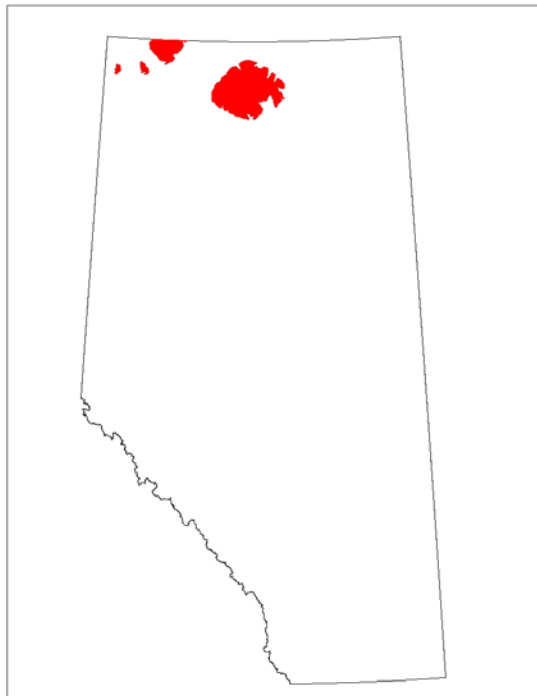
Ecological Site / Range Site	Ecosite Phase / Ecological Range Site	Reference Plant Community
	i2 shrubby poor fen	BSB13 Willow-Bog birch/Peat moss
		BSB15 Bog birch/Water sedge/Peat moss
	i3 graminoid poor fen	BSA6 Few-flower sedge-Water sedge/Peat moss
		BSA7 Few-flowered spike-rush/Peat moss
		BSA9 Mud sedge/Brown moss
BSB10 Buckbean/Sedge/Peat moss		
j rich fen (subhydric/rich)	j1 treed rich fen	BSE20 Lt/Willow-Dwarf birch/Golden moss
	j2 shrubby rich fen	BSB12 Willow/Water sedge
		BSB18 Willow-Bog birch/Marsh reedgrass (Bluejoint)
	j3 graminoid rich fen	BSA3 Marsh reedgrass (Bluejoint)-Water sedge
		BSA4 Small-bottle sedge-Water sedge meadow
		BSA8 Buckbean/Mud sedge/Scorpidium moss
l marsh (hydric/rich)	l1 marsh	BSA10 Pondweed
		BSA11 Cattail
		BSA12 Swamp horsetail

BSR Boreal Subarctic (n=143)

Natural Subregion: Boreal Subarctic

General Description

The Boreal Subarctic subregion is found at the higher latitudes along the border with the Northwest Territories. It includes the higher elevation Cameron Hills and Caribou Mountains. The ecodistricts include the Caribou and Cameron Hills Uplands.



Environmental Variables

Elevation (range): 797 (360-975) M

Ecological Sites

Site Count

a	bearberry (subxeric/poor)	2
b	blueberry (submesic/medium)	7
c	labrador tea - mesic (mesic/poor)	29
d	low-bush cranberry/buffaloberry (mesic/medium)	9
e	labrador tea - subhygric (subhygric/medium)	8
f	river alder (subhygric/rich)	3
g	horsetail (hygric/rich)	7
h	bog (subhydric/very poor)	32
i	poor fen (subhydric/medium)	23
j	rich fen (subhydric/rich)	18
l	marsh (hydric/rich)	5

a bearberry (subxeric/poor) (n=2)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

This is a dry ecosite with rapidly drained acidic soils and a poor nutrient regime due to coarse-textured glaciofluvial or eolian over lacustrine parent materials. Plants indicative of the nutrient-poor status include bearberry, lichen and bog cranberry. Open-canopied lodgepole pine stands dominate this ecosite, and there is commonly an understory of bearberry and lichens (Beckingham and Archibald 1996).



Site Index at 50 Years

LOGEPOLE PINE
(*Pinus contorta*)

Height (m) Variation (m) Count

12.10 0.60 0

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (2)

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

Elevation (range): 662 (662-662) M

Slope (%): moderate slope (1)

Aspect: Southerly (1)

Topographic Position: Crest (2)

Soil Variables

Soil Drainage: Very rapidly drained (1)

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

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

Effective Texture: Coarse sand (1), Silty clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (2)

Parent Material:

Soil Type: Very Dry/Sandy (1)

Humus Form RAW MODER (1)

Successional Relationships

Due to the dry nature of this ecosite, succession to black spruce is commonly slower than the fire return interval. Lodgepole pine is maintained for relatively long periods from colonization after fire to the climax stage. The pine dominated phase of this ecosite can be considered a fire edaphic climax (Beckingham and Archibald 1996).

Indicator Species

Tree

BLACK SPRUCE

Picea mariana

LOGEPOLE PINE

Pinus contorta

Shrub

BOG CRANBERRY

Vaccinium vitis-idaea

COMMON BEARBERRY

Arctostaphylos uva-ursi

Lichen

UNDIFFERENTIATED CLADONIA

Cladonia

REINDEER LICHEN

Cladina stellaris

a1 bearberry shrub (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: a bearberry (subxeric/poor)

Characteristic Species

Tree

- [1.0]BLACK SPRUCE
Picea mariana

Shrub

- [30.0]COMMON BEARBERRY*
Arctostaphylos uva-ursi
- [3.0]DWARF BIRCH
Betula pumila

Forb

- [1.0]NORTHERN BASTARD TOADFLAX
Geocaulon lividum

Lichen

- [10.0]UNDIFFERENTIATED CLADONIA*
Cladonia

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 662 (662-662) M

Slope (%):

Aspect:

Topographic Position:Crest (1)

Soil Variables

Soil Drainage:

Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)

Surface Texture: Silty clay loam (1)

Effective Texture: Silty clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material:

Soil Type:

Humus Form RAW MODER (1)

BSB1 Bearberry/Lichen (n=1)

(*Arctostaphylos uva-ursi/Cladonia spp.*)

Allen et al. (2006) described this community type on steep south and west facing slopes with coarse texture near Wentzel Lake in the Caribou Mountains Wildland Park. This community is an open bearberry/lichen community with some individual black spruce found scattered throughout. It is found on dry sandy sites with rapid drainage. Succession in the absence of disturbance will be to black spruce, but succession is commonly slower than the fire return interval. These communities can be considered a fire edaphic climax.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: a bearberry (subxeric/poor)
Ecosite Phase: a1 bearberry shrub

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
BLACK SPRUCE (<i>Picea mariana</i>)	1.0	1.0-1.0	100	Moisture Regime: Subxeric (moderately dry) (1)
Medium Shrub (0.5 to 2 m)				Nutrient Regime: Mesotrophic (medium) (1)
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	30.0	30.0-30.0	100	Elevation (range): 662 (662-662) M
DWARF BIRCH (<i>Betula pumila</i>)	3.0	3.0-3.0	100	Slope (%):
Low Forb (< 30 cm)				Aspect:
NORTHERN BASTARD TOADFLAX (<i>Geocaulon lividum</i>)	1.0	1.0-1.0	100	Topographic Position: Crest (1)
Lichen				Soil Variables
UNDIFFERENTIATED CLADONIA (<i>Cladonia</i>)	10.0	10.0-10.0	100	Soil Drainage:
				Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)
				Surface Texture: Silty clay loam (1)
				Effective Texture: Silty clay loam (1)
				Depth to Mottles/Gley:
				Organic Thickness: 0 - 5 cm (1)
				Parent Material:
				Soil Type:
				Humus Form RAW MODER (1)

a2 bearberry PI-Sb (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: a bearberry (subxeric/poor)

Characteristic Species

Tree

[14.0]BLACK SPRUCE*

Picea mariana

[8.0]LODGEPOLE PINE*

Pinus contorta

Shrub

[25.0]COMMON BEARBERRY*

Arctostaphylos uva-ursi

[25.0]BOG CRANBERRY*

Vaccinium vitis-idaea

[2.0]CROWBERRY

Empetrum nigrum

[1.0]PRICKLY ROSE

Rosa acicularis

Lichen

[20.0]REINDEER LICHEN*

Cladina stellaris

[10.0]REINDEER LICHEN

Cladina rangiferina

[5.0]REINDEER LICHEN

Cladina mitis

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (1)

Nutrient Regime: Submesotrophic (poor) (1)

Elevation (range): 0 (0-0) M

Slope (%): moderate slope (1)

Aspect: Southerly (1)

Topographic Position:Crest (1)

Soil Variables

Soil Drainage: Very rapidly drained (1)

Soil Subgroup: ELUVIATED EUTRIC BRUNISOL (1)

Surface Texture: Coarse sand (1)

Effective Texture: Coarse sand (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material:

Soil Type: Very Dry/Sandy (1)

Humus Form

BSE4 PI-Sb/Bearberry/Lichen (n=1)

(*Pinus contorta-Picea mariana/Arctostaphylos uva-ursi/Cladina spp.*)

This community occurs on dry coarse textured sites with rapid drainage. The overstory is dominated by lodgepole pine with a smaller black spruce component. The understory is dominated by bearberry and lichen.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: a bearberry (subxeric/poor)

Ecosite Phase: a2 bearberry PI-Sb

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	10.0	10.0-10.0	100	Moisture Regime: Subxeric (moderately dry) (1)
LOGEPOLE PINE (<i>Pinus contorta</i>)	8.0	8.0-8.0	100	Nutrient Regime: Submesotrophic (poor) (1)
Understory Tree				Elevation (range): 0 (0-0) M
BLACK SPRUCE (<i>Picea mariana</i>)	2.0	2.0-2.0	100	Slope (%): 10 - 15.99 (1)
Tall Shrub (2 to 5m)				Aspect: Southerly (1)
BLACK SPRUCE (<i>Picea mariana</i>)	4.0	4.0-4.0	100	Topographic Position: Crest (1)
Medium Shrub (0.5 to 2 m)				Soil Variables
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	25.0	25.0-25.0	100	Soil Drainage: Very rapidly drained (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	25.0	25.0-25.0	100	Soil Subgroup: ELUVIATED EUTRIC BRUNISOL (1)
CROWBERRY (<i>Empetrum nigrum</i>)	2.0	2.0-2.0	100	Surface Texture: Coarse sand (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	1.0	1.0-1.0	100	Effective Texture: Coarse sand (1)
Low Forb (< 30 cm)				Depth to Mottles/Gley:
BUNCHBERRY (<i>Cornus canadensis</i>)	0.5	0.5-0.5	100	Organic Thickness: 0 - 5 cm (1)
NORTHERN BASTARD TOADFLAX (<i>Geocaulon lividum</i>)	0.5	0.5-0.5	100	Parent Material:
Graminoid				Soil Type: Very Dry/Sandy (1)
GLAUCCIOUS BLUEGRASS (<i>Poa glauca</i>)	0.5	0.5-0.5	100	Humus Form
Lichen				
REINDEER LICHEN (<i>Cladina stellaris</i>)	20.0	20.0-20.0	100	
REINDEER LICHEN (<i>Cladina rangiferina</i>)	10.0	10.0-10.0	100	
REINDEER LICHEN (<i>Cladina mitis</i>)	5.0	5.0-5.0	100	

b blueberry (submesic/medium) (n=7)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

This ecosite ranges between subxeric and submesic as a result of coarse-textured parent materials and south-facing aspect. Conditions are intermediate in terms of moisture and nutrient regimes between the bearberry ecosite (a) and the low-bush cranberry/buffaloberry ecosite (d). It has species characteristic of both the bearberry ecosite, such as lodgepole pine, bearberry and bog cranberry, as well as those characteristic of the low-bush cranberry/buffaloberry ecosite such as bunchberry and hairy wildrye.



Environmental Variables

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

Nutrient Regime: Submesotrophic (poor) (3), Mesotrophic (medium) (2), Oligotrophic (very poor) (2)

Elevation (range): 764 (680-852) M

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

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

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

Soil Variables

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

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

Surface Texture: Clay loam (1), Medium sand (1), Silt (1), Silt loam (1), Silty clay loam (1)

Effective Texture: Silty clay loam (2), Clay loam (1), Heavy clay (1), Medium sand (1)

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

Organic Thickness: 0 - 5 cm (5)

Parent Material: Eolian (3), Lacustrine moraine (1), Morainial (1)

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

Humus Form FIBRIMOR (1), HUMIFIBRIMOR (1)

Successional Relationships

Lodgepole pine dominated phases may succeed to white spruce, but this process is slow due to the dry nature of these sites.

Indicator Species

Tree

WHITE SPRUCE

Picea glauca

BLACK SPRUCE

Picea mariana

LOGEPOLE PINE

Pinus contorta

Shrub

COMMON BLUEBERRY

Vaccinium myrtilloides

BOG CRANBERRY

Vaccinium vitis-idaea

PRICKLY ROSE

Rosa acicularis

COMMON BEARBERRY

Arctostaphylos uva-ursi

Lichen

REINDEER LICHEN

Cladonia mitis

Graminoid

HAIRY WILD RYE

Elymus innovatus

HAY SEDGE

Carex siccata

b1 blueberry Aw(Bw) (n=0)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)

General Description

A number of ecological site phases currently have no data. These ecological site phases have been created as place holders because they were described in adjacent subregions (Lower Boreal Highlands and Northern Mixedwood).

Characteristic Species

Environmental Variables

Moisture Regime:

Nutrient Regime:

Elevation (range):

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

b2 blueberry Sw (n=2)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)

Characteristic Species

Tree

- [27.5] WHITE SPRUCE*
Picea glauca

Shrub

- [11.0] BOG CRANBERRY*
Vaccinium vitis-idaea
- [6.0] PRICKLY ROSE*
Rosa acicularis
- [2.5] COMMON LABRADOR TEA
Ledum groenlandicum
- [1.5] NORTHERN LABRADOR TEA
Ledum palustre
- [1.0] TWINFLOWER
Linnaea borealis
- [1.0] CROWBERRY
Empetrum nigrum

Forb

- [1.2] COMMON FIREWEED
Epilobium angustifolium
- [1.0] BUNCHBERRY
Cornus canadensis
- [1.0] TALL LUNGWORT
Mertensia paniculata

Lichen

- [1.0] REINDEER LICHEN
Cladina mitis

Moss and Liverwort

- [35.0] STAIR-STEP MOSS
Hylocomium splendens
- [34.0] SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

- [12.5] HAIRY WILD RYE*
Elymus innovatus

Environmental Variables

Moisture Regime: Mesic (fresh) (1), Submesic (moderately fresh) (1)
Nutrient Regime: Mesotrophic (medium) (1), Submesotrophic (poor) (1)
Elevation (range): 760 (760-760) M
Slope (%): moderate slope (1), strong slope (1)
Aspect: Westerly (1), Southerly (1)
Topographic Position: Midslope (1), Upper Slope (1)

Soil Variables

Soil Drainage: Moderately well drained (1), Well drained (1)
Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1), BRUNISOLIC GRAY LUVISOL (1)
Surface Texture: Silty clay loam (1), Silt (1)
Effective Texture: Silty clay loam (2)
Depth to Mottles/Gley:
Organic Thickness: 0 - 5 cm (2)
Parent Material: Lacustrine moraine (1), Eolian (1)
Soil Type: Dry/Silty-Loamy (1), Moist/Fine (1)
Humus Form FIBRIMOR (1)

BSE1 Sw/Bog cranberry/Hairy wild rye (n=2)

(*Picea glauca/Vaccinium vitis-idaea/Leymus innovatus*)

This community type is transitional between the drier blueberry sites and the more mesic low-bush cranberry/buffaloberry sites, and there is an increase in cover of mesic plant species such as prickly rose, northern twinflower and bunchberry. Despite the increased moisture availability this community type still occupies dry silty/loamy textured sites that are well drained.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)

Ecosite Phase: b2 blueberry Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE SPRUCE (<i>Picea glauca</i>)	22.5	20.0-25.0	100	Moisture Regime: Submesic (moderately fresh) (1), Mesic (fresh) (1)
Understory Tree				Nutrient Regime: Submesotrophic (poor) (1), Mesotrophic (medium) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	5.0	5.0-5.0	100	Elevation (range): 760 (760-760) M
Tall Shrub (2 to 5m)				Slope (%): 10 - 15.99 (1), 16 - 30.99 (1)
WHITE SPRUCE (<i>Picea glauca</i>)	2.4	1.0-4.0	100	Aspect: Southerly (1), Westerly (1)
Medium Shrub (0.5 to 2 m)				Topographic Position: Midslope (1), Upper Slope (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	11.0	2.0-20.0	100	Soil Variables
PRICKLY ROSE (<i>Rosa acicularis</i>)	6.0	2.0-10.0	100	Soil Drainage: Well drained (1), Moderately well drained (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	2.5	0.0-5.0	50	Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1), BRUNISOLIC GRAY LUVISOL (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	1.5	0.0-3.0	50	Surface Texture: Silt (1), Silty clay loam (1)
CROWBERRY (<i>Empetrum nigrum</i>)	1.0	0.0-2.0	50	Effective Texture: Silty clay loam (2)
TWINFLOWER (<i>Linnaea borealis</i>)	1.0	0.0-2.0	50	Depth to Mottles/Gley:
Tall Forb (>= 30 cm)				Organic Thickness: 0 - 5 cm (2)
COMMON HORSETAIL (<i>Equisetum arvense</i>)	1.5	0.0-3.0	50	Parent Material: Eolian (1), Lacustrine moraine (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	1.2	0.5-2.0	100	Soil Type: Dry/Silty-Loamy (1), Moist/Fine (1)
TALL LUNGWORT (<i>Mertensia paniculata</i>)	1.0	1.0-1.0	100	Humus Form FIBRIMOR (1)
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	1.0	1.0-1.0	100	
Graminoid				
HAIRY WILD RYE (<i>Elymus innovatus</i>)	12.5	10.0-15.0	100	
Epiphyte				
N/A (<i>Alectoria sarmentosa</i>)	1.0	0.0-2.0	50	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	35.0	35.0-35.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	34.0	3.0-65.0	100	
Lichen				
REINDEER LICHEN (<i>Cladonia mitis</i>)	1.0	0.0-2.0	50	
DOG LICHEN (<i>Peltigera canina</i>)	0.7	0.5-1.0	100	

b3 blueberry PI(Sb) (n=4)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)

Characteristic Species

Tree

[25.9] LODGEPOLE PINE*

Pinus contorta

[6.2] BLACK SPRUCE*

Picea mariana

[0.8] ASPEN

Populus tremuloides

Shrub

[32.1] BOG CRANBERRY*

Vaccinium vitis-idaea

[15.0] COMMON BLUEBERRY*

Vaccinium myrtilloides

[8.0] COMMON LABRADOR TEA

Ledum groenlandicum

[4.8] COMMON BEARBERRY*

Arctostaphylos uva-ursi

[1.6] CROWBERRY

Empetrum nigrum

Forb

[7.1] BUNCHBERRY

Cornus canadensis

[1.0] DWARF SCOURING-RUSH

Equisetum scirpoides

Lichen

[6.0] REINDEER LICHEN

Cladina rangiferina

[3.1] REINDEER LICHEN*

Cladina mitis

[1.0] STUDDERED LEATHER LICHEN

Peltigera aphthosa

Moss and Liverwort

[32.5] PURPLE HORN-TOOTHED MOSS

Ceratodon purpureus

Environmental Variables

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

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

Elevation (range): 852 (852-852) M

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

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

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

Soil Variables

Soil Drainage: Well drained (2), Rapidly drained (1)

Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (2), ELUVIATED DYSTRIC BRUNISOL (1)

Surface Texture: Silt loam (1), Medium sand (1), Clay loam (1)

Effective Texture: Clay loam (1), Heavy clay (1), Medium sand (1)

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

Organic Thickness: 0 - 5 cm (3)

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

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

Humus Form HUMIFIBRIMOR (1)

BSE3 PI/Bog cranberry-Blueberry/Lichen (n=4)

(*Pinus contorta/Vaccinium vitis-idaea-Vaccinium myrtilloides/Cladina spp.*)

This community type is found on well-drained coarse to fine soils, in upper slope positions. The overstory is dominated by lodgepole pine, with a small component of black spruce found in the understory. The understory is dominated by bog cranberry and blueberry, along with a considerable amount of lichen.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)
Ecosite Phase: b3 blueberry PI(Sb)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
LODGEPOLE PINE (<i>Pinus contorta</i>)	28.7	15.0-50.0	100	Moisture Regime: Subxeric (moderately dry) (2), Submesic (moderately fresh) (1), Mesic (fresh) (1)
Understory Tree				Nutrient Regime: Oligotrophic (very poor) (2), Submesotrophic (poor) (1), Mesotrophic (medium) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	6.5	3.0-10.0	100	Elevation (range): 852 (852-852) M
LODGEPOLE PINE (<i>Pinus contorta</i>)	2.7	0.0-10.0	50	Slope (%): 0 - 0.49 (1), 0.5 - 2.49 (1), 6 - 9.99 (1), 10 - 15.99 (1)
Medium Shrub (0.5 to 2 m)				Aspect: Southerly (2), Level (1), Northerly (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	31.7	12.0-50.0	100	Topographic Position: Upper Slope (2), Crest (1)
COMMON BLUEBERRY (<i>Vaccinium myrtilloides</i>)	7.5	0.0-30.0	25	Soil Variables
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	4.7	0.0-15.0	75	Soil Drainage: Well drained (2), Rapidly drained (1)
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	2.7	0.0-10.0	50	Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (2), ELUVIATED DYSTRIC BRUNISOL (1)
BLACK SPRUCE (<i>Picea mariana</i>)	2.6	1.0-6.0	100	Surface Texture: Clay loam (1), Medium sand (1), Silt loam (1)
CROWBERRY (<i>Empetrum nigrum</i>)	1.2	0.0-2.0	75	Effective Texture: Clay loam (1), Heavy clay (1), Medium sand (1)
Tall Forb (>= 30 cm)				Depth to Mottles/Gley: 26 - 50 (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	1.1	0.0-3.0	75	Organic Thickness: 0 - 5 cm (3)
Low Forb (< 30 cm)				Parent Material: Eolian (2), Morainal (1)
BUNCHBERRY (<i>Cornus canadensis</i>)	4.5	0.0-13.0	75	Soil Type: Very Dry/Sandy (1), Moist/Fine (1), Dry/Fine (1)
Moss				Humus Form HUMIFIBRIMOR (1)
PURPLE HORN-TOOTHED MOSS (<i>Ceratodon purpureus</i>)	16.2	0.0-65.0	25	
UNDIFFERENTIATED PTILIMUM (<i>Ptilium</i>)	2.7	0.0-11.0	25	
Lichen				
REINDEER LICHEN (<i>Cladina rangiferina</i>)	8.0	0.0-25.0	75	
REINDEER LICHEN (<i>Cladina mitis</i>)	5.1	0.0-20.0	50	

b4 grassland (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)

Characteristic Species

Shrub

- [1.0] DWARF BIRCH
Betula pumila

Graminoid

- [35.0] HAIRY WILD RYE*
Elymus innovatus
- [25.0] PURPLE OAT GRASS
Schizachne purpurascens
- [10.0] HAY SEDGE*
Carex siccata

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (1)

Nutrient Regime: Submesotrophic (poor) (1)

Elevation (range): 680 (680-680) M

Slope (%):

Aspect:

Topographic Position: Upper Slope (1)

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSA1 Hairy wild rye-Purple oatgrass (n=1)

(*Leymus innovatus*-*Schizachne purpurascens*)

Allen et al. (2006) described this community type on a sandy terrace near Wentzel Lake in the Caribou Mountains Wildland Park. This community is dominated by graminoid species, and is found on coarse textured, sandy soils. Hairy wild rye and purple oatgrass dominate the community. Aspen encroachment may result in an aspen, bearberry, bog cranberry community over time.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: b blueberry (submesic/medium)

Ecosite Phase: b4 grassland

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 40
DWARF BIRCH (<i>Betula pumila</i>)	1.0	1.0-1.0	100	Moisture Regime: Subxeric (moderately dry) (1)
Graminoid				Nutrient Regime: Submesotrophic (poor) (1)
HAIRY WILD RYE (<i>Elymus innovatus</i>)	35.0	35.0-35.0	100	Elevation (range): 680 (680-680) M
PURPLE OAT GRASS (<i>Schizachne purpurascens</i>)	25.0	25.0-25.0	100	Slope (%):
HAY SEDGE (<i>Carex siccata</i>)	10.0	10.0-10.0	100	Aspect:
				Topographic Position: Upper Slope (1)
				Soil Variables
				Soil Drainage:
				Soil Subgroup:
				Surface Texture:
				Effective Texture:
				Depth to Mottles/Gley:
				Organic Thickness:
				Parent Material:
				Soil Type:
				Humus Form

c labrador tea - mesic (mesic/poor) (n=29)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

The labrador tea - mesic ecosite is subxeric to subhygric with a poor to medium nutrient regime. Labrador tea and bog cranberry indicate the relatively acidic surface soil conditions. This ecosite occurs in upland (midslope and upper slope) or level topographic positions, mainly over morainal parent materials. There is commonly a two-tiered forest canopy with faster growing lodgepole pine or aspen dominating the primary canopy, while the slower growing black spruce forms a secondary canopy. The labrador tea - mesic ecosite (c) has plant communities similar to some of those found in the labrador tea - subhygric ecosite (e), but the mesic ecosite tends to occur in upper topographic positions, has no mottles within the top 25cm of the soil profile, and has a thinner organic layer.



Successional Relationships

Successionally mature stands are dominated by black spruce, and may include residual pine. The climax community is rarely found due to a high fire frequency (Beckingham and Archibald 1996).

Indicator Species

Tree

BLACK SPRUCE

Picea mariana

LODGEPOLE PINE

Pinus contorta

ASPEN

Populus tremuloides

Shrub

BOG CRANBERRY

Vaccinium vitis-idaea

COMMON LABRADOR TEA

Ledum groenlandicum

Lichen

REINDEER LICHEN

Cladina stellaris

Moss and Liverwort

STAIR-STEP MOSS

Hylocomium splendens

SCHREBER'S MOSS

Pleurozium schreberi

Site Index at 50 Years

LODGEPOLE PINE

(Pinus contorta)

9.30

0.00

0

BLACK SPRUCE

(Picea mariana)

11.10

0.50

0

Environmental Variables

Moisture Regime: Mesic (fresh) (9), Submesic (moderately fresh) (7), Subxeric (moderately dry) (6), Subhygric (moderately moist) (3), Subhydryc (moderately wet) (2), Hygric (moist) (1)

Nutrient Regime: Mesotrophic (medium) (15), Submesotrophic (poor) (12), Oligotrophic (very poor) (1)

Elevation (range): 803.75 (645-975) M

Slope (%): very gentle slope (9), moderate slope (5), nearly level (4), gentle slope (3), level (2), strong slope (2)

Aspect: Southerly (8), Westerly (6), Easterly (4), Northerly (4), Level (3)

Topographic Position: Crest (6), Upper Slope (6), Lower Slope (5), Midslope (3)

Soil Variables

Soil Drainage: Well drained (13), Moderately well drained (4), Poorly drained (2), Very poorly drained (1), Imperfectly drained (1)

Soil Subgroup: ORTHIC GRAY LUVISOL (9), GLEYED STATIC CRYOSOL (3), BRUNISOLIC GRAY LUVISOL (2), ELUVIATED DYSTRIC BRUNISOL (2), ORTHIC EUTRIC BRUNISOL (1), Unknown GRAY LUVISOL (1)

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

Effective Texture: Clay loam (9), Clay (3), Silty clay loam (2), Sandy loam (1), Silt (1), Silty clay (1)

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

Organic Thickness: 0 - 5 cm (16), 16 - 25 cm (1), 26 - 39 cm (1)

Parent Material: Morainal (6), Eolian (3), Lacustrine (2)

Soil Type: Moist/Fine (8), Dry/Fine (4), Wet/Peaty (2), Dry/Silty-Loamy (1), Moist/Silty-Loamy (1)

Humus Form HUMIFIBRIMOR (2)

c1 labrador tea Sb(PI) (n=22)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)

Characteristic Species

Tree

[17.2]BLACK SPRUCE*

Picea mariana

[8.8]LODGEPOLE PINE*

Pinus contorta

Shrub

[10.8]COMMON LABRADOR TEA*

Ledum groenlandicum

[10.6]NORTHERN LABRADOR TEA

Ledum palustre

[5.3]BOG CRANBERRY*

Vaccinium vitis-idaea

[1.5]LOW-BUSH CRANBERRY

Viburnum edule

Forb

[3.3]BUNCHBERRY

Cornus canadensis

Lichen

[22.2]REINDEER LICHEN*

Cladina stellaris

[2.9]REINDEER LICHEN

Cladina rangiferina

[2.7]REINDEER LICHEN

Cladina mitis

[1.2]STUDDERED LEATHER LICHEN

Peltigera aphthosa

Moss and Liverwort

[12.3]SCHREBER'S MOSS*

Pleurozium schreberi

[7.8]STAIR-STEP MOSS*

Hylocomium splendens

[1.0]KNIGHT'S PLUME MOSS

Ptilium crista-castrensis

[1.0]RUSTY PEAT MOSS

Sphagnum fuscum

Environmental Variables

Moisture Regime: Mesic (fresh) (7), Submesic (moderately fresh) (6), Subxeric (moderately dry) (4), Subhydric (moderately wet) (2), Subhygric (moderately moist) (2), Hygric (moist) (1)

Nutrient Regime: Submesotrophic (poor) (12), Mesotrophic (medium) (9), Oligotrophic (very poor) (1)

Elevation (range): 815 (645-975) M

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

Aspect: Southerly (5), Northerly (4), Westerly (4), Easterly (3), Level (2)

Topographic Position: Upper Slope (6), Lower Slope (5), Crest (4), Midslope (1)

Soil Variables

Soil Drainage: Well drained (10), Moderately well drained (3), Poorly drained (2), Imperfectly drained (1), Very poorly drained (1)

Soil Subgroup: ORTHIC GRAY LUVISOL (5), GLEYED STATIC CRYOSOL (3), BRUNISOLIC GRAY LUVISOL (2), ELUVIATED DYSTRIC BRUNISOL (2), ORTHIC EUTRIC BRUNISOL (1), Unknown GRAY LUVISOL (1)

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

Effective Texture: Clay loam (7), Silty clay loam (2), Clay (2), Sandy loam (1), Silt (1)

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

Organic Thickness: 0 - 5 cm (12), 26 - 39 cm (1), 16 - 25 cm (1)

Parent Material: Morainal (4), Eolian (3), Lacustrine (1)

Soil Type: Moist/Fine (5), Dry/Fine (3), Wet/Peaty (2), Moist/Silty-Loamy (1), Dry/Silty-Loamy (1)

Humus Form HUMIFIBRIMOR (1)

BSE5 Sb/Labrador tea/Feather moss (n=15)

(*Picea mariana*/*Ledum groenlandicum*/*Pleurozium schreberi*)

This is a common community type in the Boreal Subarctic, it is a mesic community with a poor nutrient regime, occurring on well-drained finer textured soils. The sparse to dense canopy is dominated by black spruce, while scattered white spruce, aspen and white birch may be found. The understory may be sparse or densely vegetated with Labrador tea, bog cranberry, Schreber's moss and stair-step moss.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)
Ecosite Phase: c1 labrador tea Sb(PI)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	27.5	5.0-60.0	100	Moisture Regime: Mesic (fresh) (5), Submesic (moderately fresh) (4), Subhygric (moderately moist) (2), Subhygric (moderately wet) (2), Subxeric (moderately dry) (1), Hygric (moist) (1)
Understory Tree				Nutrient Regime: Submesotrophic (poor) (10), Mesotrophic (medium) (4), Oligotrophic (very poor) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	6.6	0.0-20.0	67	Elevation (range): 870 (770-920) M
Medium Shrub (0.5 to 2 m)				Slope (%): 2.5 - 5.99 (6), 10 - 15.99 (3), 16 - 30.99 (1), 0 - 0.49 (1), 0.5 - 2.49 (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	13.5	0.0-60.0	73	Aspect: Southerly (4), Easterly (3), Northerly (2), Westerly (2), Level (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	5.5	0.5-35.0	100	Topographic Position: Lower Slope (5), Upper Slope (4), Crest (3), Midslope (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	1.6	0.0-25.0	7	
PRICKLY ROSE (<i>Rosa acicularis</i>)	1.3	0.0-15.0	47	
Low Forb (< 30 cm)				Soil Variables
BUNCHBERRY (<i>Cornus canadensis</i>)	0.9	0.0-3.0	47	Soil Drainage: Well drained (8), Poorly drained (2), Moderately well drained (1), Imperfectly drained (1), Very poorly drained (1)
Moss				Soil Subgroup: ORTHIC GRAY LUVISOL (4), GLEYED STATIC CRYOSOL (3), BRUNISOLIC GRAY LUVISOL (2), ELUVIATED DYSTRIC BRUNISOL (1), Unknown GRAY LUVISOL (1)
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	32.4	0.0-70.0	87	Surface Texture: Loam (2), Silt (2), Fibric (2), Clay loam (1), Silty clay loam (1), Silt loam (1), Sandy clay loam (1)
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	21.3	0.0-80.0	93	Effective Texture: Clay loam (5), Silty clay loam (2), Sandy loam (1), Clay (1), Silt (1)
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	4.3	0.0-50.0	20	Depth to Mottles/Gley: 0 - 25 (2), 26 - 50 (1)
KNIGHT'S PLUME MOSS (<i>Ptilium crista-castrensis</i>)	4.0	0.0-25.0	33	Organic Thickness: 0 - 5 cm (9), 26 - 39 cm (1), 16 - 25 cm (1)
PEAT MOSS (<i>Sphagnum angustifolium</i>)	2.3	0.0-30.0	13	Parent Material: Eolian (3), Morainal (2), Lacustrine (1)
Lichen				Soil Type: Moist/Fine (4), Wet/Peaty (2), Dry/Silty-Loamy (1), Moist/Silty-Loamy (1), Dry/Fine (1)
REINDEER LICHEN (<i>Cladina mitis</i>)	5.8	0.0-40.0	80	Humus Form HUMIFIBRIMOR (1)
REINDEER LICHEN (<i>Cladina rangiferina</i>)	4.8	0.0-20.0	67	
REINDEER LICHEN (<i>Cladina stellaris</i>)	1.6	0.0-10.0	47	

BSE6 Sb/Lichen (n=1)

(*Picea mariana*/*Cladina spp.*)

This community type was described by Allen et al. (2006) near Wentzel Lake in the Caribou Mountains Wildland Park. This community is restricted to well-drained sites not underlain by permafrost, and represents the climax community type of open black spruce woodlands with lichen dominated understories. The overstory is composed solely of black spruce with a lichen dominated understory that may have some scattered Labrador tea and bog cranberry. It appears this community only develops 80-120 years following fire or other disturbance (Allen et al. 2006).

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)

Ecosite Phase: c1 labrador tea Sb(PI)

Plant Composition

Canopy Cover (%)

Environmental Variables

	Canopy Cover (%)			Const.	Environmental Variables
	Mean	Range			
Overstory Tree					Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	20.0	20.0-20.0	100		Moisture Regime: Mesic (fresh) (1)
Understory Tree					Nutrient Regime: Mesotrophic (medium) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	1.0	1.0-1.0	100		Elevation (range): 645 (645-645) M
Medium Shrub (0.5 to 2 m)					Slope (%):
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	5.0	5.0-5.0	100		Aspect:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	2.0	2.0-2.0	100		Topographic Position:
Lichen					Soil Variables
REINDEER LICHEN (<i>Cladina stellaris</i>)	85.0	85.0-85.0	100		Soil Drainage: Well drained (1)
REINDEER LICHEN (<i>Cladina rangiferina</i>)	3.0	3.0-3.0	100		Soil Subgroup:
N/A (<i>Cetraria nivalis</i>)	2.0	2.0-2.0	100		Surface Texture:
REINDEER LICHEN (<i>Cladina mitis</i>)	1.0	1.0-1.0	100		Effective Texture:
					Depth to Mottles/Gley:
					Organic Thickness:
					Parent Material:
					Soil Type:
					Humus Form

BSE8 PI/Labrador tea (n=1)

(*Pinus contorta*/*Ledum groenlandicum*)

This community represents a lodgepole pine dominated analog to the black spruce/labrador tea/lichen community that occurs in areas with a slightly more mesic moisture regime. Tree cover is sparse and limited to lodgepole pine, while labrador tea dominates the understory along with sparsely scattered mesic plants such as northern twinflower, bunchberry and prickly rose. The community is found on well drained sites with finer textured soils, and occurs following fire disturbances.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)

Ecosite Phase: c1 labrador tea Sb(PI)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
LOGEPOLE PINE (<i>Pinus contorta</i>)	3.0	3.0-3.0	100	Moisture Regime: Submesic (moderately fresh) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Submesotrophic (poor) (1)
LOGEPOLE PINE (<i>Pinus contorta</i>)	20.0	20.0-20.0	100	Elevation (range): 0 (0-0) M
Medium Shrub (0.5 to 2 m)				Slope (%): 0.5 - 2.49 (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	40.0	40.0-40.0	100	Aspect: Westerly (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	10.0	10.0-10.0	100	Topographic Position: Crest (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	2.0	2.0-2.0	100	Soil Variables
TWINFLOWER (<i>Linnaea borealis</i>)	1.0	1.0-1.0	100	Soil Drainage: Moderately well drained (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	1.0	1.0-1.0	100	Soil Subgroup: ORTHIC GRAY LUVISOL (1)
WHITE SPRUCE (<i>Picea glauca</i>)	0.5	0.5-0.5	100	Surface Texture: Clay loam (1)
Tall Forb (>= 30 cm)				Effective Texture: Clay (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	0.5	0.5-0.5	100	Depth to Mottles/Gley:
Low Forb (< 30 cm)				Organic Thickness: 0 - 5 cm (1)
BUNCHBERRY (<i>Cornus canadensis</i>)	10.0	10.0-10.0	100	Parent Material:
Lichen				Soil Type: Dry/Fine (1)
UNDIFFERENTIATED CLADONIA (<i>Cladonia</i>)	5.0	5.0-5.0	100	Humus Form

BSE9 Sb-PI/Bog cranberry/Feather moss (n=5)

(*Picea mariana*-*Pinus contorta*/*Vaccinium vitis-idaea*/*Pleurozium schreberi*)

This community type represents a successionaly immature stand of the Labrador tea ecological site, and occupies the drier moisture regime. It occurs on areas with fine loamy/clayey textured soils that are well drained. Successionaly mature sites are often dominated by black spruce.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)

Ecosite Phase: c1 labrador tea Sb(PI)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
LOGEPOLE PINE (<i>Pinus contorta</i>)	12.4	10.0-15.0	100	Moisture Regime: Subxeric (moderately dry) (3), Submesic (moderately fresh) (1), Mesic (fresh) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	11.6	3.0-20.0	100	Nutrient Regime: Mesotrophic (medium) (4), Submesotrophic (poor) (1)
Understory Tree				Elevation (range): 930 (885-975) M
BLACK SPRUCE (<i>Picea mariana</i>)	2.8	0.0-10.0	60	Slope (%): 2.5 - 5.99 (2), 6 - 9.99 (1), 10 - 15.99 (1), 16 - 30.99 (1)
Tall Shrub (2 to 5m)				Aspect: Northerly (2), Southerly (1), Westerly (1), Level (1)
BLACK SPRUCE (<i>Picea mariana</i>)	7.0	0.0-27.0	40	Topographic Position: Upper Slope (2)
LOGEPOLE PINE (<i>Pinus contorta</i>)	1.4	0.0-7.0	20	Soil Variables
Medium Shrub (0.5 to 2 m)				Soil Drainage: Well drained (1), Moderately well drained (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	15.0	0.0-45.0	80	Soil Subgroup: ELUVIATED DYSTRIC BRUNISOL (1), ORTHIC EUTRIC BRUNISOL (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	12.0	5.0-25.0	100	Surface Texture: Loam (1), Sandy loam (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	6.0	0.0-30.0	20	Effective Texture: Clay loam (2)
BOG BIRCH (<i>Betula glandulosa</i>)	3.6	0.0-15.0	40	Depth to Mottles/Gley:
CROWBERRY (<i>Empetrum nigrum</i>)	2.6	0.0-5.0	60	Organic Thickness: 0 - 5 cm (2)
PRICKLY ROSE (<i>Rosa acicularis</i>)	1.2	0.0-5.0	40	Parent Material: Morainal (2)
BOG BILBERRY (<i>Vaccinium uliginosum</i>)	1.2	0.0-5.0	40	Soil Type: Dry/Fine (1), Moist/Fine (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	1.0	0.0-5.0	20	Humus Form
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	3.4	1.0-5.0	100	
Moss				
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	17.0	0.0-60.0	60	
STAIR-STEP MOSS (<i>Hylacomium splendens</i>)	10.0	5.0-15.0	100	
Lichen				
STUDDERED LEATHER LICHEN (<i>Peltigera aphthosa</i>)	4.8	3.0-10.0	100	
REINDEER LICHEN (<i>Cladina mitis</i>)	4.0	0.0-10.0	80	
REINDEER LICHEN (<i>Cladina rangiferina</i>)	4.0	0.0-10.0	40	
N/A (<i>Cetraria nivalis</i>)	1.8	0.0-3.0	60	

c2 labrador tea Aw(Sb) (n=7)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)

Characteristic Species

Tree

- [62.9] ASPEN*
Populus tremuloides
- [8.6] BLACK SPRUCE*
Picea mariana
- [1.2] ALASKA BIRCH
Betula neoalaskana

Shrub

- [6.0] BOG CRANBERRY*
Vaccinium vitis-idaea
- [2.6] TWINFLOWER
Linnaea borealis
- [2.5] LOW-BUSH CRANBERRY
Viburnum edule
- [1.3] SCOULER'S WILLOW
Salix scouleriana
- [1.1] CANADA BUFFALOBERRY
Shepherdia canadensis
- [1.0] SMOOTH WILLOW
Salix glauca
- [0.5] COMMON BEARBERRY
Arctostaphylos uva-ursi
- [0.3] COMMON LABRADOR TEA*
Ledum groenlandicum

Forb

- [3.1] BUNCHBERRY
Cornus canadensis
- [1.0] COMMON FIREWEED
Epilobium angustifolium

Moss and Liverwort

- [8.0] STAIR-STEP MOSS*
Hylocomium splendens
- [2.4] SCHREBER'S MOSS
Pleurozium schreberi

Environmental Variables

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

Nutrient Regime: Mesotrophic (medium) (6)

Elevation (range): 770 (770-770) M

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

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

Topographic Position: Midslope (2), Crest (2)

Soil Variables

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

Soil Subgroup: ORTHIC GRAY LUVISOL (4)

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

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

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (4)

Parent Material: Morainal (2), Lacustrine (1)

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

Humus Form HUMIFIBRIMOR (1)

BSC1 Aw/Labrador tea/Stair-step moss (n=4)

(*Populus tremuloides*/*Ledum groenlandicum*/*Hylocomium splendens*)

This community type occupies the moister edge of the Labrador tea-mesic ecosite, with a slightly richer nutrient regime, as indicated by the aspen and stair-step moss cover. This community type is well to moderately well drained with fine textured soils that are closer to the low bush cranberry ecological site (d). In the absence of disturbance it will likely succeed to a black spruce dominated community.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)

Ecosite Phase: c2 labrador tea Aw(Sb)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
ASPEN (<i>Populus tremuloides</i>)	38.7	25.0-60.0	100	Moisture Regime: Mesic (fresh) (2), Subhygric (moderately moist) (1), Submesic (moderately fresh) (1)
ALASKA BIRCH (<i>Betula neoalaskana</i>)	2.5	0.0-10.0	25	Nutrient Regime: Mesotrophic (medium) (4)
Understory Tree				Elevation (range): 770 (770-770) M
ASPEN (<i>Populus tremuloides</i>)	6.2	0.0-20.0	50	Slope (%): 0.5 - 2.49 (2), 6 - 9.99 (2)
BLACK SPRUCE (<i>Picea mariana</i>)	3.7	0.0-5.0	75	Aspect: Westerly (2), Easterly (1), Southerly (1)
WHITE BIRCH (<i>Betula papyrifera</i>)	1.2	0.0-5.0	25	Topographic Position: Crest (2), Midslope (2)
Medium Shrub (0.5 to 2 m)				Soil Variables
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	3.0	0.0-5.0	75	Soil Drainage: Well drained (3), Moderately well drained (1)
BLACK SPRUCE (<i>Picea mariana</i>)	2.2	0.0-4.0	75	Soil Subgroup: ORTHIC GRAY LUVISOL (4)
TWINFLOWER (<i>Linnaea borealis</i>)	1.0	0.0-3.0	50	Surface Texture: Clay loam (1), Loam (1), Silty clay loam (1), Silt loam (1)
Tall Forb (>= 30 cm)				Effective Texture: Clay loam (2), Silty clay (1), Clay (1)
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	1.2	0.0-4.0	75	Depth to Mottles/Gley:
Low Forb (< 30 cm)				Organic Thickness: 0 - 5 cm (4)
BUNCHBERRY (<i>Cornus canadensis</i>)	2.2	0.0-8.0	75	Parent Material: Morainal (2), Lacustrine moraine (1)
Moss				Soil Type: Moist/Fine (3), Dry/Fine (1)
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	16.0	4.0-40.0	100	Humus Form HUMIFIBRIMOR (1)
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	1.5	0.0-5.0	50	

BSD1 Aw-Sb/Bog cranberry-Low-bush cranberry (n=3)

(*Populus tremuloides*-*Picea mariana*/*Vaccinium vitis-idaea*-*Viburnum edule*)

This community is has a predominantly aspen overstory along with a black spruce component and scattered lodgepole pine. There is a secondary canopy of black spruce that will mature and lead to a black spruce dominated climax community over time. The understory has a mixture of mesic vegetation such as buffaloberry, northern twinflower, low-bush cranberry and bunchberry, as well as plants indicative of poorer nutrient regimes such as bog cranberry and bearberry. This community occupies the slightly richer end of the labrador tea - mesic ecosite and is found on well to moderately well drained soils.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: c labrador tea - mesic (mesic/poor)
Ecosite Phase: c2 labrador tea Aw(Sb)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
ASPEN (<i>Populus tremuloides</i>)	81.0	68.0-95.0	100	Moisture Regime: Subxeric (moderately dry) (2)
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	2.6	0.0-5.0	67	Nutrient Regime: Mesotrophic (medium) (2)
Tall Shrub (2 to 5m)				Elevation (range): 0 (0-0) M
SMOOTH WILLOW (<i>Salix glauca</i>)	2.0	0.0-6.0	33	Slope (%): 0 - 0.49 (1), 2.5 - 5.99 (1), 10 - 15.99 (1)
GREEN ALDER (<i>Alnus crispa</i>)	1.6	0.0-5.0	33	Aspect: Southerly (2), Level (1)
BEAKED WILLOW (<i>Salix bebbiana</i>)	1.6	0.0-5.0	33	Topographic Position:
Medium Shrub (0.5 to 2 m)				Soil Variables
BLACK SPRUCE (<i>Picea mariana</i>)	15.0	10.0-25.0	100	Soil Drainage:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	9.0	2.0-22.0	100	Soil Subgroup:
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	5.0	0.0-15.0	33	Surface Texture:
TWINFLOWER (<i>Linnaea borealis</i>)	4.3	2.0-8.0	100	Effective Texture:
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	2.3	0.0-5.0	67	Depth to Mottles/Gley:
PRICKLY ROSE (<i>Rosa acicularis</i>)	1.6	0.0-3.0	67	Organic Thickness:
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	1.0	0.0-3.0	33	Parent Material:
Tall Forb (>= 30 cm)				Soil Type:
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	2.0	0.0-4.0	67	Humus Form
TALL LUNGWORT (<i>Mertensia paniculata</i>)	1.3	0.0-2.0	67	
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	4.0	2.0-5.0	100	
Moss				
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	3.3	2.0-5.0	100	

d low-bush cranberry/buffaloberry (mesic/medium) (n=9)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

This ecosite is mesic to submesic, and is frequently associated with upper slopes and slope crests as well as areas with unimpeded drainage. This is a productive site in the Boreal Subarctic due to its location on warmer sites within the subregion (Beckingham and Archibald 1996).



Site Index at 50 Years

	Height (m)	Variation (m)	Count
WHITE SPRUCE (<i>Picea glauca</i>)	15.00	1.90	0
ASPEN (<i>Populus tremuloides</i>)	15.80	0.10	0

Environmental Variables

Moisture Regime: Mesic (fresh) (6), Submesic (moderately fresh) (2), Subxeric (moderately dry) (1)

Nutrient Regime: Mesotrophic (medium) (7), Permesotrophic (rich) (1), Submesotrophic (poor) (1)

Elevation (range): 844.25 (450-920) M

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

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

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

Soil Variables

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

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

Surface Texture: Loam (2), Silt loam (2)

Effective Texture: Clay loam (4)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (5)

Parent Material: Morainal (3), Colluvial (1), Lacustrine (1)

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

Humus Form

Successional Relationships

Aspen and pine communities will succeed to white spruce and/or black spruce-dominated climax communities. White spruce and black spruce along with mixtures of the two species may form the canopy of the climax community depending on timing of species establishment and differences between sites (Beckingham and Archibald 1996).

Indicator Species

Tree

WHITE SPRUCE
Picea glauca

BLACK SPRUCE
Picea mariana

LOGEPOLE PINE
Pinus contorta

ASPEN
Populus tremuloides

Shrub

CANADA BUFFALOBERRY
Shepherdia canadensis

LOW-BUSH CRANBERRY
Viburnum edule

GREEN ALDER
Alnus crispa

Forb

COMMON FIREWEED
Epilobium angustifolium

Moss and Liverwort

STAIR-STEP MOSS
Hylocomium splendens

SCHREBER'S MOSS
Pleurozium schreberi

Graminoid

HAIRY WILD RYE
Elymus innovatus

d1 low-bush cranberry/buffaloberry Aw(Bw) (n=2)

Natural Subregion: Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosection: BSR Boreal Subarctic

Characteristic Species

Tree

[90.0]ASPEN*
Populus tremuloides

[5.0]BLACK SPRUCE
Picea mariana

Shrub

[60.0]LOW-BUSH CRANBERRY*
Viburnum edule

[8.0]PRICKLY ROSE
Rosa acicularis

[5.0]TWINFLOWER
Linnaea borealis

Forb

[6.0]BUNCHBERRY
Cornus canadensis

[4.0]UNDIFFERENTIATED WINTERGREEN
Pyrola

[3.0]COMMON FIREWEED
Epilobium angustifolium

[2.0]TALL LUNGWORT
Mertensia paniculata

[1.0]RED AND WHITE BANE BERRY
Actaea rubra

Environmental Variables

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

Nutrient Regime: Mesotrophic (medium) (2)

Elevation (range): 0 (0-0) M

Slope (%): strong slope (2)

Aspect: Southerly (1), Easterly (1)

Topographic Position:

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSC2 Aw/Low-bush cranberry (n=1)

(*Populus tremuloides/Viburnum edule*)

This community type has an aspen overstory and a dense low-bush cranberry understory that also hosts a variety of mesic plants such as prickly rose, northern twinflower and bunchberry. These communities are found in upland areas with variable soil types.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d1 low-bush cranberry/buffaloberry Aw(Bw)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
ASPEN (<i>Populus tremuloides</i>)	85.0	85.0-85.0	100	Moisture Regime: Mesic (fresh) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Mesotrophic (medium) (1)
ASPEN (<i>Populus tremuloides</i>)	5.0	5.0-5.0	100	Elevation (range): 0 (0-0) M
Medium Shrub (0.5 to 2 m)				Slope (%): 16 - 30.99 (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	60.0	60.0-60.0	100	Aspect: Easterly (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	8.0	8.0-8.0	100	Topographic Position:
TWINFLOWER (<i>Linnaea borealis</i>)	5.0	5.0-5.0	100	Soil Variables
BLACK SPRUCE (<i>Picea mariana</i>)	5.0	5.0-5.0	100	Soil Drainage:
ASPEN (<i>Populus tremuloides</i>)	5.0	5.0-5.0	100	Soil Subgroup:
Tall Forb (>= 30 cm)				Surface Texture:
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	3.0	3.0-3.0	100	Effective Texture:
TALL LUNGWORT (<i>Mertensia paniculata</i>)	2.0	2.0-2.0	100	Depth to Mottles/Gley:
RED AND WHITE BANE BERRY (<i>Actaea rubra</i>)	1.0	1.0-1.0	100	Organic Thickness:
Low Forb (< 30 cm)				Parent Material:
BUNCHBERRY (<i>Cornus canadensis</i>)	6.0	6.0-6.0	100	Soil Type:
UNDIFFERENTIATED WINTERGREEN (<i>Pyrola</i>)	4.0	4.0-4.0	100	Humus Form

BSC7 Aw/Green alder (n=1)

(*Populus tremuloides*/*Alnus crispa*)

This community type is similar to the Aw/Green alder described by Moisey et al. (2016) that is scattered throughout the Central Mixedwood subregion on mainly mesic to subhygric, well-drained sites. Moisey et al. felt this community is likely of fire origin. Many of the plots in the Central Mixedwood were described from a large fire that burned through the area in 1968.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d1 low-bush cranberry/buffaloberry Aw(Bw)

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
ASPEN (<i>Populus tremuloides</i>)	65.0	65.0-65.0	100	Moisture Regime: Subxeric (moderately dry) (1)
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	5.0	5.0-5.0	100	Nutrient Regime: Mesotrophic (medium) (1)
Tall Shrub (2 to 5m)				Elevation (range): 0 (0-0) M
GREEN ALDER (<i>Alnus crispa</i>)	5.0	5.0-5.0	100	Slope (%): 16 - 30.99 (1)
ASPEN (<i>Populus tremuloides</i>)	5.0	5.0-5.0	100	Aspect: Southerly (1)
Medium Shrub (0.5 to 2 m)				Topographic Position:
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	8.0	8.0-8.0	100	Soil Variables
GREEN ALDER (<i>Alnus crispa</i>)	7.0	7.0-7.0	100	Soil Drainage:
PRICKLY ROSE (<i>Rosa acicularis</i>)	5.0	5.0-5.0	100	Soil Subgroup:
TWINFLOWER (<i>Linnaea borealis</i>)	3.0	3.0-3.0	100	Surface Texture:
Tall Forb (>= 30 cm)				Effective Texture:
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	3.0	3.0-3.0	100	Depth to Mottles/Gley:
TALL LUNGWORT (<i>Mertensia paniculata</i>)	2.0	2.0-2.0	100	Organic Thickness:
RED AND WHITE BANE BERRY (<i>Actaea rubra</i>)	1.0	1.0-1.0	100	Parent Material:
Low Forb (< 30 cm)				Soil Type:
UNDIFFERENTIATED WINTERGREEN (<i>Pyrola</i>)	7.0	7.0-7.0	100	Humus Form
BUNCHBERRY (<i>Cornus canadensis</i>)	5.0	5.0-5.0	100	
Graminoid				
SLENDER WHEAT GRASS (<i>Agropyron trachycaulum</i>)	3.0	3.0-3.0	100	

d2 low-bush cranberry/buffaloberry Aw-Sw-Sb-PI (n=5)

Natural Subregion: Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosection: BSR Boreal Subarctic

Characteristic Species

Tree

- [31.0] ASPEN
Populus tremuloides
- [11.7] WHITE SPRUCE*
Picea glauca
- [10.8] BLACK SPRUCE*
Picea mariana
- [6.6] LODGEPOLE PINE
Pinus contorta

Shrub

- [10.8] CANADA BUFFALOBERRY*
Shepherdia canadensis
- [3.8] COMMON LABRADOR TEA
Ledum groenlandicum
- [3.3] LOW-BUSH CRANBERRY*
Viburnum edule
- [3.0] BOG CRANBERRY
Vaccinium vitis-idaea
- [2.1] GREEN ALDER
Alnus crispa
- [1.5] PRICKLY ROSE
Rosa acicularis

Forb

- [9.3] COMMON FIREWEED
Epilobium angustifolium
- [6.6] WILD SARSAPARILLA
Aralia nudicaulis
- [4.8] BUNCHBERRY
Cornus canadensis
- [1.3] PALMATE-LEAVED COLTSFOOT
Petasites palmatus

Lichen

- [4.1] REINDEER LICHEN
Cladina mitis

Moss and Liverwort

- [18.5] STAIR-STEP MOSS*
Hylocomium splendens
- [3.3] SCHREBER'S MOSS*
Pleurozium schreberi

Graminoid

- [10.1] HAIRY WILD RYE*
Elymus innovatus

Environmental Variables

Moisture Regime: Mesic (fresh) (4), Submesic (moderately fresh) (1)
Nutrient Regime: Mesotrophic (medium) (4), Permesotrophic (rich) (1)
Elevation (range): 786 (450-920) M
Slope (%): very strong slope (2), nearly level (1), very gentle slope (1)
Aspect: Westerly (2), Northerly (1), Southerly (1)
Topographic Position: Upper Slope (2), Crest (1), Level (1), Midslope (1)

Soil Variables

Soil Drainage: Well drained (4), Moderately well drained (1)
Soil Subgroup: ORTHIC GRAY LUVISOL (2), ELUVIATED DYSTRIC BRUNISOL (1), ORTHIC EUTRIC BRUNISOL (1)
Surface Texture: Loam (2), Silt loam (1)
Effective Texture: Clay loam (3)
Depth to Mottles/Gley:
Organic Thickness: 0 - 5 cm (4)
Parent Material: Morainal (2), Lacustrine (1), Colluvial (1)
Soil Type: Moist/Fine (2), Dry/Fine (1)
Humus Form

BSD2 Aw-Sw/Buffaloberry/Hairy wild rye (n=1)

(*Populus tremuloides*-*Picea glauca*/*Shepherdia canadensis*/*Leymus innovatus*)

This community type is slightly drier with a slightly poorer nutrient regime than other community types of the low-bush cranberry/buffaloberry ecosite. It has a sparse to open canopy of aspen and white spruce with a regeneration layer of white spruce. The understory contains buffaloberry and bunchberry along with dry site indicators bearberry and hairy wild rye. Soils are generally fine to medium textured and well drained, and occur on warm slopes.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d2 low-bush cranberry/buffaloberry Aw-Sw-Sb-PI

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
ASPEN (<i>Populus tremuloides</i>)	25.0	25.0-25.0	100	Moisture Regime: Mesic (fresh) (1)
Understory Tree				Nutrient Regime: Mesotrophic (medium) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	10.0	10.0-10.0	100	Elevation (range): 0 (0-0) M
Tall Shrub (2 to 5m)				Slope (%): 2.5 - 5.99 (1)
BEAKED WILLOW (<i>Salix bebbiana</i>)	3.0	3.0-3.0	100	Aspect: Southerly (1)
WHITE SPRUCE (<i>Picea glauca</i>)	1.0	1.0-1.0	100	Topographic Position: Crest (1)
Medium Shrub (0.5 to 2 m)				Soil Variables
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	10.0	10.0-10.0	100	Soil Drainage: Well drained (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	5.0	5.0-5.0	100	Soil Subgroup: ORTHIC GRAY LUVISOL (1)
BOG BIRCH (<i>Betula glandulosa</i>)	3.0	3.0-3.0	100	Surface Texture: Silt loam (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	0.5	0.5-0.5	100	Effective Texture: Clay loam (1)
Tall Forb (>= 30 cm)				Depth to Mottles/Gley:
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	5.0	5.0-5.0	100	Organic Thickness: 0 - 5 cm (1)
TALL LUNGWORT (<i>Mertensia paniculata</i>)	0.5	0.5-0.5	100	Parent Material:
Low Forb (< 30 cm)				Soil Type: Moist/Fine (1)
BUNCHBERRY (<i>Cornus canadensis</i>)	3.0	3.0-3.0	100	Humus Form
COMMON PINK WINTERGREEN (<i>Pyrola asarifolia</i>)	0.5	0.5-0.5	100	
Graminoid				
HAIRY WILD RYE (<i>Leymus innovatus</i>)	20.0	20.0-20.0	100	

BSD3 Aw-PI(Sw-Sb)/Buffaloberry-Labrador tea/Stair-step moss (n=2)

(*Populus tremuloides*-*Pinus contorta*(*Picea glauca*-*Picea mariana*)/*Shepherdia canadensis*-*Ledum groenlandicum*/*Hylocomium splendens*)

This community type is slightly drier with a slightly poorer nutrient regime than other community types of the low-bush cranberry/buffaloberry ecosite. It has a canopy of aspen and white spruce with a regeneration layer of white spruce. The understory contains buffaloberry and Labrador tea along with mesic plants such as low-bush cranberry, northern twinflower and bunchberry, as well as the dry site indicators bog cranberry and hairy wild rye. Soils are generally fine to medium textured and well drained. In the absence of disturbance the community will succeed to a white and black spruce climax.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d2 low-bush cranberry/buffaloberry Aw-Sw-Sb-PI

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
ASPEN (<i>Populus tremuloides</i>)	52.5	45.0-60.0	100	Moisture Regime: Submesic (moderately fresh) (1), Mesic (fresh) (1)
LOGEPOLE PINE (<i>Pinus contorta</i>)	20.0	20.0-20.0	100	Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	12.5	10.0-15.0	100	Elevation (range): 652 (450-855) M
Understory Tree				Slope (%): 0.5 - 2.49 (1), 31 - 45.99 (1)
BLACK SPRUCE (<i>Picea mariana</i>)	32.5	5.0-60.0	100	Aspect: Northerly (1), Westerly (1)
WHITE SPRUCE (<i>Picea glauca</i>)	10.0	0.0-20.0	50	Topographic Position: Level (1), Upper Slope (1)
Medium Shrub (0.5 to 2 m)				Soil Variables
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	22.5	20.0-25.0	100	Soil Drainage: Well drained (2)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	11.5	3.0-20.0	100	Soil Subgroup: ORTHIC EUTRIC BRUNISOL (1), ORTHIC GRAY LUVISOL (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	10.0	10.0-10.0	100	Surface Texture: Loam (1)
GREEN ALDER (<i>Alnus crispa</i>)	6.5	5.0-8.0	100	Effective Texture: Clay loam (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	4.5	4.0-5.0	100	Depth to Mottles/Gley:
TWINFLOWER (<i>Linnaea borealis</i>)	4.0	3.0-5.0	100	Organic Thickness: 0 - 5 cm (2)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	4.0	3.0-5.0	100	Parent Material: Colluvial (1), Lacustrine (1), Morainal (1)
Tall Forb (>= 30 cm)				Soil Type: Dry/Fine (1)
WILD SARSAPARILLA (<i>Aralia nudicaulis</i>)	20.0	0.0-40.0	50	Humus Form
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	7.5	5.0-10.0	100	
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	8.5	5.0-12.0	100	
PALMATE-LEAVED COLTSFOOT (<i>Petasites palmatus</i>)	4.0	0.0-8.0	50	
COMMON PINK WINTERGREEN (<i>Pyrola asarifolia</i>)	4.0	2.0-6.0	100	
Graminoid				
HAIRY WILD RYE (<i>Elymus innovatus</i>)	7.5	7.0-8.0	100	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	40.0	40.0-40.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	10.0	10.0-10.0	100	
Lichen				
REINDEER LICHEN (<i>Cladina mitis</i>)	12.5	5.0-20.0	100	

BSD4 Sb-Aw(Ba)/Stair-step moss (n=2)

(*Picea mariana*-*Populus tremuloides*(*Betula neoalaskana*)/*Hylocomium splendens*)

This community type is found in moist areas with a slightly richer nutrient regime than the Labrador tea - mesic ecological site. The overstory is composed primarily of black spruce with a smaller portion of trembling aspen and some scattered Alaska birch. The understory is composed of a mixture of mesic species, many that are indicative of a wetter moisture regime, such as horsetail and willow. Successionally mature sites are dominated by black spruce, stair-step moss, and Schreber's moss.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d2 low-bush cranberry/buffaloberry Aw-Sw-Sb-PI

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	17.7	15.5-20.0	100	Moisture Regime: Mesic (fresh) (2)
ASPEN (<i>Populus tremuloides</i>)	15.2	15.0-15.5	100	Nutrient Regime: Mesotrophic (medium) (2)
ALASKA BIRCH (<i>Betula neoalaskana</i>)	2.5	0.0-5.0	50	Elevation (range): 920 (920-920) M
WHITE SPRUCE (<i>Picea glauca</i>)	1.5	0.0-3.0	50	Slope (%): 31 - 45.99 (1)
Understory Tree				Aspect: Westerly (1)
BLACK SPRUCE (<i>Picea mariana</i>)	2.5	0.0-5.0	50	Topographic Position: Midslope (1), Upper Slope (1)
Medium Shrub (0.5 to 2 m)				Soil Variables
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	1.5	1.0-2.0	100	Soil Drainage: Well drained (1), Moderately well drained (1)
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	1.0	0.0-2.0	50	Soil Subgroup: ELUVIATED DYSTRIC BRUNISOL (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	1.0	1.0-1.0	100	Surface Texture: Loam (1)
Tall Forb (>= 30 cm)				Effective Texture: Clay loam (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	8.0	0.5-15.5	100	Depth to Mottles/Gley:
TALL LUNGWORT (<i>Mertensia paniculata</i>)	1.5	1.0-2.0	100	Organic Thickness: 0 - 5 cm (1)
Low Forb (< 30 cm)				Parent Material: Morainal (1)
BUNCHBERRY (<i>Cornus canadensis</i>)	1.5	0.0-3.0	50	Soil Type: Moist/Fine (1)
STIFF CLUB-MOSS (<i>Lycopodium annotinum</i>)	1.5	0.0-3.0	50	Humus Form
ONE-SIDED WINTERGREEN (<i>Orthilia secunda</i>)	1.0	1.0-1.0	100	
Graminoid				
HAIRY WILD RYE (<i>Elymus innovatus</i>)	4.0	3.0-5.0	100	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	32.7	15.5-50.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	15.0	0.0-30.0	50	

d3 low bush cranberry/buffaloberry Sw-Pl (n=2)

Natural Subregion: Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosection: BSR Boreal Subarctic

Characteristic Species

Tree

- [31.5]WHITE SPRUCE*
Picea glauca
- [25.0]BLACK SPRUCE*
Picea mariana
- [5.0]LODGEPOLE PINE*
Pinus contorta
- [2.5]ASPEN
Populus tremuloides

Shrub

- [14.0]LOW-BUSH CRANBERRY*
Viburnum edule
- [11.5]PRICKLY ROSE
Rosa acicularis
- [7.7]GREEN ALDER*
Alnus crispa
- [7.5]BOG CRANBERRY
Vaccinium vitis-idaea
- [5.0]BRACTED HONEYSUCKLE
Lonicera involucrata
- [5.0]TWINFLOWER
Linnaea borealis
- [2.0]DEWBERRY
Rubus pubescens

Forb

- [3.0]BUNCHBERRY
Cornus canadensis
- [2.5]TALL LUNGWORT
Mertensia paniculata
- [2.5]WOODLAND HORSETAIL
Equisetum sylvaticum

Lichen

- [15.0]REINDEER LICHEN
Cladina mitis

Moss and Liverwort

- [49.0]STAIR-STEP MOSS*
Hylocomium splendens
- [17.7]SCHREBER'S MOSS*
Pleurozium schreberi
- [10.2]KNIGHT'S PLUME MOSS
Ptilium crista-castrensis

Graminoid

- [1.5]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Mesic (fresh) (1), Submesic (moderately fresh) (1)
Nutrient Regime: Mesotrophic (medium) (1), Submesotrophic (poor) (1)
Elevation (range): 902.5 (885-920) M
Slope (%): level (1)
Aspect:
Topographic Position: Crest (1), Upper Slope (1)

Soil Variables

Soil Drainage: Moderately well drained (2)
Soil Subgroup: BRUNISOLIC 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: Dry/Fine (1)
Humus Form

BSE10 Sw-PI/Low-bush cranberry/Stair-step moss (n=1)

(*Picea glauca*-*Pinus contorta*/*Viburnum edule*/*Hylocomium splendens*)

This community has a white spruce canopy with a lodgepole pine component and a regenerative layer dominated by black spruce. The dense understory has a wide variety of mesic species, low-bush cranberry, prickly rose, honeysuckle, raspberry, bunchberry, etc., and the forest floor is carpeted by feather mosses, mainly stair-step moss and Schreber's moss. This community may succeed to a white spruce/black spruce climax community likely over 150 years without disturbance .

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d3 low bush cranberry/buffaloberry Sw-PI

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE SPRUCE (<i>Picea glauca</i>)	25.0	25.0-25.0	100	Moisture Regime: Submesic (moderately fresh) (1)
LODGEPOLE PINE (<i>Pinus contorta</i>)	10.0	10.0-10.0	100	Nutrient Regime: Submesotrophic (poor) (1)
Understory Tree				Elevation (range): 885 (885-885) M
BLACK SPRUCE (<i>Picea mariana</i>)	50.0	50.0-50.0	100	Slope (%): 0 - 0.49 (1)
Medium Shrub (0.5 to 2 m)				Aspect:
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	25.0	25.0-25.0	100	Topographic Position: Crest (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	20.0	20.0-20.0	100	Soil Variables
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	15.0	15.0-15.0	100	Soil Drainage: Moderately well drained (1)
TWINFLOWER (<i>Linnaea borealis</i>)	10.0	10.0-10.0	100	Soil Subgroup: BRUNISOLIC GRAY LUVISOL (1)
BRACTED HONEYSUCKLE (<i>Lonicera involucrata</i>)	10.0	10.0-10.0	100	Surface Texture: Silt loam (1)
WILD RED RASPBERRY (<i>Rubus idaeus</i>)	5.0	5.0-5.0	100	Effective Texture: Clay loam (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	3.0	3.0-3.0	100	Depth to Mottles/Gley:
Low Shrub (< 0.5m)				Organic Thickness: 0 - 5 cm (1)
DEWBERRY (<i>Rubus pubescens</i>)	4.0	4.0-4.0	100	Parent Material: Morainal (1)
Tall Forb (>= 30 cm)				Soil Type: Dry/Fine (1)
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	5.0	5.0-5.0	100	Humus Form
TALL LUNGWORT (<i>Mertensia paniculata</i>)	5.0	5.0-5.0	100	
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	3.0	3.0-3.0	100	
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2.0	2.0-2.0	100	
PALMATE-LEAVED COLTSFOOT (<i>Petasites palmatus</i>)	2.0	2.0-2.0	100	
STIFF CLUB-MOSS (<i>Lycopodium annotinum</i>)	1.0	1.0-1.0	100	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	60.0	60.0-60.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	20.0	20.0-20.0	100	
Lichen				
REINDEER LICHEN (<i>Cladina mitis</i>)	30.0	30.0-30.0	100	

BSE12 Sw/Green alder (n=1)

(*Picea glauca*/*Alnus crispa*)

This community is successional advanced with limited light infiltration and a less productive understory. The overstory is dominated by white spruce with a tall shrub component of green alder and an understory of a few mesic species bunchberry and feather mosses.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosite Phase: d3 low bush cranberry/buffaloberry Sw-PI

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE SPRUCE (<i>Picea glauca</i>)	38.0	38.0-38.0	100	Moisture Regime: Mesic (fresh) (1)
Understory Tree				Nutrient Regime: Mesotrophic (medium) (1)
GREEN ALDER (<i>Alnus crispa</i>)	15.5	15.5-15.5	100	Elevation (range): 920 (920-920) M
Medium Shrub (0.5 to 2 m)				Slope (%):
PRICKLY ROSE (<i>Rosa acicularis</i>)	3.0	3.0-3.0	100	Aspect:
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	3.0	3.0-3.0	100	Topographic Position: Upper Slope (1)
Tall Forb (>= 30 cm)				Soil Variables
RED AND WHITE BANE BERRY (<i>Actaea rubra</i>)	1.0	1.0-1.0	100	Soil Drainage: Moderately well drained (1)
TALL LARKSPUR (<i>Delphinium glaucum</i>)	1.0	1.0-1.0	100	Soil Subgroup:
COMMON HORSETAIL (<i>Equisetum arvense</i>)	1.0	1.0-1.0	100	Surface Texture:
Low Forb (< 30 cm)				Effective Texture:
BUNCHBERRY (<i>Cornus canadensis</i>)	3.0	3.0-3.0	100	Depth to Mottles/Gley:
EVERGREEN VIOLET (<i>Viola orbiculata</i>)	1.0	1.0-1.0	100	Organic Thickness:
Graminoid				Parent Material:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	3.0	3.0-3.0	100	Soil Type:
Moss				Humus Form
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	38.0	38.0-38.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	15.5	15.5-15.5	100	
KNIGHT'S PLUME MOSS (<i>Ptilium crista-castrensis</i>)	15.5	15.5-15.5	100	

d4 low bush cranberry/buffaloberry shrub (n=0)

Natural Subregion: Boreal Subarctic

Ecosite: d low-bush cranberry/buffaloberry (mesic/medium)

Ecosection: BSR Boreal Subarctic

General Description

A number of ecological site phases currently have no data. These ecological site phases have been created as place holders because they were described in adjacent subregions (Lower Boreal Highlands and Northern Mixedwood).

Characteristic Species

Environmental Variables

Moisture Regime:

Nutrient Regime:

Elevation (range):

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

e labrador tea - subhygric (subhygric/medium) (n=8)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

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 acidic surface soil conditions. This ecosite occurs mainly on organic and fine-textured morainal parent materials where wet soil conditions promote the development of Organic and Gleysolic soils. Organic matter accumulations on some sites may insulate the soil and allow frozen soil horizons to persist. This ecosite has community types similar to the labrador tea - mesic ecosite (c) but tends to occur in lower topographic positions, and has distinct mottling within the top 50 cm of soil. High soil water content creates a risk of site modification if operations occur when soil is not frozen.



Successional Relationships

Young stands on this ecosite include a black spruce component which tends to form a secondary canopy due to slower growth rates, and over time dominates while a small component of residual pine is retained.

Indicator Species

Tree

WHITE BIRCH
Betula papyrifera
WHITE SPRUCE
Picea glauca
BLACK SPRUCE
Picea mariana
LODGEPOLE PINE
Pinus contorta

Shrub

BOG BILBERRY
Vaccinium uliginosum
BOG CRANBERRY
Vaccinium vitis-idaea
COMMON LABRADOR TEA
Ledum groenlandicum
NORTHERN LABRADOR TEA
Ledum palustre
BOG BIRCH
Betula glandulosa

Forb

WOODLAND HORSETAIL
Equisetum sylvaticum

Moss and Liverwort

STAIR-STEP MOSS
Hylocomium splendens
SCHREBER'S MOSS
Pleurozium schreberi

Site Index at 50 Years

Site Index at 50 Years	Height (m)	Variation (m)	Count
BLACK SPRUCE (<i>Picea mariana</i>)	6.80	0.50	0

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (4), Hygric (moist) (3), Subhygric (moderately wet) (1)

Nutrient Regime: Mesotrophic (medium) (4), Submesotrophic (poor) (2), Oligotrophic (very poor) (1), Permesotrophic (rich) (1)

Elevation (range): 685.25 (360-920) M

Slope (%): very gentle slope (4), extreme slope (1), gentle slope (1), nearly level (1)

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

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

Soil Variables

Soil Drainage: Moderately well drained (2), Poorly drained (2), Very poorly drained (2), Imperfectly drained (1)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (2), GLEYED EUTRIC BRUNISOL (1), GLEYED STATIC CRYOSOL (1), HUMIC LUVIC GLEYSOL (1), ORTHIC LUVIC GLEYSOL (1)

Surface Texture: Fibric (2), Loamy sand (1), Mesic (1), Clay loam (1)

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

Depth to Mottles/Gley: 0 - 25 (3), 26 - 50 (1)

Organic Thickness: 0 - 5 cm (3), 16 - 25 cm (1), 26 - 39 cm (1), >= 80 cm (1)

Parent Material: Undifferentiated Organic (2), Lacustrine (1), Morainal (1)

Soil Type: Wet/Peaty (2), Moist/Sandy (1), Organic (1), Wet/Mineral (1)

Humus Form HUMIC PEATYMOR (1)

e1 labrador tea Sb-Sw (n=6)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)

Characteristic Species

Tree

[37.0]BLACK SPRUCE*
Picea mariana

[4.5]LODGEPOLE PINE*
Pinus contorta

[2.9]WHITE SPRUCE*
Picea glauca

Shrub

[19.9]COMMON LABRADOR TEA*
Ledum groenlandicum

[11.6]BOG BILBERRY*
Vaccinium uliginosum

[10.1]BOG BIRCH
Betula glandulosa

[10.0]RED BEARBERRY
Arctostaphylos rubra

[5.0]MYRTLE-LEAVED WILLOW
Salix myrtillifolia

[3.5]BOG CRANBERRY
Vaccinium vitis-idaea

[3.3]SCOULER'S WILLOW
Salix scouleriana

[2.9]PRICKLY ROSE
Rosa acicularis

[2.0]CLOUDBERRY
Rubus chamaemorus

[2.0]NORTHERN LABRADOR TEA
Ledum palustre

Forb

[15.0]WOODLAND HORSETAIL*
Equisetum sylvaticum

Lichen

[8.1]REINDEER LICHEN
Cladonia mitis

Moss and Liverwort

[23.6]STAIR-STEP MOSS*
Hylocomium splendens

[23.3]TUFTED MOSS
Aulacomnium palustre

[16.2]SCHREBER'S MOSS*
Pleurozium schreberi

[5.0]FRINGED BOG MOSS
Sphagnum fimbriatum

Graminoid

[6.6]INLAND SEDGE
Carex interior

[3.3]REED POLARGRASS
Arctagrostis arundinacea

Environmental Variables

Moisture Regime: Hygric (moist) (3), Subhygric (moderately moist) (3)

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

Elevation (range): 607 (360-827) M

Slope (%): very gentle slope (3), gentle slope (1), nearly level (1), extreme slope (1)

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

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

Soil Variables

Soil Drainage: Poorly drained (2), Imperfectly drained (1), Moderately well drained (1), Very poorly drained (1)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (2), GLEYED EUTRIC BRUNISOL (1), HUMIC LUVIC GLEYSOL (1), ORTHIC LUVIC GLEYSOL (1)

Surface Texture: Loamy sand (1), Mesic (1), Clay loam (1), Fibric (1)

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

Depth to Mottles/Gley: 0 - 25 (3)

Organic Thickness: 0 - 5 cm (3), 16 - 25 cm (1), >= 80 cm (1)

Parent Material: Undifferentiated Organic (2), Lacustrine (1), Morainal (1)

Soil Type: Wet/Peaty (1), Wet/Mineral (1), Moist/Sandy (1), Organic (1)

Humus Form HUMIC PEATYMOR (1)

BSE14 Sb/Willow/Horsetail/Stair-step moss (n=1)

(*Picea mariana*/*Salix spp./Equisetum sylvaticum/Hylocomium splendens*)

This community type is moist with a medium nutrient regime. It is found on lower slope areas and appears to be transitional to a treed poor fen. High water tables and moist soil conditions encourage organic matter accumulation. The canopy is composed of black spruce and the regeneration layer is also limited to black spruce. The understory is a mixture of mainly willow along with significant amounts of polar grass, prickly rose and skunk currant along with horsetail. There is a well developed stair-step moss and Schreber's moss layer.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)

Ecosite Phase: e1 labrador tea Sb-Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	60.0	60.0-60.0	100	Moisture Regime: Subhygric (moderately moist) (1)
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	10.0	10.0-10.0	100	Nutrient Regime: Mesotrophic (medium) (1)
Medium Shrub (0.5 to 2 m)				Elevation (range): 360 (360-360) M
CLOUDBERRY (<i>Rubus chamaemorus</i>)	6.0	6.0-6.0	100	Slope (%): 2.5 - 5.99 (1)
BLACK SPRUCE (<i>Picea mariana</i>)	5.0	5.0-5.0	100	Aspect:
PRICKLY ROSE (<i>Rosa acicularis</i>)	5.0	5.0-5.0	100	Topographic Position:
SKUNK CURRANT (<i>Ribes glandulosum</i>)	3.0	3.0-3.0	100	Soil Variables
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	2.0	2.0-2.0	100	Soil Drainage:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	2.0	2.0-2.0	100	Soil Subgroup:
Tall Forb (>= 30 cm)				Surface Texture:
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	45.0	45.0-45.0	100	Effective Texture:
Low Forb (< 30 cm)				Depth to Mottles/Gley:
BUNCHBERRY (<i>Cornus canadensis</i>)	2.0	2.0-2.0	100	Organic Thickness:
Graminoid				Parent Material:
REED POLARGRASS (<i>Arctagrostis arundinacea</i>)	10.0	10.0-10.0	100	Soil Type:
NARROW REED GRASS (<i>Calamagrostis stricta</i>)	2.0	2.0-2.0	100	Humus Form
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	41.0	41.0-41.0	100	
FRINGED BOG MOSS (<i>Sphagnum fimbriatum</i>)	15.0	15.0-15.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	10.0	10.0-10.0	100	
KNIGHT'S PLUME MOSS (<i>Ptilium crista-castrensis</i>)	3.0	3.0-3.0	100	
GOLDEN MOSS (<i>Tomenthypnum nitens</i>)	3.0	3.0-3.0	100	
Lichen				
STUDDERED LEATHER LICHEN (<i>Peltigera aphthosa</i>)	3.0	3.0-3.0	100	

BSE16 Sb-Lt/Labrador tea-Bog bilberry/Tufted moss (n=1)

(*Picea mariana*-*Larix laricina*/*Ledum groenlandicum*-*Vaccinium uliginosum*/*Aulacomnium palustre*)

This community is transitional between the bog and rich fen ecological sites, and as such has plants indicative of both ecological site types. Rich fens tend to be dominated by larch, willow and golden moss, whereas, bogs are dominated by black spruce, Labrador tea and peat moss. This community type has a richer nutrient regime than the bogs, as evident by the larch and willow components along with the minor mesic plant cover, but poorer than the rich fens, as indicated by the black spruce, labrador tea, and bog bilberry cover. The moss layer is made up of mainly tufted moss with a significant stair-step moss component, indicating a medium nutrient regime.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)
Ecosite Phase: e1 labrador tea Sb-Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	5.0	5.0-5.0	100	Moisture Regime: Hygric (moist) (1)
TAMARACK (<i>Larix laricina</i>)	1.0	1.0-1.0	100	Nutrient Regime: Submesotrophic (poor) (1)
Understory Tree				Elevation (range): 827 (827-827) M
BLACK SPRUCE (<i>Picea mariana</i>)	13.0	13.0-13.0	100	Slope (%): 2.5 - 5.99 (1)
TAMARACK (<i>Larix laricina</i>)	1.0	1.0-1.0	100	Aspect: Southerly (1)
Medium Shrub (0.5 to 2 m)				Topographic Position: Midslope (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	50.0	50.0-50.0	100	Soil Variables
BOG BILBERRY (<i>Vaccinium uliginosum</i>)	35.0	35.0-35.0	100	Soil Drainage: Imperfectly drained (1)
RED BEARBERRY (<i>Arctostaphylos rubra</i>)	30.0	30.0-30.0	100	Soil Subgroup: GLEYED EUTRIC BRUNISOL (1)
BOG BIRCH (<i>Betula glandulosa</i>)	25.0	25.0-25.0	100	Surface Texture: Mesic (1)
MYRTLE-LEAVED WILLOW (<i>Salix myrtilifolia</i>)	15.0	15.0-15.0	100	Effective Texture: Silty clay loam (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	5.0	5.0-5.0	100	Depth to Mottles/Gley: 0 - 25 (1)
CROWBERRY (<i>Empetrum nigrum</i>)	2.0	2.0-2.0	100	Organic Thickness: 16 - 25 cm (1)
Low Forb (< 30 cm)				Parent Material: Morainal (1)
DWARF SCOURING-RUSH (<i>Equisetum scirpoides</i>)	3.0	3.0-3.0	100	Soil Type: Wet/Peaty (1)
Graminoid				Humus Form HUMIC PEATYMOR (1)
INLAND SEDGE (<i>Carex interior</i>)	20.0	20.0-20.0	100	
Moss				
TUFTED MOSS (<i>Aulacomnium palustre</i>)	70.0	70.0-70.0	100	
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	20.0	20.0-20.0	100	
ACUTE-LEAVED PEAT MOSS (<i>Sphagnum capillifolium</i>)	3.0	3.0-3.0	100	
Lichen				
REINDEER LICHEN (<i>Cladina rangiferina</i>)	5.0	5.0-5.0	100	
N/A (<i>Cladonia botrytes</i>)	1.0	1.0-1.0	100	

BSE25 Sb-Sw/Labrador tea/Feather moss (n=4)

(*Picea mariana*-*Picea glauca*/*Ledum groenlandicum*/*Pleurozium schreberi*)

This is a common community type in the Boreal Subarctic, it is a mesic to subhygric community with a poor nutrient regime, occurring on moderately well to poorly drained soils. The sparse to dense canopy is dominated by black spruce, while scattered white spruce, aspen and white birch may be found. The understory may be sparse or densely vegetated with Labrador tea, bog cranberry, horsetail, Schreber's moss and stair-step moss.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)
Ecosite Phase: e1 labrador tea Sb-Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	14.5	1.0-30.0	100	Moisture Regime: Subhygric (moderately moist) (2), Hygric (moist) (2)
LOGEPOLE PINE (<i>Pinus contorta</i>)	13.7	0.0-55.0	25	Nutrient Regime: Oligotrophic (very poor) (1), Submesotrophic (poor) (1), Mesotrophic (medium) (1), Permesotrophic (rich) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	8.7	0.0-35.0	25	Elevation (range): 634 (445-823) M
Understory Tree				Slope (%): 0.5 - 2.49 (1), 2.5 - 5.99 (1), 6 - 9.99 (1), > 100.99 (1)
BLACK SPRUCE (<i>Picea mariana</i>)	8.7	5.0-10.0	100	Aspect: Easterly (1), Southerly (1), Westerly (1)
WHITE SPRUCE (<i>Picea glauca</i>)	2.5	0.0-10.0	25	Topographic Position: Level (2), Midslope (1), Upper Slope (1)
Medium Shrub (0.5 to 2 m)				Soil Variables
BLACK SPRUCE (<i>Picea mariana</i>)	16.5	0.0-35.0	75	Soil Drainage: Poorly drained (2), Moderately well drained (1), Very poorly drained (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	7.7	0.0-30.0	50	Soil Subgroup: FIBRIC ORGANIC CRYOSOL (2), HUMIC LUVIC GLEYSOL (1), ORTHIC LUVIC GLEYSOL (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	6.2	0.0-25.0	25	Surface Texture: Clay loam (1), Loamy sand (1), Fibric (1)
BOG BIRCH (<i>Betula glandulosa</i>)	5.5	0.0-20.0	50	Effective Texture: Clay (1), Loamy sand (1), Fibric (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	3.7	0.0-15.0	25	Depth to Mottles/Gley: 0 - 25 (2)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	3.7	0.0-10.0	75	Organic Thickness: 0 - 5 cm (3), >= 80 cm (1)
TWINFLOWER (<i>Linnaea borealis</i>)	1.7	0.0-6.0	50	Parent Material: Undifferentiated Organic (2), Lacustrine (1)
Low Shrub (< 0.5m)				Soil Type: Wet/Mineral (1), Moist/Sandy (1), Organic (1)
CLOUDBERRY (<i>Rubus chamaemorus</i>)	1.0	0.0-2.0	50	Humus Form
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	3.0	0.0-10.0	50	
Graminoid				
HAIRY WILD RYE (<i>Elymus innovatus</i>)	2.5	0.0-10.0	25	
Moss				
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	38.7	5.0-70.0	100	
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	10.0	0.0-15.0	75	
KNIGHT'S PLUME MOSS (<i>Ptilium crista-castrensis</i>)	5.2	0.0-15.0	75	
PEAT MOSS (<i>Sphagnum angustifolium</i>)	1.0	0.0-2.0	50	
Lichen				
REINDEER LICHEN (<i>Cladina mitis</i>)	24.5	1.0-60.0	100	
REINDEER LICHEN (<i>Cladina rangiferina</i>)	8.0	0.0-30.0	50	
REINDEER LICHEN (<i>Cladina stellaris</i>)	2.2	1.0-5.0	100	

e2 labrador tea Bw-Aw (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)

Characteristic Species

Tree

- [20.0]WHITE BIRCH*
Betula papyrifera

Shrub

- [50.0]NORTHERN LABRADOR TEA*
Ledum palustre
- [12.0]SMOOTH WILLOW
Salix glauca
- [5.0]BOG CRANBERRY*
Vaccinium vitis-idaea
- [3.0]FLAT-LEAVED WILLOW
Salix planifolia
- [3.0]DRUMMOND'S WILLOW
Salix drummondiana
- [2.0]CROWBERRY
Empetrum nigrum
- [2.0]MYRTLE-LEAVED WILLOW
Salix myrtillifolia
- [1.0]CLOUDBERRY
Rubus chamaemorus

Forb

- [5.0]WOODLAND HORSETAIL
Equisetum sylvaticum

Lichen

- [5.0]UNDIFFERENTIATED CLADONIA
Cladonia

Moss and Liverwort

- [20.0]TUFTED MOSS
Aulacomnium palustre
- [5.0]PEAT MOSS
Sphagnum angustifolium
- [3.0]GOLDEN MOSS
Tomenthypnum nitens

Environmental Variables

Moisture Regime: Subhygric (moderately wet) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 0 (0-0) M

Slope (%): very gentle slope (1)

Aspect: Easterly (1)

Topographic Position: Midslope (1)

Soil Variables

Soil Drainage: Very poorly drained (1)

Soil Subgroup: GLEYED STATIC CRYOSOL (1)

Surface Texture: Fibric (1)

Effective Texture: Silty clay loam (1)

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

Organic Thickness: 26 - 39 cm (1)

Parent Material:

Soil Type: Wet/Peaty (1)

Humus Form

BSC3 Bw/Labrador tea-Willow/Tufted moss (n=1)

(*Betula papyrifera*/*Ledum glandulosum*-*Salix spp.*/*Aulacomnium palustre*)

This community type represents the transition between a treed bog and an upland forest. There is a white birch overstory along with a northern Labrador tea and willow dominated understory. Tufted moss and the high cover of northern Labrador tea are indicative of a poor nutrient regime.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)

Ecosite Phase: e2 labrador tea Bw-Aw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Understory Tree				Ecological Status Score: 25
WHITE BIRCH (<i>Betula papyrifera</i>)	20.0	20.0-20.0	100	Moisture Regime: Subhygric (moderately wet) (1)
SMOOTH WILLOW (<i>Salix glauca</i>)	12.0	12.0-12.0	100	Nutrient Regime: Mesotrophic (medium) (1)
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	3.0	3.0-3.0	100	Elevation (range): 0 (0-0) M
Medium Shrub (0.5 to 2 m)				Slope (%): 2.5 - 5.99 (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	50.0	50.0-50.0	100	Aspect: Easterly (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	5.0	5.0-5.0	100	Topographic Position: Midslope (1)
DRUMMOND'S WILLOW (<i>Salix drummondiana</i>)	3.0	3.0-3.0	100	Soil Variables
CROWBERRY (<i>Empetrum nigrum</i>)	2.0	2.0-2.0	100	Soil Drainage: Very poorly drained (1)
MYRTLE-LEAVED WILLOW (<i>Salix myrtilifolia</i>)	2.0	2.0-2.0	100	Soil Subgroup: GLEYED STATIC CRYOSOL (1)
Low Shrub (< 0.5m)				Surface Texture: Fibric (1)
CLOUDBERRY (<i>Rubus chamaemorus</i>)	1.0	1.0-1.0	100	Effective Texture: Silty clay loam (1)
Tall Forb (>= 30 cm)				Depth to Mottles/Gley: 26 - 50 (1)
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	5.0	5.0-5.0	100	Organic Thickness: 26 - 39 cm (1)
Moss				Parent Material:
TUFTED MOSS (<i>Aulacomnium palustre</i>)	20.0	20.0-20.0	100	Soil Type: Wet/Peaty (1)
PEAT MOSS (<i>Sphagnum angustifolium</i>)	5.0	5.0-5.0	100	Humus Form
GOLDEN MOSS (<i>Tomenthypnum nitens</i>)	3.0	3.0-3.0	100	
Lichen				
UNDIFFERENTIATED CLADONIA (<i>Cladonia</i>)	5.0	5.0-5.0	100	

e3 labrador tea - shrub (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)

Characteristic Species

Tree

- [0.7]BLACK SPRUCE*
Picea mariana

Shrub

- [15.5]NORTHERN LABRADOR TEA*
Ledum palustre
- [14.0]COMMON LABRADOR TEA*
Ledum groenlandicum
- [7.7]BOG BIRCH*
Betula glandulosa
- [7.7]GROUND JUNIPER
Juniperus communis
- [1.5]SMOOTH WILLOW
Salix glauca
- [1.5]BOG CRANBERRY
Vaccinium vitis-idaea

Forb

- [1.5]COMMON FIREWEED
Epilobium angustifolium

Lichen

- [1.8]REINDEER LICHEN
Cladina rangiferina

Moss and Liverwort

- [17.0]RUSTY PEAT MOSS
Sphagnum fuscum
- [7.7]STAIR-STEP MOSS*
Hylocomium splendens

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (1)

Nutrient Regime: Mesotrophic (medium) (1)

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

Slope (%):

Aspect:

Topographic Position: Lower Slope (1)

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

BSB2 Dwarf birch-Labrador tea-Common juniper/Stair-step moss (n=1)

(*Betula pumila*-*Ledum groenlandicum*-*Juniperus communis*/*Hylocomium splendens*)

This is an open meadow dominated by a combination of dwarf birch, Labrador tea and common juniper. Similar open meadows were described by Willoughby et al. (2007) in the Upper Foothills subregion. However, the meadows described in the Upper Foothills lacked Labrador tea cover indicating the slightly poorer nutrient regime than the Upper Foothills community type. The surface of this community is well drained which favours the growth of juniper, but there is water at depth which allows for the growth of bog birch, willow and Labrador tea.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: e labrador tea - subhygric (subhygric/medium)

Ecosite Phase: e3 labrador tea - shrub

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tall Shrub (2 to 5m)				Ecological Status Score: 40
BOG BIRCH (<i>Betula glandulosa</i>)	15.5	15.5-15.5	100	Moisture Regime: Subhygric (moderately moist) (1)
SMOOTH WILLOW (<i>Salix glauca</i>)	3.0	3.0-3.0	100	Nutrient Regime: Mesotrophic (medium) (1)
Medium Shrub (0.5 to 2 m)				Elevation (range): 920 (920-920) M
GROUND JUNIPER (<i>Juniperus communis</i>)	15.5	15.5-15.5	100	Slope (%):
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	15.5	15.5-15.5	100	Aspect:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	3.0	3.0-3.0	100	Topographic Position: Lower Slope (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	3.0	3.0-3.0	100	Soil Variables
Tall Forb (>= 30 cm)				Soil Drainage: Moderately well drained (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	3.0	3.0-3.0	100	Soil Subgroup:
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	1.0	1.0-1.0	100	Surface Texture:
Low Forb (< 30 cm)				Effective Texture:
BUNCHBERRY (<i>Cornus canadensis</i>)	3.0	3.0-3.0	100	Depth to Mottles/Gley:
Graminoid				Organic Thickness:
HAIRY WILD RYE (<i>Elymus innovatus</i>)	3.0	3.0-3.0	100	Parent Material:
KENTUCKY BLUEGRASS (<i>Poa pratensis</i>)	3.0	3.0-3.0	100	Soil Type:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	1.0	1.0-1.0	100	Humus Form
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	15.5	15.5-15.5	100	

f river alder (subhygric/rich) (n=3)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

This ecosite is subhygric and nutrient rich, commonly found on level or depressional areas at the base of slopes or along watercourses where they receive nutrient-rich seepage or flood waters (Beckingham and Archibald 1996). These sites are often found on fine to medium-textured fluvial soils. An open to closed canopy dominated of aspen, balsam poplar and white birch with varying proportions of white spruce is characteristic of the ecosite. River alder generally dominates the understory along with willow and red-osier dogwood. Recent flood history drives ground cover development, where ground cover is better developed on sites that haven't experienced recent flooding.



Environmental Variables

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

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

Elevation (range): 460 (460-460) M

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

Aspect: Southerly (1), Westerly (1)

Topographic Position: Toe (1)

Soil Variables

Soil Drainage: Well drained (1)

Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)

Surface Texture: Silty clay loam (1)

Effective Texture: Silty clay loam (1)

Depth to Mottles/Gley:

Organic Thickness: 0 - 5 cm (1)

Parent Material: Fluvial (2)

Soil Type: Moist/Fine (1)

Humus Form RAW MODER (1)

Successional Relationships

Succession is slow following disturbance due to rapid understory growth, which can make tree establishment difficult. Once tree species establish these sites will succeed to a white spruce dominated community (Beckingham and Archibald 1996).

Indicator Species

Tree

WHITE SPRUCE

Picea glauca

BALSAM POPLAR

Populus balsamifera

Shrub

SMOOTH WILLOW

Salix glauca

SCOULER'S WILLOW

Salix scouleriana

GREEN ALDER

Alnus crispa

RIVER ALDER

Alnus tenuifolia

Forb

TALL LARKSPUR

Delphinium glaucum

f1 river alder Aw-Pb-Bw (n=2)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)

Characteristic Species

Tree

- [20.0]ASPEN*
Populus tremuloides
- [19.5]BALSAM POPLAR*
Populus balsamifera
- [10.0]WHITE BIRCH*
Betula papyrifera
- [5.0]WHITE SPRUCE
Picea glauca

Shrub

- [17.5]GREEN ALDER
Alnus crispa
- [17.0]SCOULER'S WILLOW*
Salix scouleriana
- [12.5]RIVER ALDER*
Alnus tenuifolia
- [10.0]GREEN ALDER*
Alnus crispa
- [9.5]TWINFLOWER
Linnaea borealis
- [5.0]LOW-BUSH CRANBERRY
Viburnum edule
- [5.0]RIVER ALDER
Alnus tenuifolia
- [3.0]PRICKLY ROSE
Rosa acicularis
- [1.0]RED-OSIER DOGWOOD
Cornus stolonifera

Forb

- [2.5]WILD STRAWBERRY
Fragaria virginiana
- [1.5]TALL LUNGWORT
Mertensia paniculata
- [1.0]COMMON FIREWEED
Epilobium angustifolium
- [1.0]COMMON HORSETAIL
Equisetum arvense
- [1.0]COMMON PINK WINTERGREEN
Pyrola asarifolia

Environmental Variables

- Moisture Regime: Subhygric (moderately moist) (2)
- Nutrient Regime: Permesotrophic (rich) (2)
- Elevation (range): 460 (460-460) M
- Slope (%): nearly level (1), very gentle slope (1)
- Aspect: Southerly (1), Westerly (1)
- Topographic Position: Toe (1)

Soil Variables

- Soil Drainage: Well drained (1)
- Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)
- Surface Texture: Silty clay loam (1)
- Effective Texture: Silty clay loam (1)
- Depth to Mottles/Gley:
- Organic Thickness: 0 - 5 cm (1)
- Parent Material: Fluvial (2)
- Soil Type: Moist/Fine (1)
- Humus Form RAW MODER (1)

BSC4 Pb/River alder/Horsetail (n=1)

(*Populus balsamifera*/*Alnus tenuifolia*/*Equisetum spp.*)

This community type is found on moist lower slope positions near water bodies where they receive nutrient-rich seepage or flood waters for a portion of the growing season. This community has a balsam poplar dominated overstory, with a dense understory of mainly river alder. Succession in the absence of disturbance will be to white spruce.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)

Ecosite Phase: f1 river alder Aw-Pb-Bw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BALSAM POPLAR (<i>Populus balsamifera</i>)	20.0	20.0-20.0	100	Moisture Regime: Subhygric (moderately moist) (1)
Understory Tree				Nutrient Regime: Permesotrophic (rich) (1)
BALSAM POPLAR (<i>Populus balsamifera</i>)	15.0	15.0-15.0	100	Elevation (range): 460 (460-460) M
Tall Shrub (2 to 5m)				Slope (%): 0.5 - 2.49 (1)
RIVER ALDER (<i>Alnus tenuifolia</i>)	25.0	25.0-25.0	100	Aspect: Westerly (1)
WHITE SPRUCE (<i>Picea glauca</i>)	6.0	6.0-6.0	100	Topographic Position: Toe (1)
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	3.0	3.0-3.0	100	Soil Variables
Medium Shrub (0.5 to 2 m)				Soil Drainage: Well drained (1)
RIVER ALDER (<i>Alnus tenuifolia</i>)	10.0	10.0-10.0	100	Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	10.0	10.0-10.0	100	Surface Texture: Silty clay loam (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	4.0	4.0-4.0	100	Effective Texture: Silty clay loam (1)
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	2.0	2.0-2.0	100	Depth to Mottles/Gley:
Tall Forb (>= 30 cm)				Organic Thickness: 0 - 5 cm (1)
COMMON HORSETAIL (<i>Equisetum arvense</i>)	2.0	2.0-2.0	100	Parent Material: Fluvial (2)
MEADOW HORSETAIL (<i>Equisetum pratense</i>)	1.0	1.0-1.0	100	Soil Type: Moist/Fine (1)
Low Forb (< 30 cm)				Humus Form RAW MODER (1)
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	5.0	5.0-5.0	100	
Graminoid				
BLUEJOINT (<i>Calamagrostis canadensis</i>)	1.0	1.0-1.0	100	

BSC5 Aw-Bw/Scouler's willow-Green alder (n=1)

(*Populus tremuloides*-*Betula papyrifera*/*Salix scouleriana*-*Alnus crispa*)

This community type is found on moist lower slope positions near water bodies where they receive nutrient-rich seepage or flood waters for a portion of the growing season. Birch and balsam poplar form an open to closed canopy, with a moderately well developed to dense understory of Scouler's willow and alder. Lawrence et al. (2005) described a similar community in the Saddle Hills within the Lower Foothills north of Grande Prairie on rich seepage areas with northerly aspects.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)
Ecosite Phase: f1 river alder Aw-Pb-Bw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
ASPEN (<i>Populus tremuloides</i>)	40.0	40.0-40.0	100	Moisture Regime: Subhygric (moderately moist) (1)
WHITE BIRCH (<i>Betula papyrifera</i>)	20.0	20.0-20.0	100	Nutrient Regime: Permesotrophic (rich) (1)
BALSAM POPLAR (<i>Populus balsamifera</i>)	4.0	4.0-4.0	100	Elevation (range): 0 (0-0) M
Tall Shrub (2 to 5m)				Slope (%): 2.5 - 5.99 (1)
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	31.0	31.0-31.0	100	Aspect: Southerly (1)
GREEN ALDER (<i>Alnus crispa</i>)	20.0	20.0-20.0	100	Topographic Position:
Medium Shrub (0.5 to 2 m)				Soil Variables
GREEN ALDER (<i>Alnus crispa</i>)	35.0	35.0-35.0	100	Soil Drainage:
TWINFLOWER (<i>Linnaea borealis</i>)	15.0	15.0-15.0	100	Soil Subgroup:
PRICKLY ROSE (<i>Rosa acicularis</i>)	2.0	2.0-2.0	100	Surface Texture:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	1.0	1.0-1.0	100	Effective Texture:
Tall Forb (>= 30 cm)				Depth to Mottles/Gley:
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	2.0	2.0-2.0	100	Organic Thickness:
TALL LUNGWORT (<i>Mertensia paniculata</i>)	2.0	2.0-2.0	100	Parent Material:
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	1.0	1.0-1.0	100	Soil Type:
Low Forb (< 30 cm)				Humus Form
BUNCHBERRY (<i>Cornus canadensis</i>)	2.0	2.0-2.0	100	
ONE-SIDED WINTERGREEN (<i>Orthilia secunda</i>)	1.0	1.0-1.0	100	

f2 river alder Aw-Sw (n=0)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)

General Description

A number of ecological site phases currently have no data. These ecological site phases have been created as place holders because they were described in adjacent subregions (Lower Boreal Highlands and Northern Mixedwood).

Characteristic Species

Environmental Variables

Moisture Regime:

Nutrient Regime:

Elevation (range):

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

f3 river alder Sw (n=0)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)

General Description

A number of ecological site phases currently have no data. These ecological site phases have been created as place holders because they were described in adjacent subregions (Lower Boreal Highlands and Northern Mixedwood).

Environmental Variables

Moisture Regime:

Nutrient Regime:

Elevation (range):

Slope (%):

Aspect:

Topographic Position:

Characteristic Species

Tree

[38.0] WHITE SPRUCE*
Picea glauca

Shrub

[15.5] GREEN ALDER*
Alnus crispa

[3.0] PRICKLY ROSE
Rosa acicularis

[3.0] LOW-BUSH CRANBERRY
Viburnum edule

Forb

[3.0] BUNCHBERRY
Cornus canadensis

[1.0] TALL LARKSPUR*
Delphinium glaucum

[1.0] COMMON HORSETAIL
Equisetum arvense

[1.0] RED AND WHITE BANE BERRY
Actaea rubra

[1.0] EVERGREEN VIOLET
Viola orbiculata

Moss and Liverwort

[38.0] STAIR-STEP MOSS
Hylocomium splendens

[15.5] SCHREBER'S MOSS
Pleurozium schreberi

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

Graminoid

[3.0] BLUEJOINT
Calamagrostis canadensis

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

f4 river alder shrub (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)

Characteristic Species

Tree

- [5.0]BLACK SPRUCE
Picea mariana
- [5.0]ASPEN
Populus tremuloides
- [2.0]ASPEN
Populus tremuloides

Shrub

- [50.0]GREEN ALDER*
Alnus crispa
- [30.0]SCOULER'S WILLOW*
Salix scouleriana
- [11.0]BOG CRANBERRY
Vaccinium vitis-idaea
- [8.0]RED BEARBERRY
Arctostaphylos rubra
- [5.0]SMOOTH WILLOW*
Salix glauca

Forb

- [1.0]DWARF SCOURING-RUSH
Equisetum scirpoides

Lichen

- [5.5]UNDIFFERENTIATED CLADONIA
Cladonia

Moss and Liverwort

- [12.0]STAIR-STEP MOSS
Hylocomium splendens

Environmental Variables

Moisture Regime: Submesic (moderately fresh) (1)

Nutrient Regime: Mesotrophic (medium) (1)

Elevation (range): 0 (0-0) M

Slope (%): level (1)

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

BSB4 Scouler's willow-Green alder (n=1)

(*Salix scouleriana* - *Alnus crispa*)

This community type is found on moist lower slope positions near water bodies where they receive nutrient-rich seepage or flood waters for a portion of the growing season.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: f river alder (subhygric/rich)

Ecosite Phase: f4 river alder shrub

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
BLACK SPRUCE (<i>Picea mariana</i>)	3.0	3.0-3.0	100	Moisture Regime: Submesic (moderately fresh) (1)
ASPEN (<i>Populus tremuloides</i>)	2.0	2.0-2.0	100	Nutrient Regime: Mesotrophic (medium) (1)
Tall Shrub (2 to 5m)				Elevation (range): 0 (0-0) M
GREEN ALDER (<i>Alnus crispa</i>)	40.0	40.0-40.0	100	Slope (%): 0 - 0.49 (1)
SCOULER'S WILLOW (<i>Salix scouleriana</i>)	30.0	30.0-30.0	100	Aspect:
BLACK SPRUCE (<i>Picea mariana</i>)	5.0	5.0-5.0	100	Topographic Position:
ASPEN (<i>Populus tremuloides</i>)	5.0	5.0-5.0	100	Soil Variables
Medium Shrub (0.5 to 2 m)				Soil Drainage:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	11.0	11.0-11.0	100	Soil Subgroup:
GREEN ALDER (<i>Alnus crispa</i>)	10.0	10.0-10.0	100	Surface Texture:
RED BEARBERRY (<i>Arctostaphylos rubra</i>)	8.0	8.0-8.0	100	Effective Texture:
SMOOTH WILLOW (<i>Salix glauca</i>)	5.0	5.0-5.0	100	Depth to Mottles/Gley:
Low Forb (< 30 cm)				Organic Thickness:
DWARF SCOURING-RUSH (<i>Equisetum scirpoides</i>)	1.0	1.0-1.0	100	Parent Material:
Moss				Soil Type:
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	12.0	12.0-12.0	100	Humus Form
Lichen				
UNDIFFERENTIATED CLADONIA (<i>Cladonia</i>)	5.5	5.5-5.5	100	

g horsetail (hygric/rich) (n=7)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

The horsetail ecosite is wet and nutrient rich. These sites are found in areas where flooding or seepage enhances nutrient availability on fluvial or glaciofluvial parent materials. Gleysolic soils and accumulation of organic matter are both associated with the high water tables and wet soil conditions of these sites. Horsetails commonly form a blanket over the forest floor, and the canopy may be open or closed and consist of white birch, black spruce and white spruce.



Site Index at 50 Years

Site Index at 50 Years	Height (m)	Variation (m)	Count
WHITE SPRUCE (<i>Picea glauca</i>)	10.40	1.70	0
WHITE BIRCH (<i>Betula papyrifera</i>)	17.40	0.00	0
BALSAM POPLAR (<i>Populus balsamifera</i>)	12.10	0.30	0

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (7)

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

Elevation (range): 532 (460-738) M

Slope (%): nearly level (4), level (2), very gentle slope (1)

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

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

Soil Variables

Soil Drainage: Imperfectly drained (3), Well drained (2), Moderately well drained (1)

Soil Subgroup: GLEYED CUMULIC REGOSOL (2), ORTHIC DYSTRIC BRUNISOL (2), REGO STATIC CRYOSOL (2)

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

Effective Texture: Silt loam (3), Silty clay loam (1), Fine sandy loam (1), Loam (1)

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

Organic Thickness: 0 - 5 cm (5), 6 - 15 cm (1)

Parent Material: Fluvial (5)

Soil Type: Moist/Silty-Loamy (4), Moist/Coarse (1), Moist/Fine (1)

Humus Form RAW MODER (2), TYPICAL MODER (1)

Successional Relationships

Succession is dependent on soil water content, and some sites with peaty soils may have taken hundreds of years to develop. When trees are removed the water table may rise to a level that makes tree establishment very difficult. White spruce forms the climax community.

Indicator Species

Tree

WHITE BIRCH
Betula papyrifera
WHITE SPRUCE
Picea glauca

Shrub

SMOOTH WILLOW
Salix glauca
FLAT-LEAVED WILLOW
Salix planifolia
RIVER ALDER
Alnus tenuifolia

Forb

COMMON HORSETAIL
Equisetum arvense
MEADOW HORSETAIL
Equisetum pratense
WOODLAND HORSETAIL
Equisetum sylvaticum

g1 horsetail Bw-Aw (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Characteristic Species

Tree

- [80.0]WHITE BIRCH*
Betula papyrifera

Shrub

- [2.0]LOW-BUSH CRANBERRY
Viburnum edule
- [1.0]PRICKLY ROSE
Rosa acicularis
- [1.0]BRISTLY BLACK CURRANT
Ribes lacustre

Forb

- [50.0]COMMON HORSETAIL*
Equisetum arvense
- [10.0]MEADOW HORSETAIL*
Equisetum pratense
- [3.0]TALL LUNGWORT
Mertensia paniculata
- [3.0]BISHOP'S-CAP
Mitella nuda
- [2.0]COMMON FIREWEED
Epilobium angustifolium
- [1.0]SWEET-SCENTED BEDSTRAW
Galium triflorum
- [1.0]RED AND WHITE BANE BERRY
Actaea rubra
- [1.0]COMMON PINK WINTERGREEN
Pyrola asarifolia

Graminoid

- [10.0]BLUEJOINT*
Calamagrostis canadensis

Environmental Variables

- Moisture Regime: Subhygric (moderately moist) (1)
- Nutrient Regime: Permesotrophic (rich) (1)
- Elevation (range): 460 (460-460) M
- Slope (%): nearly level (1)
- Aspect: Westerly (1)
- Topographic Position: Lower Slope (1)

Soil Variables

- Soil Drainage: Moderately well drained (1)
- Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)
- Surface Texture: Silty clay loam (1)
- Effective Texture: Silty clay loam (1)
- Depth to Mottles/Gley:
- Organic Thickness: 0 - 5 cm (1)
- Parent Material:
- Soil Type: Moist/Fine (1)
- Humus Form RAW MODER (1)

BSC6 Bw/Horsetail/Marsh reedgrass (Bluejoint) (n=1)

(*Betula papyrifera*/*Equisetum arvense*/*Calamagrostis canadensis*)

This is a successional immature community type and is limited to lower slope areas or as bands along water courses, or level sites with flooding or seepage that enhances the nutrient supply. High water tables and moist soil conditions encourage organic matter accumulation. The canopy is dominated by white birch with a very limited regenerative layer of white spruce. There is a limited understory composed primarily of horsetails, marsh reedgrass and small amounts of red osier dogwood and various currant species. The moss layer is very sparse and limited to feather mosses.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Ecosite Phase: g1 horsetail Bw-Aw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE BIRCH (<i>Betula papyrifera</i>)	10.0	10.0-10.0	100	Moisture Regime: Subhygric (moderately moist) (1)
Understory Tree				Nutrient Regime: Permesotrophic (rich) (1)
WHITE BIRCH (<i>Betula papyrifera</i>)	80.0	80.0-80.0	100	Elevation (range): 460 (460-460) M
Medium Shrub (0.5 to 2 m)				Slope (%): 0.5 - 2.49 (1)
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	2.0	2.0-2.0	100	Aspect: Westerly (1)
RED-OSIER DOGWOOD (<i>Cornus stolonifera</i>)	1.0	1.0-1.0	100	Topographic Position: Lower Slope (1)
Tall Forb (>= 30 cm)				Soil Variables
COMMON HORSETAIL (<i>Equisetum arvense</i>)	50.0	50.0-50.0	100	Soil Drainage: Moderately well drained (1)
MEADOW HORSETAIL (<i>Equisetum pratense</i>)	10.0	10.0-10.0	100	Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1)
TALL LUNGWORT (<i>Mertensia paniculata</i>)	3.0	3.0-3.0	100	Surface Texture: Silty clay loam (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	2.0	2.0-2.0	100	Effective Texture: Silty clay loam (1)
RED AND WHITE BANE BERRY (<i>Actaea rubra</i>)	1.0	1.0-1.0	100	Depth to Mottles/Gley:
LINDLEY'S ASTER (<i>Aster ciliolatus</i>)	1.0	1.0-1.0	100	Organic Thickness: 0 - 5 cm (1)
Low Forb (< 30 cm)				Parent Material:
BISHOP'S-CAP (<i>Mitella nuda</i>)	3.0	3.0-3.0	100	Soil Type: Moist/Fine (1)
BUNCHBERRY (<i>Cornus canadensis</i>)	1.0	1.0-1.0	100	Humus Form RAW MODER (1)
SWEET-SCENTED BEDSTRAW (<i>Galium triflorum</i>)	1.0	1.0-1.0	100	
Graminoid				
BLUEJOINT (<i>Calamagrostis canadensis</i>)	10.0	10.0-10.0	100	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	1.0	1.0-1.0	100	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	1.0	1.0-1.0	100	

g2 horsetail Aw-Sw (n=0)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

General Description

A number of ecological site phases currently have no data. These ecological site phases have been created as place holders because they were described in adjacent subregions (Lower Boreal Highlands and Northern Mixedwood).

Environmental Variables

Moisture Regime:

Nutrient Regime:

Elevation (range):

Slope (%):

Aspect:

Topographic Position:

Characteristic Species

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

g3 horsetail Sw (n=5)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Characteristic Species

Tree

- [30.0]BLACK SPRUCE
Picea mariana
- [17.5]WHITE SPRUCE*
Picea glauca

Shrub

- [8.5]BOG CRANBERRY
Vaccinium vitis-idaea
- [5.0]SCOULER'S WILLOW
Salix scouleriana
- [3.7]PRICKLY ROSE
Rosa acicularis
- [3.0]CLOUDBERRY
Rubus chamaemorus
- [2.5]TWINFLOWER
Linnaea borealis
- [1.2]DEWBERRY
Rubus pubescens
- [0.7]LOW-BUSH CRANBERRY
Viburnum edule

Forb

- [22.5]WOODLAND HORSETAIL*
Equisetum sylvaticum
- [15.0]MEADOW HORSETAIL*
Equisetum pratense
- [5.0]COMMON HORSETAIL*
Equisetum arvense
- [2.5]TALL LUNGWORT
Mertensia paniculata
- [1.7]BUNCHBERRY
Cornus canadensis
- [1.5]BISHOP'S-CAP
Mitella nuda

Moss and Liverwort

- [64.2]STAIR-STEP MOSS
Hylocomium splendens
- [7.5]FRINGED BOG MOSS
Sphagnum fimbriatum
- [5.0]SCHREBER'S MOSS
Pleurozium schreberi
- [1.5]GOLDEN MOSS
Tomenthypnum nitens

Graminoid

- [5.2]BLUEJOINT
Calamagrostis canadensis
- [5.0]REED POLARGRASS
Arctagrostis arundinacea

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (5)

Nutrient Regime: Permesotrophic (rich) (3), Mesotrophic (medium) (1), Eutrophic (very rich) (1)

Elevation (range): 604 (470-738) M

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

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

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

Soil Variables

Soil Drainage: Imperfectly drained (3), Well drained (2)

Soil Subgroup: GLEYED CUMULIC REGOSOL (2), REGO STATIC CRYOSOL (2), ORTHIC DYSTRIC BRUNISOL (1)

Surface Texture: Loam (2), Silt loam (2), Fine sandy loam (1)

Effective Texture: Silt loam (3), Fine sandy loam (1), Loam (1)

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

Organic Thickness: 0 - 5 cm (4), 6 - 15 cm (1)

Parent Material: Fluvial (5)

Soil Type: Moist/Silty-Loamy (4), Moist/Coarse (1)

Humus Form RAW MODER (1), TYPICAL MODER (1)

BSE11 Sw/Beaked willow/Feather moss (n=2)

(*Picea glauca*/*Salix bebbiana*/*Pleurozium schreberi*)

This community type was described West of Wentzel River and Wentzel Lake on moderately well to imperfectly drained Regosolic soils on fluvial terraces (loess) with loamy deposits from overbank flood deposition; feather moss is thick and acts as insulating layer maintaining permafrost at one site. White spruce dominates the canopy and limited light penetration discourages understory development, allowing stair-step and Schreber's moss to dominate the understory with limited shrub and forb cover

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)
Ecosite Phase: g3 horsetail Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE SPRUCE (<i>Picea glauca</i>)	32.5	25.0-40.0	100	Moisture Regime: Subhygric (moderately moist) (2)
Understory Tree				Nutrient Regime: Mesotrophic (medium) (1), Permesotrophic (rich) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	15.0	15.0-15.0	100	Elevation (range): 0 (0-0) M
Tall Shrub (2 to 5m)				Slope (%): 0.5 - 2.49 (2)
BEAKED WILLOW (<i>Salix bebbiana</i>)	4.5	1.0-8.0	100	Aspect: Level (1), Northerly (1)
Medium Shrub (0.5 to 2 m)				Topographic Position: Crest (1), Upper Slope (1)
TWINFLOWER (<i>Linnaea borealis</i>)	2.0	1.0-3.0	100	Soil Variables
CANADA BUFFALOBERRY (<i>Shepherdia canadensis</i>)	1.0	0.0-2.0	50	Soil Drainage: Well drained (1), Imperfectly drained (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	1.0	1.0-1.0	100	Soil Subgroup: GLEYED CUMULIC REGOSOL (1), REGO STATIC CRYOSOL (1)
PRICKLY ROSE (<i>Rosa acicularis</i>)	0.5	0.5-0.5	100	Surface Texture: Loam (2)
Low Shrub (< 0.5m)				Effective Texture: Loam (1), Silt loam (1)
DEWBERRY (<i>Rubus pubescens</i>)	0.5	0.0-1.0	50	Depth to Mottles/Gley: 26 - 50 (1)
Tall Forb (>= 30 cm)				Organic Thickness: 0 - 5 cm (1), 6 - 15 cm (1)
TALL LUNGWORT (<i>Mertensia paniculata</i>)	1.2	0.5-2.0	100	Parent Material: Fluvial (2)
Low Forb (< 30 cm)				Soil Type: Moist/Silty-Loamy (2)
COMMON PINK WINTERGREEN (<i>Pyrola asarifolia</i>)	2.5	2.0-3.0	100	Humus Form
Moss				
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	40.5	1.0-80.0	100	
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	37.5	15.0-60.0	100	

BSE13 Sw/Horsetail/Stair-step moss (n=2)

(*Picea glauca*/*Equisetum pratense*/*Hylocomium splendens*)

This community type is moist and nutrient rich. It is found on lower slope areas, as bands along water courses, or on level sites where flooding or seepage enhances the nutrient supply. High water tables and moist soil conditions encourage organic matter accumulation. The canopy is composed of primarily white spruce, with isolated tamarack found scattered throughout. The regeneration layer is a mixture of white spruce and the understory is a mixture of mainly horsetail and stair-step moss.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Ecosite Phase: g3 horsetail Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE SPRUCE (<i>Picea glauca</i>)	35.0	35.0-35.0	100	Moisture Regime: Subhygric (moderately moist) (2)
Understory Tree				Nutrient Regime: Permesotrophic (rich) (1), Eutrophic (very rich) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	6.0	2.0-10.0	100	Elevation (range): 604 (470-738) M
Medium Shrub (0.5 to 2 m)				Slope (%): 0 - 0.49 (1), 0.5 - 2.49 (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	15.0	0.0-30.0	50	Aspect: Level (1), Southerly (1)
TWINFLOWER (<i>Linnaea borealis</i>)	5.0	0.0-10.0	50	Topographic Position: Level (2)
PRICKLY ROSE (<i>Rosa acicularis</i>)	2.5	2.0-3.0	100	Soil Variables
LOW-BUSH CRANBERRY (<i>Viburnum edule</i>)	1.5	1.0-2.0	100	Soil Drainage: Well drained (1), Imperfectly drained (1)
Low Shrub (< 0.5m)				Soil Subgroup: ORTHIC DYSTRIC BRUNISOL (1), REGO STATIC CRYOSOL (1)
DEWBERRY (<i>Rubus pubescens</i>)	2.5	0.0-5.0	50	Surface Texture: Fine sandy loam (1), Silt loam (1)
Tall Forb (>= 30 cm)				Effective Texture: Fine sandy loam (1), Silt loam (1)
MEADOW HORSETAIL (<i>Equisetum pratense</i>)	30.0	20.0-40.0	100	Depth to Mottles/Gley: 0 - 25 (1)
COMMON HORSETAIL (<i>Equisetum arvense</i>)	10.0	0.0-20.0	50	Organic Thickness: 0 - 5 cm (2)
TALL LUNGWORT (<i>Mertensia paniculata</i>)	5.0	2.0-8.0	100	Parent Material: Fluvial (2)
Low Forb (< 30 cm)				Soil Type: Moist/Coarse (1), Moist/Silty-Loamy (1)
BISHOP'S-CAP (<i>Mitella nuda</i>)	3.0	0.0-6.0	50	Humus Form TYPICAL MODER (1), RAW MODER (1)
GREENISH-FLOWERED WINTERGREEN (<i>Pyrola chlorantha</i>)	2.0	1.0-3.0	100	
BUNCHBERRY (<i>Cornus canadensis</i>)	1.5	1.0-2.0	100	
COMMON PINK WINTERGREEN (<i>Pyrola asarifolia</i>)	1.5	0.0-3.0	50	
Graminoid				
BLUEJOINT (<i>Calamagrostis canadensis</i>)	10.5	1.0-20.0	100	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	87.5	85.0-90.0	100	

BSE2 Sw/Flat-leaved willow-Bog birch (n=1)

(*Picea glauca*/*Salix planifolia*-*Betula glandulosa*)

This community type was described on a fluvial terrace near the Wentzel river within the Caribou Mountains wildland park. The soil was a moderately well to imperfectly drained Cumulic Regosol. This community type is moister than the previously described Sw/Willow/Feather moss (BSE11). The overstory is sparse white spruce with an understory of willow and bog birch which will likely fill in over time.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Ecosite Phase: g3 horsetail Sw

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
WHITE SPRUCE (<i>Picea glauca</i>)	5.0	5.0-5.0	100	Moisture Regime: Subhygric (moderately moist) (1)
Understory Tree				Nutrient Regime: Permesotrophic (rich) (1)
WHITE SPRUCE (<i>Picea glauca</i>)	2.0	2.0-2.0	100	Elevation (range): 0 (0-0) M
Tall Shrub (2 to 5m)				Slope (%): 2.5 - 5.99 (1)
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	20.0	20.0-20.0	100	Aspect: Westerly (1)
BOG BIRCH (<i>Betula glandulosa</i>)	12.0	12.0-12.0	100	Topographic Position: Level (1)
Medium Shrub (0.5 to 2 m)				Soil Variables
COMMON BEARBERRY (<i>Arctostaphylos uva-ursi</i>)	20.0	20.0-20.0	100	Soil Drainage: Imperfectly drained (1)
SMOOTH WILLOW (<i>Salix glauca</i>)	8.0	8.0-8.0	100	Soil Subgroup: GLEYED CUMULIC REGOSOL (1)
Tall Forb (>= 30 cm)				Surface Texture: Silt loam (1)
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	2.0	2.0-2.0	100	Effective Texture: Silt loam (1)
TALL LUNGWORT (<i>Mertensia paniculata</i>)	1.0	1.0-1.0	100	Depth to Mottles/Gley: 0 - 25 (1)
Low Forb (< 30 cm)				Organic Thickness: 0 - 5 cm (1)
WILD STRAWBERRY (<i>Fragaria virginiana</i>)	2.0	2.0-2.0	100	Parent Material: Fluvial (1)
COMMON YARROW (<i>Achillea millefolium</i>)	1.0	1.0-1.0	100	Soil Type: Moist/Silty-Loamy (1)
Graminoid				Humus Form
HAIRY WILD RYE (<i>Elymus innovatus</i>)	8.0	8.0-8.0	100	
BLUEJOINT (<i>Calamagrostis canadensis</i>)	5.0	5.0-5.0	100	
BLUEGRASSES (<i>Poa</i>)	5.0	5.0-5.0	100	
NARROW SEDGE (<i>Carex arcta</i>)	1.0	1.0-1.0	100	
Moss				
STAIR-STEP MOSS (<i>Hylocomium splendens</i>)	1.0	1.0-1.0	100	

g4 horsetail - shrub (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Characteristic Species

Tree

- [2.0]BALSAM POPLAR
Populus balsamifera

Shrub

- [40.0]FLAT-LEAVED WILLOW*
Salix planifolia
- [35.0]RIVER ALDER*
Alnus tenuifolia
- [20.0]SMOOTH WILLOW*
Salix glauca
- [5.0]SKUNK CURRANT
Ribes glandulosum
- [4.0]DEWBERRY
Rubus pubescens
- [2.0]TWINFLOWER
Linnaea borealis

Forb

- [36.0]WOODLAND HORSETAIL*
Equisetum sylvaticum
- [5.0]BUNCHBERRY
Cornus canadensis
- [2.0]TALL LUNGWORT
Mertensia paniculata
- [2.0]COMMON FIREWEED
Epilobium angustifolium

Moss and Liverwort

- [5.0]UNDIFFERENTIATED MNIUM
Mnium

Graminoid

- [5.0]BLUEJOINT
Calamagrostis canadensis

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (1)

Nutrient Regime: Permesotrophic (rich) (1)

Elevation (range): 0 (0-0) M

Slope (%): level (1)

Aspect: Level (1)

Topographic Position:

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSB5 Willow-River alder/Horsetail (n=1)

(*Salix spp.-Alnus tenuifolia/Equisetum spp.*)

This community type was described in a level lower slope position in the Cameron Hills. It occupies moist rich seepage areas in lower slope positions where organic material accumulates and horsetail covers the forest floor. This community type is dominated by willow, with a significant river alder component. In the Central Mixedwood subregion this community is often found along water courses (Moisey et al. 2016).

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: g horsetail (hygric/rich)

Ecosite Phase: g4 horsetail - shrub

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
ASPEN (<i>Populus tremuloides</i>)	4.0	4.0-4.0	100	Moisture Regime: Subhygric (moderately moist) (1)
BALSAM POPLAR (<i>Populus balsamifera</i>)	2.0	2.0-2.0	100	Nutrient Regime: Permesotrophic (rich) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	1.0	1.0-1.0	100	Elevation (range): 0 (0-0) M
Tall Shrub (2 to 5m)				Slope (%): 0 - 0.49 (1)
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	40.0	40.0-40.0	100	Aspect: Level (1)
RIVER ALDER (<i>Alnus tenuifolia</i>)	25.0	25.0-25.0	100	Topographic Position:
SMOOTH WILLOW (<i>Salix glauca</i>)	20.0	20.0-20.0	100	Soil Variables
Medium Shrub (0.5 to 2 m)				Soil Drainage:
RIVER ALDER (<i>Alnus tenuifolia</i>)	10.0	10.0-10.0	100	Soil Subgroup:
SKUNK CURRANT (<i>Ribes glandulosum</i>)	5.0	5.0-5.0	100	Surface Texture:
DEWBERRY (<i>Rubus pubescens</i>)	4.0	4.0-4.0	100	Effective Texture:
TWINFLOWER (<i>Linnaea borealis</i>)	2.0	2.0-2.0	100	Depth to Mottles/Gley:
Tall Forb (>= 30 cm)				Organic Thickness:
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	36.0	36.0-36.0	100	Parent Material:
COMMON FIREWEED (<i>Epilobium angustifolium</i>)	2.0	2.0-2.0	100	Soil Type:
TALL LUNGWORT (<i>Mertensia paniculata</i>)	2.0	2.0-2.0	100	Humus Form
Low Forb (< 30 cm)				
BUNCHBERRY (<i>Cornus canadensis</i>)	5.0	5.0-5.0	100	
DWARF SCOURING-RUSH (<i>Equisetum scirpoides</i>)	1.0	1.0-1.0	100	
Graminoid				
BLUEJOINT (<i>Calamagrostis canadensis</i>)	5.0	5.0-5.0	100	

h bog (subhydryc/very poor) (n=32)

Natural Subregion: Boreal Subarctic

General Description

The bog ecosite is characterized by nutrient poor peatlands with distinct communities of ericaceous shrubs and hummock forming Sphagnum species adapted to acidic and oxygen-poor soil conditions. It is commonly composed of organic soils consisting of slowly decomposing peat moss found in level and depressional areas that tend to have stagnant water, obstructed drainage, or high water tables that enhance the accumulation of organic matter. Thick organic matter accumulations insulate and facilitate the development of Cryosolic soils - soils with frozen horizons. Black spruce forms a sparse canopy in the treed phase (h1), while ericaceous shrubs such as leatherleaf, bog rosemary, and Labrador tea dominate the shrubby phases (h2).



Successional Relationships

The bog ecosite is an edaphic climax that is maintained by high water tables. Succession to the bog ecosite is very slow, and in the Boreal Subarctic is depressed partially due to frozen soil conditions and low temperatures.

Indicator Species

Tree

BLACK SPRUCE
Picea mariana

Shrub

COMMON LABRADOR TEA
Ledum groenlandicum

NORTHERN LABRADOR TEA
Ledum palustre

CLOUDBERRY
Rubus chamaemorus

BOG ROSEMARY
Andromeda polifolia

LEATHERLEAF
Chamaedaphne calyculata

Forb

SCHEUCHZERIA
Scheuchzeria palustris

Lichen

REINDEER LICHEN
Cladina rangiferina

Moss and Liverwort

PEAT MOSS
Sphagnum angustifolium

RUSTY PEAT MOSS
Sphagnum fuscum

Graminoid

MUD SEDGE
Carex limosa

FEW-FLOWERED SEDGE
Carex pauciflora

Ecosection: BSR Boreal Subarctic

Environmental Variables

Moisture Regime: Subhydryc (moderately wet) (9), Subhydryc (moderately moist) (9), Mesic (fresh) (6), Hydryc (wet) (3), Hygric (moist) (2), Subxeric (moderately dry) (2), Submesic (moderately fresh) (1)

Nutrient Regime: Mesotrophic (medium) (10), Oligotrophic (very poor) (9), Submesotrophic (poor) (7), Permesotrophic (rich) (4)

Elevation (range): 895.67 (854-940) M

Slope (%): level (10), nearly level (4), very gentle slope (2), moderate slope (1), gentle slope (1)

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

Topographic Position: Lower Slope (7), Depression (5), Level (5), Upper Slope (5), Midslope (2), Toe (1), Crest (1)

Soil Variables

Soil Drainage: Poorly drained (7), Very poorly drained (5), Imperfectly drained (3), Moderately well drained (3)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (8), TYPIC FIBRISOL (3), GLEYED STATIC CRYOSOL (1)

Surface Texture: Fibric (12)

Effective Texture: Fibric (11), Loam (1)

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

Organic Thickness: 40 - 59 cm (5), >= 80 cm (3), 26 - 39 cm (2), 16 - 25 cm (1), 60 - 79 cm (1)

Parent Material:

Soil Type: Organic (11), Wet/Peaty (1)

Humus Form

h1 treed bog (n=14)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydric/very poor)

Characteristic Species

Tree

[11.6]BLACK SPRUCE*
Picea mariana

Shrub

[35.5]NORTHERN LABRADOR TEA*
Ledum palustre

[5.9]CLOUDBERRY*
Rubus chamaemorus

[5.8]COMMON LABRADOR TEA*
Ledum groenlandicum

[2.5]BOG CRANBERRY
Vaccinium vitis-idaea

Lichen

[46.8]REINDEER LICHEN*
Cladina rangiferina

[9.0]REINDEER LICHEN
Cladina mitis

Moss and Liverwort

[10.0]RUSTY PEAT MOSS*
Sphagnum fuscum

[5.8]PEAT MOSS
Sphagnum angustifolium

[1.2]N/A
Sphagnum nemoreum

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (4), Mesic (fresh) (4), Subhygric (moderately moist) (3), Subxeric (moderately dry) (2), Submesic (moderately fresh) (1)

Nutrient Regime: Mesotrophic (medium) (6), Oligotrophic (very poor) (4), Permesotrophic (rich) (3), Submesotrophic (poor) (1)

Elevation (range): 905 (854-940) M

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

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

Topographic Position: Lower Slope (3), Upper Slope (3), Level (2), Depression (1), Toe (1)

Soil Variables

Soil Drainage: Poorly drained (4), Imperfectly drained (2), Very poorly drained (1)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (4)

Surface Texture: Fibric (4)

Effective Texture: Fibric (4)

Depth to Mottles/Gley:

Organic Thickness: 40 - 59 cm (2), 26 - 39 cm (1), >= 80 cm (1)

Parent Material:

Soil Type: Organic (4)

Humus Form

BSE15 Sb/Labrador tea/Peat moss (n=13)

(*Picea mariana*/*Ledum groenlandicum*/*Sphagnum spp.*)

This community type is typical of the treed bog ecological site phase. Bogs tend to be dominated by black spruce, Labrador tea and peat moss. It has imperfectly to very poorly drained soils, a poor nutrient regime, and relatively acidic soil surface conditions. This is the successional mature community type of this ecological site phase.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydric/very poor)

Ecosite Phase: h1 treed bog

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	14.2	0.0-39.4	85	Moisture Regime: Mesic (fresh) (4), Subhygric (moderately moist) (3), Subhydric (moderately wet) (3), Subxeric (moderately dry) (2), Submesic (moderately fresh) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Mesotrophic (medium) (6), Permesotrophic (rich) (3), Oligotrophic (very poor) (3), Submesotrophic (poor) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	4.0	0.0-20.0	54	Elevation (range): 905 (854-940) M
Medium Shrub (0.5 to 2 m)				Slope (%): 0 - 0.49 (2), 0.5 - 2.49 (2), 2.5 - 5.99 (1), 6 - 9.99 (1), 10 - 15.99 (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	21.0	0.0-60.0	77	Aspect: Northerly (3), Level (2), Southerly (1), Westerly (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	11.6	0.0-40.0	77	Topographic Position: Lower Slope (3), Upper Slope (3), Level (1), Toe (1), Depression (1)
CLOUDBERRY (<i>Rubus chamaemorus</i>)	6.8	0.0-38.0	69	
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	4.1	0.0-9.4	85	Soil Variables
BOG BIRCH (<i>Betula glandulosa</i>)	1.5	0.0-9.4	46	Soil Drainage: Poorly drained (4), Imperfectly drained (2)
LEATHERLEAF (<i>Chamaedaphne calyculata</i>)	1.3	0.0-15.5	23	Soil Subgroup: FIBRIC ORGANIC CRYOSOL (3)
CROWBERRY (<i>Empetrum nigrum</i>)	1.0	0.0-10.0	23	Surface Texture: Fibric (3)
LODGEPOLE PINE (<i>Pinus contorta</i>)	0.3	0.0-4.0	8	Effective Texture: Fibric (3)
Moss				Depth to Mottles/Gley:
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	15.1	0.0-39.4	85	Organic Thickness: 40 - 59 cm (2), 26 - 39 cm (1)
PEAT MOSS (<i>Sphagnum angustifolium</i>)	11.7	0.0-85.5	31	Parent Material:
PEAT MOSS (<i>Sphagnum wulfianum</i>)	4.2	0.0-55.0	8	Soil Type: Organic (3)
N/A (<i>Sphagnum nemoreum</i>)	2.4	0.0-21.9	15	Humus Form
TUFTED MOSS (<i>Aulacomnium palustre</i>)	1.3	0.0-9.4	54	
Lichen				
REINDEER LICHEN (<i>Cladina mitis</i>)	13.1	0.0-80.0	62	
REINDEER LICHEN (<i>Cladina rangiferina</i>)	8.7	0.0-80.0	54	
REINDEER LICHEN (<i>Cladina stellaris</i>)	1.9	0.0-20.0	23	

BSE7 Sb/Labrador tea/Lichen (n=1)

(*Picea mariana*/*Ledum groenlandicum*/*Cladina spp.*)

This community represents an early seral stage of the black spruce/lichen climax community, and occupies the drier edge of the treed bog ecosite. Tree cover is sparse and limited to black spruce, while labrador tea cover is high and lichen carpets the forest floor.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydric/very poor)

Ecosite Phase: h1 treed bog

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	2.0	2.0-2.0	100	Moisture Regime: Subhydric (moderately wet) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Oligotrophic (very poor) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	3.0	3.0-3.0	100	Elevation (range): 0 (0-0) M
Medium Shrub (0.5 to 2 m)				Slope (%): 0 - 0.49 (1)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	50.0	50.0-50.0	100	Aspect:
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	1.0	1.0-1.0	100	Topographic Position: Level (1)
SMALL BOG CRANBERRY (<i>Oxycoccus microcarpus</i>)	0.5	0.5-0.5	100	Soil Variables
Low Shrub (< 0.5m)				Soil Drainage: Very poorly drained (1)
CLOUDBERRY (<i>Rubus chamaemorus</i>)	5.0	5.0-5.0	100	Soil Subgroup: FIBRIC ORGANIC CRYOSOL (1)
DWARF RASPBERRY (<i>Rubus arcticus</i>)	0.5	0.5-0.5	100	Surface Texture: Fibric (1)
Moss				Effective Texture: Fibric (1)
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	5.0	5.0-5.0	100	Depth to Mottles/Gley:
SLENDER HAIR-CAP (<i>Polytrichum strictum</i>)	0.5	0.5-0.5	100	Organic Thickness: >= 80 cm (1)
Lichen				Parent Material:
REINDEER LICHEN (<i>Cladina rangiferina</i>)	85.0	85.0-85.0	100	Soil Type: Organic (1)
REINDEER LICHEN (<i>Cladina mitis</i>)	5.0	5.0-5.0	100	Humus Form
N/A (<i>Cetraria nivalis</i>)	0.5	0.5-0.5	100	
REINDEER LICHEN (<i>Cladina stellaris</i>)	0.5	0.5-0.5	100	

h2 shrubby bog (n=14)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydric/very poor)

Characteristic Species

Shrub

- [14.8]LEATHERLEAF*
Chamaedaphne calyculata
- [11.1]NORTHERN LABRADOR TEA
Ledum palustre
- [6.5]COMMON LABRADOR TEA
Ledum groenlandicum
- [5.5]BOG CRANBERRY
Vaccinium vitis-idaea
- [2.7]BOG ROSEMARY*
Andromeda polifolia
- [1.4]BOG BIRCH
Betula glandulosa

Lichen

- [1.6]REINDEER LICHEN
Cladina mitis

Moss and Liverwort

- [16.6]RUSTY PEAT MOSS*
Sphagnum fuscum
- [11.0]PEAT MOSS*
Sphagnum angustifolium
- [9.0]PEAT MOSS
Sphagnum majus
- [6.0]PENDANT BRANCH PEAT MOSS
Sphagnum jensenii
- [4.5]ACUTE-LEAVED PEAT MOSS
Sphagnum capillifolium
- [4.0]SHORE-GROWING PEAT MOSS
Sphagnum riparium
- [3.4]N/A
Sphagnum nemoreum
- [3.0]GIRGENSOHN'S MOSS
Sphagnum girgensohnii

Graminoid

- [3.0]FEW-FLOWERED SEDGE*
Carex pauciflora
- [2.0]THIN-LEAVED COTTON GRASS
Eriophorum viridi-carinatum
- [1.5]SHEATHED COTTON GRASS
Eriophorum vaginatum

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (4), Hydric (wet) (3), Subhygric (moderately moist) (3), Hygric (moist) (2), Mesic (fresh) (2)

Nutrient Regime: Submesotrophic (poor) (5), Mesotrophic (medium) (4), Oligotrophic (very poor) (4), Permesotrophic (rich) (1)

Elevation (range): 928 (920-940) M

Slope (%): level (6), nearly level (2), very gentle slope (1)

Aspect: Southerly (1), Northerly (1)

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

Soil Variables

Soil Drainage: Very poorly drained (4), Poorly drained (3), Moderately well drained (3)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (4), TYPIC FIBRISOL (3), GLEYED STATIC CRYOSOL (1)

Surface Texture: Fibric (8)

Effective Texture: Fibric (7), Loam (1)

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

Organic Thickness: 40 - 59 cm (3), >= 80 cm (2), 26 - 39 cm (1), 60 - 79 cm (1), 16 - 25 cm (1)

Parent Material:

Soil Type: Organic (7), Wet/Peaty (1)

Humus Form

BSB3 Labrador tea/Peat moss (n=9)

(*Ledum groenlandicum*/*Sphagnum* spp.)

This is the main successional community type noted on burned bogs (Allen et al. 2006). This is an open hummocky shrubland dominated by Labrador tea with very sparse scattered black spruce found (<5%), and few understory species. The understory is carpeted by peat moss with some lichen patches.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydric/very poor)

Ecosite Phase: h2 shrubby bog

Plant Composition

Canopy Cover (%)

Environmental Variables

	Canopy Cover (%)			
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
BLACK SPRUCE (<i>Picea mariana</i>)	1.3	0.0-3.0	78	Moisture Regime: Subhydric (moderately wet) (3), Subhygric (moderately moist) (3), Mesic (fresh) (2), Hygric (moist) (1)
Medium Shrub (0.5 to 2 m)				Nutrient Regime: Mesotrophic (medium) (4), Oligotrophic (very poor) (3), Submesotrophic (poor) (2)
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	22.2	0.0-70.0	89	Elevation (range): 928 (920-940) M
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	13.1	0.0-39.4	56	Slope (%): 0 - 0.49 (2), 0.5 - 2.49 (1), 2.5 - 5.99 (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	11.1	0.5-55.0	100	Aspect: Northerly (1), Southerly (1)
BOG ROSEMARY (<i>Andromeda polifolia</i>)	3.9	0.0-33.0	44	Topographic Position: Level (2), Lower Slope (2), Midslope (2), Upper Slope (2), Crest (1)
BOG BIRCH (<i>Betula glandulosa</i>)	2.8	0.0-20.0	44	Soil Variables
CLOUDBERRY (<i>Rubus chamaemorus</i>)	1.8	0.0-9.4	44	Soil Drainage: Poorly drained (3), Moderately well drained (2), Very poorly drained (1)
MYRTLE-LEAVED WILLOW (<i>Salix myrtilifolia</i>)	1.6	0.0-9.4	22	Soil Subgroup: FIBRIC ORGANIC CRYOSOL (3), GLEYED STATIC CRYOSOL (1)
Moss				Surface Texture: Fibric (4)
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	26.8	1.0-60.0	100	Effective Texture: Fibric (3), Loam (1)
N/A (<i>Sphagnum nemoreum</i>)	6.8	0.0-55.0	44	Depth to Mottles/Gley: 0 - 25 (1)
GIRGENSOHN'S MOSS (<i>Sphagnum girgensohnii</i>)	6.1	0.0-55.0	11	Organic Thickness: 60 - 79 cm (1), 26 - 39 cm (1), 40 - 59 cm (1), 16 - 25 cm (1)
TUFTED MOSS (<i>Aulacomnium palustre</i>)	2.3	0.0-9.4	78	Parent Material:
Lichen				Soil Type: Organic (3), Wet/Peaty (1)
REINDEER LICHEN (<i>Cladina mitis</i>)	3.2	0.0-9.4	67	Humus Form
REINDEER LICHEN (<i>Cladina rangiferina</i>)	3.2	0.0-10.0	78	

BSB9 Leatherleaf/Peat moss (n=5)

(*Chamaedaphne calyculata*/*Sphagnum* spp.)

This community type is found in wetter bogs than the black spruce Labrador tea communities. It is found in areas with poorly drained soils and acidic soil conditions, occurring on organic soils composed of slowly decomposing peat moss. Peat moss dominates along with leatherleaf, and there may or may not be a significant sedge or cotton grass component.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydric/very poor)

Ecosite Phase: h2 shrubby bog

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 25 Moisture Regime: Hydric (wet) (3), Hygric (moist) (1), Subhydric (moderately wet) (1) Nutrient Regime: Submesotrophic (poor) (3), Oligotrophic (very poor) (1), Permesotrophic (rich) (1) Elevation (range): 0 (0-0) M Slope (%): 0 - 0.49 (4), 0.5 - 2.49 (1) Aspect: Topographic Position: Depression (3), Level (1)
LEATHERLEAF (<i>Chamaedaphne calyculata</i>)	29.6	8.0-65.0	100	
BOG ROSEMARY (<i>Andromeda polifolia</i>)	1.6	0.5-5.0	100	
Graminoid				
FEW-FLOWERED SEDGE (<i>Carex pauciflora</i>)	6.0	0.0-30.0	20	
THIN-LEAVED COTTON GRASS (<i>Eriophorum viridi-carinatum</i>)	4.0	0.0-20.0	20	
SHEATHED COTTON GRASS (<i>Eriophorum vaginatum</i>)	3.0	0.0-15.0	20	
SEDGE (<i>Carex supina</i>)	1.6	0.0-8.0	20	
RUSSETT COTTON GRASS (<i>Eriophorum chamissonis</i>)	1.0	0.0-5.0	20	
Moss				
PEAT MOSS (<i>Sphagnum angustifolium</i>)	22.0	0.0-90.0	80	
PEAT MOSS (<i>Sphagnum majus</i>)	18.0	0.0-90.0	20	
PENDANT BRANCH PEAT MOSS (<i>Sphagnum jensenii</i>)	12.0	0.0-40.0	40	
PEAT MOSS (<i>Sphagnum</i>)	11.0	0.0-55.0	20	
ACUTE-LEAVED PEAT MOSS (<i>Sphagnum capillifolium</i>)	9.0	0.0-40.0	40	
SHORE-GROWING PEAT MOSS (<i>Sphagnum riparium</i>)	8.0	0.0-30.0	40	
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	6.4	0.0-30.0	60	
				Soil Variables Soil Drainage: Very poorly drained (3), Moderately well drained (1) Soil Subgroup: TYPIC FIBRISOL (3), FIBRIC ORGANIC CRYOSOL (1) Surface Texture: Fibric (4) Effective Texture: Fibric (4) Depth to Mottles/Gley: Organic Thickness: 40 - 59 cm (2), >= 80 cm (2) Parent Material: Soil Type: Organic (4) Humus Form

h3 graminoid bog (n=4)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydic/very poor)

Characteristic Species

Shrub

- [9.7]BOG ROSEMARY
Andromeda polifolia
- [3.8]BOG WILLOW
Salix pedicellaris
- [1.0]LEATHERLEAF
Chamaedaphne calyculata

Forb

- [5.0]SCHEUCHZERIA*
Scheuchzeria palustris

Moss and Liverwort

- [38.8]PENDANT BRANCH PEAT MOSS
Sphagnum jensenii
- [21.3]PEAT MOSS
Sphagnum warnstorffii
- [11.2]PEAT MOSS
Sphagnum majus
- [9.5]LIVERWORT
Cladopodiella fluitans
- [3.8]N/A
Scorpidium scorpioides
- [3.7]MIDWAY PEAT MOSS
Sphagnum magellanicum
- [2.7]LINDBERG'S BOG MOSS
Sphagnum lindbergii

Graminoid

- [28.8]MUD SEDGE*
Carex limosa

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (3), Subhydic (moderately wet) (1)

Nutrient Regime: Oligotrophic (very poor) (1), Submesotrophic (poor) (1)

Elevation (range): 854 (854-854) M

Slope (%): level (1)

Aspect:

Topographic Position: Lower Slope (2), Depression (1)

Soil Variables

Soil Drainage: Imperfectly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSA5 Mud sedge/Peat moss (n=4)

(*Carex limosa/Sphagnum spp.*)

In a patterned fen complex this community type represents flark communities that are found on acidic substrates with associated poor nutrient regimes, where the water table is at or near the surface. The community is dominated by mud sedge and peat moss, and is associated with poor string communities (Sb/Cloudberry/Peat moss).

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: h bog (subhydryc/very poor)

Ecosite Phase: h3 graminoid bog

Plant Composition	Canopy Cover (%)			Const.	Environmental Variables
	Mean	Range			
Medium Shrub (0.5 to 2 m)					Ecological Status Score: 40
BOG ROSEMARY (<i>Andromeda polifolia</i>)	9.7	0.0-38.0	50		Moisture Regime: Subhydryc (moderately moist) (3), Subhydryc (moderately wet) (1)
BOG WILLOW (<i>Salix pedicellaris</i>)	3.8	0.0-15.5	25		Nutrient Regime: Oligotrophic (very poor) (1), Submesotrophic (poor) (1)
LEATHERLEAF (<i>Chamaedaphne calyculata</i>)	1.0	0.0-4.0	25		Elevation (range): 854 (854-854) M
SMALL BOG CRANBERRY (<i>Oxycoccus microcarpus</i>)	0.8	0.0-3.0	50		Slope (%): 0 - 0.49 (1)
Low Forb (< 30 cm)					Aspect:
SCHEUCHZERIA (<i>Scheuchzeria palustris</i>)	5.0	0.0-20.0	25		Topographic Position: Lower Slope (2), Depression (1)
BUCK-BEAN (<i>Menyanthes trifoliata</i>)	0.5	0.0-1.0	50		Soil Variables
OBLONG-LEAVED SUNDEW (<i>Drosera anglica</i>)	0.2	0.0-1.0	25		Soil Drainage: Imperfectly drained (1)
ROUND-LEAVED SUNDEW (<i>Drosera rotundifolia</i>)	0.1	0.0-0.5	25		Soil Subgroup:
Graminoid					Surface Texture:
MUD SEDGE (<i>Carex limosa</i>)	28.8	12.0-50.0	100		Effective Texture:
CLOSE-SHEATHED COTTON GRASS (<i>Eriophorum brachyantherum</i>)	0.5	0.0-2.0	25		Depth to Mottles/Gley:
INLAND SEDGE (<i>Carex interior</i>)	0.2	0.0-1.0	25		Organic Thickness:
RUSSETT COTTON GRASS (<i>Eriophorum chamissonis</i>)	0.2	0.0-1.0	25		Parent Material:
SHEATHED COTTON GRASS (<i>Eriophorum vaginatum</i>)	0.2	0.0-1.0	25		Soil Type:
Moss					Humus Form
PENDANT BRANCH PEAT MOSS (<i>Sphagnum jensenii</i>)	38.8	0.0-85.5	50		
PEAT MOSS (<i>Sphagnum warnstorffii</i>)	21.3	0.0-85.5	25		
PEAT MOSS (<i>Sphagnum majus</i>)	11.2	0.0-45.0	25		
LIVERWORT (<i>Cladopodiella fluitans</i>)	9.5	0.0-38.0	25		
N/A (<i>Scorpidium scorpioides</i>)	3.8	0.0-15.5	25		
MIDWAY PEAT MOSS (<i>Sphagnum magellanicum</i>)	3.7	0.0-15.0	25		
LINDBERG'S BOG MOSS (<i>Sphagnum lindbergii</i>)	2.7	0.0-10.0	50		
BROWN MOSS (<i>Drepanocladus revolvens</i>)	0.2	0.0-1.0	25		
UNDIFFERENTIATED SCAPANIA (<i>Scapania</i>)	0.2	0.0-1.0	25		
Lichen					
BRITISH SOLDIER LICHEN (<i>Cladonia coccifera</i>)	0.7	0.0-3.0	25		

i poor fen (subhydic/medium) (n=23)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

General Description

The poor fen ecosite is intermediate in nutrient regime between the bog (h) and rich fen (j) ecosites and has species characteristic of both. Drainage is poor to very poor, but there is some movement of water through the substratum, resulting in higher nutrient levels than the bog ecosite. Poor fens are found in level and depressional areas where impeded drainage or high water tables enhance the accumulation of organic matter. 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). Organic matter accumulations often insulate the soil and allow frozen soil horizons to persist. Black spruce and/or tamarack dominate the sparse canopy of the treed phases (i1), while the understory and shrubby phases (i2) include bog-type species such as ericaceous shrubs and Sphagnum species, as well as fen-type species such as non-ericaceous shrubs, sedges, grasses, reeds and brown mosses.



Successional Relationships

The hydrarch succession characteristic of this ecosite occurs over periods of hundreds to thousands of years. Recovery from disturbance is extremely slow. Changing hydrologic regimes may result in disturbances that influence the direction and rate of succession. These systems are dependent on water flow through them and impeding this flow may result in the reduction or elimination of tree cover, along with changes in the shrub, forb and grass layers.

Indicator Species

Tree

BLACK SPRUCE

Picea mariana

TAMARACK

Larix laricina

Shrub

COMMON LABRADOR TEA

Ledum groenlandicum

FLAT-LEAVED WILLOW

Salix planifolia

BOG BIRCH

Betula glandulosa

Moss and Liverwort

BROWN MOSS

Drepanocladus revolvens

N/A

Scorpidium scorpioides

PEAT MOSS

Sphagnum angustifolium

GOLDEN MOSS

Tomenthypnum nitens

Graminoid

WATER SEDGE

Carex aquatilis

MUD SEDGE

Carex limosa

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (10), Hygric (moist) (5), Hydric (wet) (4), Subhydric (moderately wet) (3)

Nutrient Regime: Mesotrophic (medium) (12), Permesotrophic (rich) (7), Eutrophic (very rich) (2), Submesotrophic (poor) (1)

Elevation (range): 897 (848-940) M

Slope (%): level (4)

Aspect: Level (1)

Topographic Position: Depression (6), Level (3), Lower Slope (3), Toe (3)

Soil Variables

Soil Drainage: Poorly drained (13), Very poorly drained (4), Imperfectly drained (2)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (2), MESIC ORGANIC CRYOSOL (1), TYPIC FIBRISOL (1), TYPIC MESISOL (1)

Surface Texture: Fibric (5)

Effective Texture: Fibric (4), Mesic (1)

Depth to Mottles/Gley:

Organic Thickness: >= 80 cm (2), 16 - 25 cm (2), 40 - 59 cm (1)

Parent Material:

Soil Type: Organic (5)

Humus Form

i1 treed poor fen (n=4)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydic/medium)

Characteristic Species

Tree

- [5.8] TAMARACK*
Larix laricina
- [4.6] BLACK SPRUCE*
Picea mariana

Shrub

- [22.1] BOG BIRCH
Betula glandulosa
- [13.0] COMMON LABRADOR TEA*
Ledum groenlandicum
- [9.8] FLAT-LEAVED WILLOW*
Salix planifolia
- [8.7] BOG BILBERRY*
Vaccinium uliginosum
- [7.5] RED BEARBERRY
Arctostaphylos rubra
- [3.7] MYRTLE-LEAVED WILLOW
Salix myrtillifolia
- [2.3] CLOUDBERRY
Rubus chamaemorus
- [1.6] BOG WILLOW
Salix pedicellaris
- [1.2] DWARF BIRCH
Betula pumila

Forb

- [5.3] BUCK-BEAN
Menyanthes trifoliata

Lichen

- [1.2] REINDEER LICHEN
Cladina rangiferina

Moss and Liverwort

- [36.6] PEAT MOSS*
Sphagnum angustifolium
- [19.8] TUFTED MOSS*
Aulacomnium palustre
- [9.8] THIN-LEAFED PEAT MOSS
Sphagnum teres
- [7.1] PEAT MOSS
Sphagnum warnstorffii
- [4.7] N/A
Scorpidium scorpioides

Graminoid

- [5.0] INLAND SEDGE
Carex interior
- [2.3] NORTHERN REED GRASS
Calamagrostis inexpansa

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (2), Subhydic (moderately wet) (2)

Nutrient Regime: Eutrophic (very rich) (2), Mesotrophic (medium) (1), Permesotrophic (rich) (1)

Elevation (range): 890.5 (848-930) M

Slope (%):

Aspect:

Topographic Position: Depression (2), Lower Slope (1)

Soil Variables

Soil Drainage: Poorly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSE17 Sb/Willow/Peat moss (n=1)

(*Picea mariana*/*Salix spp.*/*Sphagnum spp.*)

This community is transitional between the bog and rich fen ecological sites, and as such has plants indicative of both ecological site types. It has nutrient poor indicator species; black spruce, Labrador tea, cloudberry and peatmoss; growing together with nutrient rich indicator species such as willow, horsetail and tufted moss.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydic/medium)

Ecosite Phase: i1 treed poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
BLACK SPRUCE (<i>Picea mariana</i>)	9.4	9.4-9.4	100	Moisture Regime: Subhydic (moderately moist) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Mesotrophic (medium) (1)
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	39.4	39.4-39.4	100	Elevation (range): 930 (930-930) M
Medium Shrub (0.5 to 2 m)				Slope (%):
BOG BIRCH (<i>Betula glandulosa</i>)	9.4	9.4-9.4	100	Aspect:
CLOUDBERRY (<i>Rubus chamaemorus</i>)	9.4	9.4-9.4	100	Topographic Position:
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	2.3	2.3-2.3	100	Soil Variables
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	2.3	2.3-2.3	100	Soil Drainage: Poorly drained (1)
Tall Forb (>= 30 cm)				Soil Subgroup:
MARSH WILLOWHERB (<i>Epilobium palustre</i>)	2.3	2.3-2.3	100	Surface Texture:
WOODLAND HORSETAIL (<i>Equisetum sylvaticum</i>)	2.3	2.3-2.3	100	Effective Texture:
Low Forb (< 30 cm)				Depth to Mottles/Gley:
LABRADOR BEDSTRAW (<i>Galium labradoricum</i>)	2.3	2.3-2.3	100	Organic Thickness:
Graminoid				Parent Material:
NORTHERN REED GRASS (<i>Calamagrostis inexpansa</i>)	9.4	9.4-9.4	100	Soil Type:
BROAD-FRUITED SEDGE (<i>Carex tenera</i>)	2.3	2.3-2.3	100	Humus Form
Moss				
THIN-LEAFED PEAT MOSS (<i>Sphagnum teres</i>)	39.4	39.4-39.4	100	
PEAT MOSS (<i>Sphagnum warnstorffii</i>)	21.9	21.9-21.9	100	
TUFTED MOSS (<i>Aulacomnium palustre</i>)	9.4	9.4-9.4	100	
N/A (<i>Pseudobryum cinclidioides</i>)	9.4	9.4-9.4	100	
COPPER WIRE MOSS (<i>Pohlia nutans</i>)	2.3	2.3-2.3	100	

BSE22 Lt-Sb/Bog birch-Willow/Peat moss (n=3)

(*Larix laricina*/*Betula glandulosa*-*Salix spp.*/*Sphagnum spp.*)

This community type is transitional between the rich fen and the bog ecological sites. Rich fens tend to be dominated by larch, willow and golden moss, whereas, bogs are dominated by black spruce, Labrador tea and peat moss.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydric/medium)

Ecosite Phase: i1 treed poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
TAMARACK (<i>Larix laricina</i>)	15.0	2.0-38.0	100	Moisture Regime: Subhydric (moderately wet) (2), Subhygric (moderately moist) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	2.6	0.0-5.0	67	Nutrient Regime: Eutrophic (very rich) (2), Permesotrophic (rich) (1)
Tall Shrub (2 to 5m)				Elevation (range): 851 (848-854) M
BOG WILLOW (<i>Salix pedicellaris</i>)	1.6	0.0-5.0	33	Slope (%):
Medium Shrub (0.5 to 2 m)				Aspect:
BOG BIRCH (<i>Betula glandulosa</i>)	36.0	0.0-63.0	67	Topographic Position: Depression (2), Lower Slope (1)
BOG WILLOW (<i>Salix pedicellaris</i>)	2.6	0.0-5.0	67	Soil Variables
DWARF BIRCH (<i>Betula pumila</i>)	1.6	0.0-5.0	33	Soil Drainage:
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	1.6	0.0-5.0	33	Soil Subgroup:
Low Forb (< 30 cm)				Surface Texture:
BUCK-BEAN (<i>Menyanthes trifoliata</i>)	14.3	0.0-38.0	67	Effective Texture:
Moss				Depth to Mottles/Gley:
PEAT MOSS (<i>Sphagnum angustifolium</i>)	71.0	63.0-80.0	100	Organic Thickness:
N/A (<i>Scorpidium scorpioides</i>)	12.6	0.0-38.0	33	Parent Material:
PEAT MOSS (<i>Sphagnum warnstorffii</i>)	4.3	0.0-10.0	67	Soil Type:
				Humus Form

i2 shrubby poor fen (n=11)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydic/medium)

Characteristic Species

Tree

- [2.0]BLACK SPRUCE
Picea mariana
- [1.3]BLACK SPRUCE
Picea mariana

Shrub

- [16.2]BOG BIRCH*
Betula glandulosa
- [5.4]BOG WILLOW
Salix pedicellaris
- [5.0]SMOOTH WILLOW*
Salix glauca
- [4.2]CLOUDBERRY
Rubus chamaemorus
- [3.1]RED BEARBERRY
Arctostaphylos rubra
- [2.7]COMMON LABRADOR TEA*
Ledum groenlandicum
- [2.6]BOG CRANBERRY
Vaccinium vitis-idaea
- [2.6]FLAT-LEAVED WILLOW*
Salix planifolia
- [2.0]SWEET GALE
Myrica gale
- [1.6]NORTHERN LABRADOR TEA
Ledum palustre

Moss and Liverwort

- [14.6]PEAT MOSS*
Sphagnum angustifolium
- [8.7]GOLDEN MOSS*
Tomenthypnum nitens
- [4.7]SQUARROSE PEAT MOSS
Sphagnum squarrosum
- [4.5]SHORE-GROWING PEAT MOSS
Sphagnum riparium
- [3.9]PEAT MOSS
Sphagnum wulfianum
- [2.1]GIRGENSOHN'S MOSS
Sphagnum girgensohnii

Graminoid

- [8.0]BLUEJOINT*
Calamagrostis canadensis
- [7.6]WATER SEDGE*
Carex aquatilis

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (5), Hydric (wet) (4), Subhydric (moderately wet) (1), Hygric (moist) (1)

Nutrient Regime: Mesotrophic (medium) (7), Permesotrophic (rich) (3), Submesotrophic (poor) (1)

Elevation (range): 935 (920-940) M

Slope (%): level (4)

Aspect: Level (1)

Topographic Position:Level (3), Toe (2), Depression (2)

Soil Variables

Soil Drainage: Poorly drained (6), Very poorly drained (4)

Soil Subgroup: FIBRIC ORGANIC CRYOSOL (2), MESIC ORGANIC CRYOSOL (1), TYPIC FIBRISOL (1), TYPIC MESISOL (1)

Surface Texture: Fibric (5)

Effective Texture: Fibric (4), Mesic (1)

Depth to Mottles/Gley:

Organic Thickness: >= 80 cm (2), 16 - 25 cm (2), 40 - 59 cm (1)

Parent Material:

Soil Type: Organic (5)

Humus Form

BSB13 Willow-Bog birch/Peat moss (n=7)

(*Salix spp*-*Betula glandulosa*/*Sphagnum spp.*)

This ecosite is intermediate between a bog and rich fen. It is distinguishable from a bog by having significant cover of species usually associated with a rich fen (e.g. willows, bog birch and golden moss). However, it has a poorer nutrient regime than rich fens, evident by the significant cover of bog-type plants such as Labrador tea and peat moss. If conditions are favorable for tree growth, black spruce and larch will become prominent changing the plant community to a treed poor fen.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhygric/medium)

Ecosite Phase: i2 shrubby poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
BLACK SPRUCE (<i>Picea mariana</i>)	2.3	0.0-5.0	86	Moisture Regime: Subhygric (moderately moist) (5), Hygric (moist) (1), Hydric (wet) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Mesotrophic (medium) (5), Permesotrophic (rich) (2)
BLACK SPRUCE (<i>Picea mariana</i>)	1.4	0.0-10.0	14	Elevation (range): 935 (920-940) M
Medium Shrub (0.5 to 2 m)				Slope (%): 0 - 0.49 (1)
CLOUDBERRY (<i>Rubus chamaemorus</i>)	11.7	0.0-39.4	71	Aspect:
BOG BIRCH (<i>Betula glandulosa</i>)	9.2	0.0-21.9	86	Topographic Position: Toe (2), Level (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	6.5	0.0-21.9	86	Soil Variables
SMOOTH WILLOW (<i>Salix glauca</i>)	5.0	0.0-20.0	29	Soil Drainage: Poorly drained (5), Very poorly drained (1)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	4.6	0.0-9.4	71	Soil Subgroup: MESIC ORGANIC CRYOSOL (1)
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	4.4	0.0-21.9	29	Surface Texture: Fibric (1)
SWEET GALE (<i>Myrica gale</i>)	2.8	0.0-20.0	14	Effective Texture: Mesic (1)
BOG WILLOW (<i>Salix pedicellaris</i>)	2.8	0.0-20.0	14	Depth to Mottles/Gley:
NORTHERN LABRADOR TEA (<i>Ledum palustre</i>)	1.9	0.0-6.0	43	Organic Thickness: 40 - 59 cm (1)
BLACK SPRUCE (<i>Picea mariana</i>)	1.7	0.0-10.0	29	Parent Material:
BOG ROSEMARY (<i>Andromeda polifolia</i>)	1.3	0.0-9.4	14	Soil Type: Organic (1)
LEATHERLEAF (<i>Chamaedaphne calyculata</i>)	1.3	0.0-9.4	14	Humus Form
Low Forb (< 30 cm)				
THREE-LEAVED SOLOMON'S-SEAL (<i>Smilacina trifolia</i>)	1.6	0.0-9.4	29	
Graminoid				
NORTHERN REED GRASS (<i>Calamagrostis inexpansa</i>)	3.4	0.0-9.4	71	
Moss				
PEAT MOSS (<i>Sphagnum angustifolium</i>)	16.3	0.0-55.0	57	
SQUARROSE PEAT MOSS (<i>Sphagnum squarrosum</i>)	13.4	0.0-55.0	29	
THIN-LEAFED PEAT MOSS (<i>Sphagnum teres</i>)	6.9	0.0-39.4	29	
GOLDEN MOSS (<i>Tomenthypnum nitens</i>)	5.7	0.0-40.0	14	
PEAT MOSS (<i>Sphagnum wulfianum</i>)	5.6	0.0-39.4	14	
COPPER WIRE MOSS (<i>Pohlia nutans</i>)	1.6	0.0-2.3	71	
SCHREBER'S MOSS (<i>Pleurozium schreberi</i>)	1.4	0.0-10.0	14	

BSB15 Bog birch/Water sedge/Peat moss (n=4)

(*Betula glandulosa*/*Carex aquatilis*/*Sphagnum spp.*)

This ecosite is intermediate between a bog and rich fen. This community has poor drainage and a medium nutrient regime. It is a shrubby phase poor fen, distinguishable from a bog by having significant cover of species usually associated with a rich fen (e.g. bog birch and sedges). The high covers of bog birch and water sedge are indicators that this community type has a slightly richer nutrient regime than the black spruce/willow/peat moss community (BSB13). If conditions are favorable for tree growth, black spruce and tamarack will become prominent changing the plant community to a treed poor fen.

Natural Subregion: Boreal Subarctic
Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydic/medium)
Ecosite Phase: i2 shrubby poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tall Shrub (2 to 5m)				Ecological Status Score: 25
BOG BIRCH (<i>Betula glandulosa</i>)	3.7	0.0-15.0	25	Moisture Regime: Hydric (wet) (3), Subhydic (moderately wet) (1)
Medium Shrub (0.5 to 2 m)				Nutrient Regime: Mesotrophic (medium) (2), Permesotrophic (rich) (1), Submesotrophic (poor) (1)
BOG BIRCH (<i>Betula glandulosa</i>)	15.0	0.0-40.0	75	Elevation (range): 0 (0-0) M
BOG WILLOW (<i>Salix pedicellaris</i>)	1.5	0.0-5.0	50	Slope (%): 0 - 0.49 (3)
Low Forb (< 30 cm)				Aspect: Level (1)
BUCK-BEAN (<i>Menyanthes trifoliata</i>)	1.2	0.0-5.0	25	Topographic Position: Level (2), Depression (2)
Graminoid				Soil Variables
WATER SEDGE (<i>Carex aquatilis</i>)	30.6	0.5-80.0	100	Soil Drainage: Very poorly drained (3), Poorly drained (1)
LENS-FRUITED SEDGE (<i>Carex lenticularis</i>)	1.0	0.0-3.0	50	Soil Subgroup: FIBRIC ORGANIC CRYOSOL (2), TYPIC FIBRISOL (1), TYPIC MESISOL (1)
Moss				Surface Texture: Fibric (4)
PEAT MOSS (<i>Sphagnum angustifolium</i>)	45.0	10.0-60.0	100	Effective Texture: Fibric (4)
SHORE-GROWING PEAT MOSS (<i>Sphagnum riparium</i>)	22.7	0.0-50.0	75	Depth to Mottles/Gley:
PENDANT BRANCH PEAT MOSS (<i>Sphagnum jensenii</i>)	8.7	0.0-30.0	50	Organic Thickness: >= 80 cm (2), 16 - 25 cm (2)
GOLDEN MOSS (<i>Tomenthypnum nitens</i>)	3.7	0.0-15.0	25	Parent Material:
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	2.7	0.0-10.0	50	Soil Type: Organic (4)
BROWN MOSS (<i>Drepanocladus tundrae</i>)	1.2	0.0-5.0	25	Humus Form

i3 graminoid poor fen (n=8)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydric/medium)

Characteristic Species

Shrub

- [2.2]BOG ROSEMARY
Andromeda polifolia

Forb

- [9.2]BUCK-BEAN
Menyanthes trifoliata

Moss and Liverwort

- [35.8]BROWN MOSS*
Drepanocladus revolvens
- [21.3]SQUARROSE PEAT MOSS*
Sphagnum squarrosum
- [18.0]N/A*
Scorpidium scorpioides
- [9.8]PENDANT BRANCH PEAT MOSS
Sphagnum jensenii
- [5.4]SHORE-GROWING PEAT MOSS
Sphagnum riparium
- [3.3]N/A
Meesia triquetra
- [2.3]PEAT MOSS
Sphagnum angustifolium

Graminoid

- [14.6]MUD SEDGE*
Carex limosa
- [3.8]FEW-FLOWERED SPIKE-RUSH
Eleocharis quinqueflora
- [2.3]WATER SEDGE*
Carex aquatilis
- [2.3]SMALL BOTTLE SEDGE
Carex utriculata
- [2.0]MARSH RUSH
Juncus stygius

Environmental Variables

Moisture Regime: Hygric (moist) (4), Subhygric (moderately moist) (3)

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

Elevation (range): 890.75 (854-940) M

Slope (%):

Aspect:

Topographic Position: Depression (2), Lower Slope (2), Toe (1)

Soil Variables

Soil Drainage: Poorly drained (6), Imperfectly drained (2)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSA6 Few-flower sedge-Water sedge/Peat moss (n=5)

(*Carex pauciflora*-*Carex aquatilis*/*Sphagnum spp.*)

This community is dominated by few-flower sedge and water sedge along with a significant sheathed cotton grass component and a moss layer of peat moss. When in a poor patterned fen complex this community type represents a flark community found on acidic substrates with associated poor nutrient regimes, where the water table is at or near the surface. This community is associated with poor string communities (Sb/cloudberry/peat moss).

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydic/medium)

Ecosite Phase: i3 graminoid poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 40
LEATHERLEAF (<i>Chamaedaphne calyculata</i>)	2.3	0.0-9.4	40	Moisture Regime: Hygric (moist) (3), Subhygric (moderately moist) (1)
BOG ROSEMARY (<i>Andromeda polifolia</i>)	1.5	0.0-3.0	60	Nutrient Regime: Mesotrophic (medium) (3), Permesotrophic (rich) (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	1.3	0.0-2.3	60	Elevation (range): 915 (854-940) M
Low Forb (< 30 cm)				Slope (%):
THREE-LEAVED SOLOMON'S-SEAL (<i>Smilacina trifolia</i>)	12.5	0.0-21.9	80	Aspect:
Graminoid				Topographic Position: Depression (2)
FEW-FLOWERED SEDGE (<i>Carex pauciflora</i>)	26.8	0.0-85.5	60	Soil Variables
WATER SEDGE (<i>Carex aquatilis</i>)	14.4	0.0-63.0	40	Soil Drainage: Poorly drained (4), Imperfectly drained (1)
SHEATHED COTTON GRASS (<i>Eriophorum vaginatum</i>)	4.0	0.0-15.5	60	Soil Subgroup:
SHORT SEDGE (<i>Carex curta</i>)	2.3	0.0-9.4	40	Surface Texture:
Moss				Effective Texture:
SHORE-GROWING PEAT MOSS (<i>Sphagnum riparium</i>)	26.3	0.0-55.0	60	Depth to Mottles/Gley:
PEAT MOSS (<i>Sphagnum angustifolium</i>)	11.6	0.0-39.4	60	Organic Thickness:
PENDANT BRANCH PEAT MOSS (<i>Sphagnum jensenii</i>)	9.3	0.0-21.9	60	Parent Material:
LINDBERG'S BOG MOSS (<i>Sphagnum lindbergii</i>)	7.8	0.0-39.4	20	Soil Type:
RUSTY PEAT MOSS (<i>Sphagnum fuscum</i>)	7.6	0.0-38.0	20	Humus Form
N/A (<i>Calliergon stramineum</i>)	2.0	0.0-9.4	40	
LIVERWORT (<i>Mylia anomala</i>)	1.3	0.0-2.3	60	

BSA7 Few-flowered spike-rush/Peat moss (n=1)

(*Eleocharis quinqueflora/Sphagnum spp.*)

This community occurs in the transition between a patterned fen and upland black spruce forest. Few-flowered spike-rush and peat moss dominate the community with scattered bog birch, sedge and bog rosemary cover. This community is found on acidic substrates with associated poor nutrient regimes and imperfect to poor drainage.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhygric/medium)

Ecosite Phase: i3 graminoid poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
TAMARACK (<i>Larix laricina</i>)	1.0	1.0-1.0	100	Moisture Regime: Subhygric (moderately moist) (1)
BLACK SPRUCE (<i>Picea mariana</i>)	1.0	1.0-1.0	100	Nutrient Regime: Permesotrophic (rich) (1)
Tall Shrub (2 to 5m)				Elevation (range): 854 (854-854) M
BOG BIRCH (<i>Betula glandulosa</i>)	3.0	3.0-3.0	100	Slope (%):
Medium Shrub (0.5 to 2 m)				Aspect:
BOG ROSEMARY (<i>Andromeda polifolia</i>)	3.0	3.0-3.0	100	Topographic Position: Lower Slope (1)
CLOUDBERRY (<i>Rubus chamaemorus</i>)	1.0	1.0-1.0	100	Soil Variables
BOG WILLOW (<i>Salix pedicellaris</i>)	1.0	1.0-1.0	100	Soil Drainage: Imperfectly drained (1)
Tall Forb (>= 30 cm)				Soil Subgroup:
MARSH CINQUEFOIL (<i>Potentilla palustris</i>)	1.0	1.0-1.0	100	Surface Texture:
Low Forb (< 30 cm)				Effective Texture:
BUCK-BEAN (<i>Menyanthes trifoliata</i>)	1.0	1.0-1.0	100	Depth to Mottles/Gley:
LABRADOR LOUSEWORT (<i>Pedicularis labradorica</i>)	1.0	1.0-1.0	100	Organic Thickness:
Graminoid				Parent Material:
FEW-FLOWERED SPIKE-RUSH (<i>Eleocharis quinqueflora</i>)	15.5	15.5-15.5	100	Soil Type:
MUD SEDGE (<i>Carex limosa</i>)	3.0	3.0-3.0	100	Humus Form
Moss				
SQUARROSE PEAT MOSS (<i>Sphagnum squarrosum</i>)	85.5	85.5-85.5	100	
GOLDEN MOSS (<i>Tomenthypnum nitens</i>)	1.0	1.0-1.0	100	

BSA9 Mud sedge/Brown moss (n=1)

(*Carex limosa/Drepanocladus revolvens*)

In a patterned fen complex this community is found on palsas with rich-medium nutrient regimes and imperfect to poor drainage. It is found 15-20cm higher than the surrounding flark, and is associated with rich flarks. Mud sedge and brown moss dominate the community, while scorpidium moss is reduced in cover due to slightly drier conditions in relation to the surrounding areas. The high cover of brown moss indicates that this community type has a slightly higher nutrient content than the Mud sedge/Peat moss dominated community type (BSA5).

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydic/medium)

Ecosite Phase: i3 graminoid poor fen

Plant Composition

Canopy Cover (%)

Environmental Variables

	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 40
BOG ROSEMARY (<i>Andromeda polifolia</i>)	3.0	3.0-3.0	100	Moisture Regime: Subhygric (moderately moist) (1)
Low Forb (< 30 cm)				Nutrient Regime: Permesotrophic (rich) (1)
OBLONG-LEAVED SUNDEW (<i>Drosera anglica</i>)	1.0	1.0-1.0	100	Elevation (range): 854 (854-854) M
Graminoid				Slope (%):
MUD SEDGE (<i>Carex limosa</i>)	38.0	38.0-38.0	100	Aspect:
Moss				Topographic Position: Lower Slope (1)
BROWN MOSS (<i>Drepanocladus revolvens</i>)	98.0	98.0-98.0	100	Soil Variables
N/A (<i>Meesia triquetra</i>)	3.0	3.0-3.0	100	Soil Drainage: Poorly drained (1)
N/A (<i>Scorpidium scorpioides</i>)	3.0	3.0-3.0	100	Soil Subgroup:
				Surface Texture:
				Effective Texture:
				Depth to Mottles/Gley:
				Organic Thickness:
				Parent Material:
				Soil Type:
				Humus Form

BSB10 Buckbean/Sedge/Peat moss (n=1)

(*Menyanthes trifoliata*/*Carex spp.*/*Sphagnum spp.*)

This community is transitional between the bog and rich fen ecological sites, and as such has plants indicative of both ecological site types. It has very poor drainage and is too wet for tree growth. There is a medium nutrient regime, indicated by the combination of poor nutrient regime indicator species; bog rosemary and peat moss, along with richer indicator species such as buckbean and brown moss.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: i poor fen (subhydric/medium)

Ecosite Phase: i3 graminoid poor fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 40
BOG ROSEMARY (<i>Andromeda polifolia</i>)	2.3	2.3-2.3	100	Moisture Regime: Hygric (moist) (1)
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	2.3	2.3-2.3	100	Nutrient Regime: Mesotrophic (medium) (1)
Low Forb (< 30 cm)				Elevation (range): 940 (940-940) M
BUCK-BEAN (<i>Menyanthes trifoliata</i>)	9.4	9.4-9.4	100	Slope (%):
THREE-LEAVED SOLOMON'S-SEAL (<i>Smilacina trifolia</i>)	2.3	2.3-2.3	100	Aspect:
Graminoid				Topographic Position: Toe (1)
WATER SEDGE (<i>Carex aquatilis</i>)	9.4	9.4-9.4	100	Soil Variables
SMALL BOTTLE SEDGE (<i>Carex utriculata</i>)	9.4	9.4-9.4	100	Soil Drainage: Poorly drained (1)
Moss				Soil Subgroup:
PENDANT BRANCH PEAT MOSS (<i>Sphagnum jensenii</i>)	39.4	39.4-39.4	100	Surface Texture:
SHORE-GROWING PEAT MOSS (<i>Sphagnum riparium</i>)	21.9	21.9-21.9	100	Effective Texture:
BROWN MOSS (<i>Drepanocladus exannulatus</i>)	9.4	9.4-9.4	100	Depth to Mottles/Gley:
PEAT MOSS (<i>Sphagnum angustifolium</i>)	9.4	9.4-9.4	100	Organic Thickness:
PEAT MOSS (<i>Sphagnum majus</i>)	2.3	2.3-2.3	100	Parent Material:
				Soil Type:
				Humus Form

j rich fen (subhydic/rich) (n=18)

Natural Subregion: Boreal Subarctic

General Description

The rich fen ecosite is characterized by flowing water and alkaline, nutrient-rich conditions. The soils are composed of organic matter derived from decomposing sedges as well as golden, tufted and brown mosses. Organic matter accumulations may act to insulate the soil and allow frozen soil horizons to persist. Tamarack dominates the canopy on the treed phase, while the shrubby and graminoid phases are dominated by non-ericaceous shrubs, sedges, grasses, reeds and brown mosses.



Successional Relationships

The hydrarch succession characteristic of this ecosite occurs over periods of hundreds to thousands of years. Recovery from disturbance is extremely slow. Changing hydrologic regimes may result in disturbances that influence the direction and rate of succession. These systems are dependent on water flow through them and impeding this flow may result in the reduction or elimination of tree cover, along with changes in the shrub, forb and grass layers.

Indicator Species

Tree

TAMARACK
Larix laricina

Shrub

FLAT-LEAVED WILLOW
Salix planifolia

FLAT-LEAVED WILLOW
Salix planifolia

Forb

BUCK-BEAN
Menyanthes trifoliata

Moss and Liverwort

BROWN MOSS
Drepanocladus

GOLDEN MOSS
Tomenthypnum nitens

Graminoid

BLUEJOINT
Calamagrostis canadensis

WATER SEDGE
Carex aquatilis

SMALL BOTTLE SEDGE
Carex utriculata

Ecosection: BSR Boreal Subarctic

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (6), Hygric (wet) (3), Hygric (moist) (3), Mesic (fresh) (3), Subhydic (moderately wet) (3)

Nutrient Regime: Permesotrophic (rich) (10), Mesotrophic (medium) (5), Eutrophic (very rich) (2), Submesotrophic (poor) (1)

Elevation (range): 876 (852-940) M

Slope (%): level (8), nearly level (2)

Aspect: Southerly (1)

Topographic Position: Depression (5), Level (2), Lower Slope (2), Toe (1)

Soil Variables

Soil Drainage: Very poorly drained (5), Poorly drained (3), Imperfectly drained (2), Well drained (1)

Soil Subgroup: GLEYED STATIC CRYOSOL (2), HUMIC ORGANIC CRYOSOL (1), MESIC ORGANIC CRYOSOL (1), TYPIC FIBRISOL (1), TYPIC HUMISOL (1)

Surface Texture: Fibric (2), Loam (1), Mesic (1), Sandy loam (1), Silt loam (1)

Effective Texture: Fibric (1), Humic (1), Loam (1), Mesic (1), Sandy loam (1), Silt loam (1)

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

Organic Thickness: 0 - 5 cm (2), 40 - 59 cm (2), 60 - 79 cm (1), >= 80 cm (1)

Parent Material: Fluvial (2)

Soil Type: Organic (4), Wet/Mineral (2)

Humus Form

j1 treed rich fen (n=1)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydric/rich)

Characteristic Species

Tree

[2.0] TAMARACK*

Larix laricina

Shrub

[5.0] FLAT-LEAVED WILLOW

Salix planifolia

[5.0] BOG WILLOW

Salix pedicellaris

[5.0] DWARF BIRCH

Betula pumila

Moss and Liverwort

[60.0] GOLDEN MOSS*

Tomenthypnum nitens

Environmental Variables

Moisture Regime: Subhydric (moderately wet) (1)

Nutrient Regime: Eutrophic (very rich) (1)

Elevation (range): 852 (852-852) M

Slope (%):

Aspect:

Topographic Position: Depression (1)

Soil Variables

Soil Drainage: Imperfectly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSE20 Lt/Willow-Dwarf birch/Golden moss (n=1)

(*Larix laricina*/*Salix spp.*-*Betula pumila*/*Tomentypnum nitens*)

This is a rich fen community that can also be found in a rich string patterned fen. The community type is found more than 15 cm above the water table, and provides dry microsites suitable for limited tree growth. This community has a rich nutrient regime and imperfect to poor drainage. Rich fen type vegetation dominates these strings. A sparse tamarack canopy is found over an understory of dwarf birch and willow species, with a golden moss layer.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j1 treed rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 25
TAMARACK (<i>Larix laricina</i>)	2.0	2.0-2.0	100	Moisture Regime: Subhydric (moderately wet) (1)
Tall Shrub (2 to 5m)				Nutrient Regime: Eutrophic (very rich) (1)
DWARF BIRCH (<i>Betula pumila</i>)	5.0	5.0-5.0	100	Elevation (range): 852 (852-852) M
Medium Shrub (0.5 to 2 m)				Slope (%):
BOG WILLOW (<i>Salix pedicellaris</i>)	5.0	5.0-5.0	100	Aspect:
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	5.0	5.0-5.0	100	Topographic Position: Depression (1)
Moss				Soil Variables
GOLDEN MOSS (<i>Tomentypnum nitens</i>)	60.0	60.0-60.0	100	Soil Drainage: Imperfectly drained (1)
				Soil Subgroup:
				Surface Texture:
				Effective Texture:
				Depth to Mottles/Gley:
				Organic Thickness:
				Parent Material:
				Soil Type:
				Humus Form

j2 shrubby rich fen (n=7)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydic/rich)

Characteristic Species

Shrub

- [30.6]FLAT-LEAVED WILLOW*
Salix planifolia
- [2.5]MYRTLE-LEAVED WILLOW
Salix myrtillofolia
- [2.3]SMOOTH WILLOW
Salix glauca
- [1.5]BOG BIRCH
Betula glandulosa
- [1.5]COMMON LABRADOR TEA
Ledum groenlandicum

Moss and Liverwort

- [1.8]PEAT MOSS
Sphagnum angustifolium
- [1.0]TUFTED MOSS
Aulacomnium palustre

Graminoid

- [48.3]WATER SEDGE*
Carex aquatilis
- [7.1]BLUEJOINT
Calamagrostis canadensis
- [2.6]SMALL BOTTLE SEDGE
Carex utriculata

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (2), Hygric (moist) (2), Subhydic (moderately wet) (1), Mesic (fresh) (1), Hydric (wet) (1)

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

Elevation (range): 854 (854-854) M

Slope (%): level (4), nearly level (2)

Aspect: Southerly (1)

Topographic Position: Depression (3), Level (2)

Soil Variables

Soil Drainage: Very poorly drained (3), Well drained (1), Poorly drained (1)

Soil Subgroup: GLEYED STATIC CRYOSOL (2), HUMIC ORGANIC CRYOSOL (1), MESIC ORGANIC CRYOSOL (1)

Surface Texture: Silt loam (1), Fibric (1), Loam (1), Sandy loam (1)

Effective Texture: Silt loam (1), Humic (1), Loam (1), Sandy loam (1)

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

Organic Thickness: 0 - 5 cm (2), 40 - 59 cm (1), 60 - 79 cm (1)

Parent Material: Fluvial (2)

Soil Type: Organic (2), Wet/Mineral (2)

Humus Form

BSB12 Willow/Water sedge (n=6)

(*Salix spp./Carex aquatilis*)

This community type is found along the edges of sedge fens (meadows) and in moist depressions. Willow becomes established at the edges of the sedge fens due to the shorter duration of standing water. Increased flooding and prolonged water-logging may result in the disappearance of willow and a transition to a sedge fen.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydryc/rich)

Ecosite Phase: j2 shrubby rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Tall Shrub (2 to 5m)				Ecological Status Score: 40
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	13.0	0.0-50.0	50	Moisture Regime: Hygric (moist) (2), Mesic (fresh) (1), Subhygric (moderately moist) (1), Subhydryc (moderately wet) (1), Hydryc (wet) (1)
Medium Shrub (0.5 to 2 m)				Nutrient Regime: Permesotrophic (rich) (4), Mesotrophic (medium) (2)
FLAT-LEAVED WILLOW (<i>Salix planifolia</i>)	17.6	0.0-60.0	50	Elevation (range): 0 (0-0) M
MYRTLE-LEAVED WILLOW (<i>Salix myrtilifolia</i>)	2.5	0.0-15.0	17	Slope (%): 0 - 0.49 (4), 0.5 - 2.49 (2)
SMOOTH WILLOW (<i>Salix glauca</i>)	2.3	0.0-14.0	17	Aspect: Southerly (1)
BOG BIRCH (<i>Betula glandulosa</i>)	1.5	0.0-5.0	33	Topographic Position: Level (2), Depression (2)
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	1.5	0.0-9.0	17	Soil Variables
Graminoid				Soil Drainage: Very poorly drained (2), Well drained (1), Poorly drained (1)
WATER SEDGE (<i>Carex aquatilis</i>)	48.3	20.0-60.0	100	Soil Subgroup: GLEYED STATIC CRYOSOL (2), HUMIC ORGANIC CRYOSOL (1), MESIC ORGANIC CRYOSOL (1)
BLUEJOINT (<i>Calamagrostis canadensis</i>)	7.1	0.0-20.0	67	Surface Texture: Loam (1), Silt loam (1), Sandy loam (1), Fibric (1)
SMALL BOTTLE SEDGE (<i>Carex utriculata</i>)	2.6	0.0-15.0	33	Effective Texture: Loam (1), Silt loam (1), Sandy loam (1), Humic (1)
Moss				Depth to Mottles/Gley: 0 - 25 (2), 51 - 100 (1)
PEAT MOSS (<i>Sphagnum angustifolium</i>)	1.8	0.0-10.0	33	Organic Thickness: 0 - 5 cm (2), 60 - 79 cm (1), 40 - 59 cm (1)
TUFTED MOSS (<i>Aulacomnium palustre</i>)	1.0	0.0-5.0	33	Parent Material: Fluvial (2)
				Soil Type: Organic (2), Wet/Mineral (2)
				Humus Form

BSB18 Willow-Bog birch/Marsh reedgrass (Bluejoint) (n=1)

(*Salix spp.*-*Betula glandulosa*/*Calamagrostis canadensis*)

This transitional community can be found in the transition zones between strings and flarks in patterned fens. These are rich communities dominated by bog birch, willow and marsh reedgrass. The nutrient regime is medium to rich, and drainage is imperfect to poor. Increased flooding and prolonged waterlogging may result in the disappearance of willow and a transition to a graminoid fen.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydryc/rich)

Ecosite Phase: j2 shrubby rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Overstory Tree				Ecological Status Score: 40
BLACK SPRUCE (<i>Picea mariana</i>)	1.0	1.0-1.0	100	Moisture Regime: Subhydryc (moderately moist) (1)
Medium Shrub (0.5 to 2 m)				Nutrient Regime: Mesotrophic (medium) (1)
BOG BIRCH (<i>Betula glandulosa</i>)	38.0	38.0-38.0	100	Elevation (range): 854 (854-854) M
RED BEARBERRY (<i>Arctostaphylos rubra</i>)	15.5	15.5-15.5	100	Slope (%):
BOG WILLOW (<i>Salix pedicellaris</i>)	15.5	15.5-15.5	100	Aspect:
COMMON LABRADOR TEA (<i>Ledum groenlandicum</i>)	3.0	3.0-3.0	100	Topographic Position: Depression (1)
BOG ROSEMARY (<i>Andromeda polifolia</i>)	1.0	1.0-1.0	100	Soil Variables
CLOUDBERRY (<i>Rubus chamaemorus</i>)	1.0	1.0-1.0	100	Soil Drainage: Very poorly drained (1)
BOG BILBERRY (<i>Vaccinium uliginosum</i>)	1.0	1.0-1.0	100	Soil Subgroup:
Tall Forb (>= 30 cm)				Surface Texture:
MARSH CINQUEFOIL (<i>Potentilla palustris</i>)	1.0	1.0-1.0	100	Effective Texture:
Low Forb (< 30 cm)				Depth to Mottles/Gley:
LABRADOR LOUSEWORT (<i>Pedicularis labradorica</i>)	1.0	1.0-1.0	100	Organic Thickness:
Graminoid				Parent Material:
BLUEJOINT (<i>Calamagrostis canadensis</i>)	38.0	38.0-38.0	100	Soil Type:
				Humus Form

j3 graminoid rich fen (n=10)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydic/rich)

Characteristic Species

Forb

- [3.3]BUCK-BEAN*
Menyanthes trifoliata

Moss and Liverwort

- [20.0]N/A
Scorpidium scorpioides
- [6.6]BROWN MOSS*
Drepanocladus
- [5.1]SHORE-GROWING PEAT MOSS
Sphagnum riparium
- [4.5]PEAT MOSS
Sphagnum
- [3.4]PEAT MOSS
Sphagnum angustifolium
- [2.4]PENDANT BRANCH PEAT MOSS
Sphagnum jensenii

Graminoid

- [15.4]BLUEJOINT*
Calamagrostis canadensis
- [9.8]SMALL BOTTLE SEDGE*
Carex utriculata
- [9.2]WATER SEDGE*
Carex aquatilis

Environmental Variables

Moisture Regime: Subhygric (moderately moist) (4), Hydric (wet) (2), Mesic (fresh) (2), Subhydic (moderately wet) (1), Hygric (moist) (1)

Nutrient Regime: Permesotrophic (rich) (6), Mesotrophic (medium) (2), Eutrophic (very rich) (1), Submesotrophic (poor) (1)

Elevation (range): 891.33 (854-940) M

Slope (%): level (4)

Aspect:

Topographic Position: Lower Slope (2), Depression (1), Toe (1)

Soil Variables

Soil Drainage: Very poorly drained (2), Poorly drained (2), Imperfectly drained (1)

Soil Subgroup: TYPIC FIBRISOL (1), TYPIC HUMISOL (1)

Surface Texture: Fibric (1), Mesic (1)

Effective Texture: Fibric (1), Mesic (1)

Depth to Mottles/Gley:

Organic Thickness: 40 - 59 cm (1), >= 80 cm (1)

Parent Material:

Soil Type: Organic (2)

Humus Form

BSA3 Marsh reedgrass (Bluejoint)-Water sedge (n=1)

(*Calamagrostis canadensis*-*Carex aquatilis*)

This plant community is found along the edges of marsh reedgrass and sedge fen meadows and in moist depressions. It has a rich nutrient regime and poor drainage, indicated by the lack of tree and shrub cover. Marsh reedgrass dominates. If the site dries, willows will invade onto these sites to form the Willow/Reed grass fen

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydic/rich)

Ecosite Phase: j3 graminoid rich fen

Plant Composition

Canopy Cover (%)

	Mean	Range	Const.
Graminoid			
BLUEJOINT (<i>Calamagrostis canadensis</i>)	45.0	45.0-45.0	100
WATER SEDGE (<i>Carex aquatilis</i>)	10.0	10.0-10.0	100

Environmental Variables

Ecological Status Score: 40

Moisture Regime: Subhydic (moderately moist) (1)

Nutrient Regime: Permesotrophic (rich) (1)

Elevation (range): 912 (912-912) M

Slope (%):

Aspect:

Topographic Position: Toe (1)

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSA4 Small-bottle sedge-Water sedge meadow (n=6)

(*Carex spp.*)

This community is found near fresh water bodies and in moist depressions where the water table is at or near the surface for part of the growing season. It is dominated by carex species, and associated with the marsh reedgrass/water sedge community at its drier edges. Tall sedges are the defining and leading genus (i.e. *Carex*) for this plant community. Reed grasses (i.e. *Calamagrostis*) may also occur, but are subdominant in this community type. Willows can be present at less than 30% cover. This community occurs on rich humic gleysols or organic soils that receive additional moisture and nutrients from the adjacent uplands. The leading sedge species may be site dependant. For example, beaked sedge is usually associated with nitrogen rich conditions and moving water (Brierly et al. 1985) while, water sedge is often associated with calcium rich stagnant water (MacKinnon et al. 1992).

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydric/rich)

Ecosite Phase: j3 graminoid rich fen

Plant Composition

Canopy Cover (%)

Environmental Variables

	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 40
BOG CRANBERRY (<i>Vaccinium vitis-idaea</i>)	1.5	0.0-9.4	17	Moisture Regime: Mesic (fresh) (2), Subhygric (moderately moist) (2), Hygric (moist) (1), Hydric (wet) (1)
BOG WILLOW (<i>Salix pedicellaris</i>)	1.1	0.0-4.0	33	Nutrient Regime: Permesotrophic (rich) (3), Mesotrophic (medium) (2), Submesotrophic (poor) (1)
Tall Forb (>= 30 cm)				Elevation (range): 908 (854-940) M
MARSH CINQUEFOIL (<i>Potentilla palustris</i>)	2.5	0.0-7.0	50	Slope (%): 0 - 0.49 (3)
Graminoid				Aspect:
SMALL BOTTLE SEDGE (<i>Carex utriculata</i>)	29.6	0.0-80.0	50	Topographic Position: Lower Slope (1), Depression (1)
WATER SEDGE (<i>Carex aquatilis</i>)	17.6	2.0-39.4	100	Soil Variables
MUD SEDGE (<i>Carex limosa</i>)	3.3	0.0-9.4	50	Soil Drainage: Poorly drained (2), Very poorly drained (1), Imperfectly drained (1)
LENS-FRUITED SEDGE (<i>Carex lenticularis</i>)	2.5	0.0-15.0	17	Soil Subgroup: TYPIC FIBRISOL (1)
TUMBLE GRASS (<i>Schedonnardus paniculatus</i>)	1.6	0.0-10.0	17	Surface Texture: Fibric (1)
BLUEJOINT (<i>Calamagrostis canadensis</i>)	1.3	0.0-5.0	33	Effective Texture: Fibric (1)
GRACEFUL MANNA GRASS (<i>Glyceria pulchella</i>)	1.1	0.0-7.0	17	Depth to Mottles/Gley:
Moss				Organic Thickness: 40 - 59 cm (1)
SHORE-GROWING PEAT MOSS (<i>Sphagnum riparium</i>)	15.4	0.0-39.4	67	Parent Material:
PEAT MOSS (<i>Sphagnum</i>)	13.5	0.0-80.0	33	Soil Type: Organic (1)
PEAT MOSS (<i>Sphagnum angustifolium</i>)	10.2	0.0-39.4	33	Humus Form
PENDANT BRANCH PEAT MOSS (<i>Sphagnum jensenii</i>)	7.3	0.0-21.9	33	
BROWN MOSS (<i>Drepanocladus fluitans</i>)	2.3	0.0-14.0	17	

BSA8 Buckbean/Mud sedge/Scorpidium moss (n=3)

(*Menyanthes trifoliata*/*Carex limosa*/*Scorpidium scorpioides*)

In a patterned fen complex this community represents a flark community and is found in areas with a rich nutrient regime, where the water table is at or near the surface. The community is dominated by buckbean along with a smaller mud sedge component and a continuous carpet of the dominant scorpidium moss along with brown moss.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: j rich fen (subhydic/rich)

Ecosite Phase: j3 graminoid rich fen

Plant Composition	Canopy Cover (%)			Environmental Variables
	Mean	Range	Const.	
Medium Shrub (0.5 to 2 m)				Ecological Status Score: 40 Moisture Regime: Subhydic (moderately moist) (1), Subhydic (moderately wet) (1), Hydic (wet) (1) Nutrient Regime: Permesotrophic (rich) (2), Eutrophic (very rich) (1) Elevation (range): 854 (854-854) M Slope (%): 0 - 0.49 (1) Aspect: Topographic Position: Lower Slope (1)
BOG ROSEMARY (<i>Andromeda polifolia</i>)	0.5	0.0-1.0	67	
Low Forb (< 30 cm)				
BUCK-BEAN (<i>Menyanthes trifoliata</i>)	21.0	10.0-38.0	100	
OBLONG-LEAVED SUNDEW (<i>Drosera anglica</i>)	0.5	0.0-1.0	67	
Graminoid				
MUD SEDGE (<i>Carex limosa</i>)	11.8	0.0-20.0	67	
MARSH RUSH (<i>Juncus stygius</i>)	5.5	0.5-15.0	100	
LENS-FRUITED SEDGE (<i>Carex lenticularis</i>)	0.6	0.0-2.0	33	
TWO-STAMENED SEDGE (<i>Carex diandra</i>)	0.3	0.0-1.0	33	
SLENDER COTTON GRASS (<i>Eriophorum gracile</i>)	0.3	0.0-1.0	33	
Moss				
N/A (<i>Scorpidium scorpioides</i>)	66.0	40.0-98.0	100	
BROWN MOSS (<i>Drepanocladus revolvens</i>)	30.1	0.0-85.5	67	
N/A (<i>Meesia triquetra</i>)	7.0	0.5-15.5	100	
				Soil Variables
				Soil Drainage: Very poorly drained (1)
				Soil Subgroup: TYPIC HUMISOL (1)
				Surface Texture: Mesic (1)
				Effective Texture: Mesic (1)
				Depth to Mottles/Gley:
				Organic Thickness: >= 80 cm (1)
				Parent Material:
				Soil Type: Organic (1)
				Humus Form

I marsh (hydric/rich) (n=5)

Natural Subregion: Boreal Subarctic

General Description

The marsh ecosite is found in level and depressional areas and around the shoreline of water bodies and riparian zones. It is a shallowly flooded mineral wetland dominated by emergent graminoid vegetation, where the water is above the rooting zone for a portion of the growing season.



Successional Relationships

The marsh ecosite is representative of the beginning stages of hydrarch succession. It can be considered successional stable, where changes in plant community composition are determined largely by disturbance regime.

Indicator Species

Forb

SWAMP HORSETAIL

Equisetum fluviatile

YELLOW POND-LILY

Nuphar variegatum

WHITE-STEM PONDWEED

Potamogeton praelongus

CLASPING-LEAF PONDWEED

Potamogeton richardsonii

COMMON CATTAIL

Typha latifolia

Ecosection: BSR Boreal Subarctic

Environmental Variables

Moisture Regime: Hydric (wet) (4), Hygric (moist) (1)

Nutrient Regime: Permesotrophic (rich) (3), Eutrophic (very rich) (2)

Elevation (range): 781.67 (661-930) M

Slope (%): level (1)

Aspect:

Topographic Position: Depression (3), Toe (1)

Soil Variables

Soil Drainage: Very poorly drained (2)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

I1 marsh (n=5)

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: I marsh (hydric/rich)

Characteristic Species

Forb

- [16.6] SWAMP HORSETAIL*
Equisetum fluviatile
- [8.3] COMMON CATTAIL*
Typha latifolia
- [2.4] WHITE-STEM PONDWEED*
Potamogeton praelongus
- [2.2] CLASPING-LEAF PONDWEED*
Potamogeton richardsonii
- [1.5] YELLOW POND-LILY*
Nuphar variegatum
- [1.5] WATER SMARTWEED
Polygonum amphibium

Graminoid

- [1.6] SMALL BOTTLE SEDGE
Carex utriculata

Environmental Variables

Moisture Regime: Hydric (wet) (4), Hygric (moist) (1)
Nutrient Regime: Permesotrophic (rich) (3), Eutrophic (very rich) (2)
Elevation (range): 781.67 (661-930) M
Slope (%): level (1)
Aspect:
Topographic Position: Depression (3), Toe (1)

Soil Variables

Soil Drainage: Very poorly drained (2)
Soil Subgroup:
Surface Texture:
Effective Texture:
Depth to Mottles/Gley:
Organic Thickness:
Parent Material:
Soil Type:
Humus Form

BSA10 Pondweed (n=3)

(*Potamogeton spp.*)

This wetland community is found in fresh water bodies, in the shallow edges of lakes, in sheltered bays, or in small ponds. They are found in areas that have significant water cover throughout the year, and are dominated by pondweed, yellow pond-lily and water smartweed.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: I marsh (hydric/rich)

Ecosite Phase: I1 marsh

Plant Composition

Canopy Cover (%)

Environmental Variables

	Mean	Range	Const.
Tall Forb (>= 30 cm)			
WHITE-STEM PONDWEED (<i>Potamogeton praelongus</i>)	7.3	0.0-20.0	67
CLASPING-LEAF PONDWEED (<i>Potamogeton richardsonii</i>)	6.6	0.0-20.0	33
YELLOW POND-LILY (<i>Nuphar variegatum</i>)	4.6	0.0-14.0	33
WATER SMARTWEED (<i>Polygonum amphibium</i>)	4.6	0.0-14.0	33
NARROW-LEAVED BUR-REED (<i>Sparganium angustifolium</i>)	0.1	0.0-0.5	33

Ecological Status Score: 25

Moisture Regime: Hydric (wet) (2), Hygric (moist) (1)

Nutrient Regime: Permesotrophic (rich) (2), Eutrophic (very rich) (1)

Elevation (range): 754 (663-845) M

Slope (%): 0 - 0.49 (1)

Aspect:

Topographic Position: Depression (2)

Soil Variables

Soil Drainage:

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSA11 Cattail (n=1)

(*Typha latifolia*)

This wetland community is associated with fresh water bodies, and is found in the shallow water areas around lake shores, or saturated wet depressions. It is often found in isolated spots or as narrow bands around lakes or sloughs. As these areas dry they undergo succession to fen type communities.

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: I marsh (hydric/rich)

Ecosite Phase: I1 marsh

Plant Composition

Canopy Cover (%)

Environmental Variables

Tall Forb (>= 30 cm)

COMMON CATTAIL
(*Typha latifolia*)

Mean	Range	Const.
25.0	25.0-25.0	100

Ecological Status Score: 25

Moisture Regime: Hydric (wet) (1)

Nutrient Regime: Eutrophic (very rich) (1)

Elevation (range): 930 (930-930) M

Slope (%):

Aspect:

Topographic Position: Depression (1)

Soil Variables

Soil Drainage: Very poorly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

BSA12 Swamp horsetail (n=1)

(*Equisetum fluviatile*)

This community is found in shallow water at lake margins, marshes, and saturated wet depressions with a muddy substrate (Allen et al. 2006). The nutrient regime is rich. Allen et al. (2006) described this community type at the north end of Wentzel Lake in the Caribou Mountains Wildland Park

Natural Subregion: Boreal Subarctic

Ecosection: BSR Boreal Subarctic

Ecosite: I marsh (hydric/rich)

Ecosite Phase: I1 marsh

Plant Composition

Canopy Cover (%)

Tall Forb (>= 30 cm)

SWAMP HORSETAIL
(*Equisetum fluviatile*)

Mean Range Const.
50.0 50.0-50.0 100

Graminoid

SMALL BOTTLE SEDGE
(*Carex utriculata*)

5.0 5.0-5.0 100

Environmental Variables

Ecological Status Score: 25

Moisture Regime: Hydric (wet) (1)

Nutrient Regime: Permesotrophic (rich) (1)

Elevation (range): 661 (661-661) M

Slope (%):

Aspect:

Topographic Position: Toe (1)

Soil Variables

Soil Drainage: Very poorly drained (1)

Soil Subgroup:

Surface Texture:

Effective Texture:

Depth to Mottles/Gley:

Organic Thickness:

Parent Material:

Soil Type:

Humus Form

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Appendix 1. Forest Management Interpretations¹

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 Boreal Subarctic Subregion.

ECOSITE_CODE	ECOSECTION	DROUGHT	EXCESS_MOIST	RUTTING	COMPACTION	SOIL_TEMP	COMPETITION	WINDTHROW
a	BSR	H	L	L	L	L-H	L	M
b	BSR	M-H	L	L	L	L-H	M	L-M
c	BSR	L-H	L	M	M	L	L	L
d	BSR	L-M	L	M	M	L-H	M-H	L
e	BSR	L	M-H	M-H	L-H	H	L-M	M-H
f	BSR	L	M-H	H	H	H	H	M-H
g	BSR	L	M-H	H	H	H	H	M-H
h	BSR	L	H	H	L	H	L	H
i	BSR	L	H	H	M-H	H	L	H
j	BSR	L	H	H	L-H	H	L	H
l	BSR	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. 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

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

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 process 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 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.

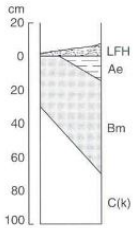
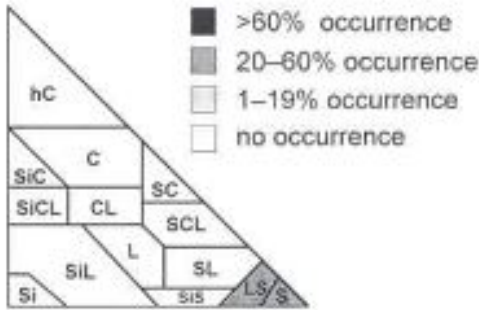
There are 5 major soil types defined by their soil moisture: very dry (SV) (very xeric-xeric-subxeric); dry (SD) (submesic); moist (SM) (mesic-subhygric); wet (SW) (hygric-subhydric-hydric); organic (SR); and shallow (SS). The soil types are further broken down by their texture class, for a total of 17 classes.

Mineral soils are weakly developed in cold, moist environment of the Boreal Subarctic subregion. They are a complex of thin Orthic and Gleyed Gray Luvisols over 25% of the area, with Eluviated and Gleyed Eutric Brunisols over 10% of the area. Orthic and Peaty Gleysols are minor components, and are associated with wetlands. Organic soils are a mixture of Organic Cryosols over 35% of the Natural Subregion and Typic Mesisols over about 20%. Terric and Fibric Subgroups are common (Natural Regions Committee 2006). For this guide we have taken the soil type definitions from the field Ecosite guides of Northern Alberta (Beckingham and Archibald 1996). The numbers in brackets (8) indicate the number of plots representing a particular attribute.

SV1 Very Dry/Sandy (n=2)

General Description

Very dry coarse sandy, sandy and loamy sand soil that develop in glaciofluvial and eolian parent materials.



Comments

This soil type is most commonly associated with ecosite a in all ecological areas of the Boreal Subarctic. SV1 has a poor nutrient status and a low capacity to retain water because of its coarse texture. Forest productivity on these soils tends to be low. A moderate windthrow hazard exists for shallow rooted white spruce trees.

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (2)

Nutrient Regime: Submesotrophic (poor) (1), Oligotrophic (very poor) (1)

Soil Variables

Soil Drainage: Very rapidly drained (2)

Soil Subgroup: ELUVIATED EUTRIC BRUNISOL (1), ELUVIATED DYSTRIC BRUNISOL (1)

Surface Texture: Sand (2)

Effective Texture: : Sand (2)

Depth to Mottles/Gley:None (2)

Parent Material Eolian (1)

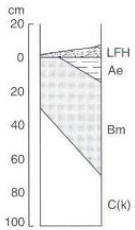
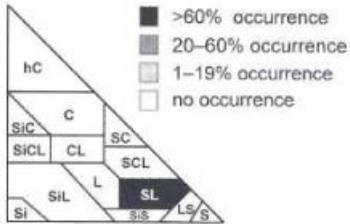
Interpretations

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-M

SV2 Very Dry/Coarse Loamy (n=0)

General Description

This soil type has currently not been described in the Boreal Subarctic subregion and the description of this site comes from 3 plots done in the Central Mixedwood subregion (Willoughby et al. 2019). In the Central Mixedwood this soil type is found on very dry coarse loamy materials that commonly develop in glaciofluvial and colluvial parent materials.



Comments

The droughty nature of SV2 is attributed to its moderate coarse texture and rapid drainage.

Environmental Variables

Moisture Regime: Subxeric (moderately dry) (3)

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

Soil Variables

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

Soil Subgroup: PODZOLIC GRAY LUVISOL (1), DYSTRIC BRUNISOL ELUVIATED (1), ORTHIC GRAY LUVISOL (7)

Surface Texture: Sand (1), Loamy sand (1), Sandy loam (1)

Effective Texture: Sandy loam (2), Sandy clay loam (1)

Depth to Mottles/Gley: none

Parent Material: Morainal (1) Glaciofluvial (2)

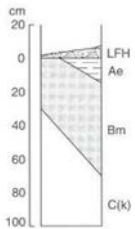
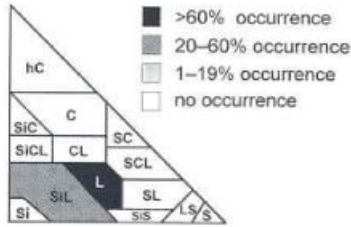
Interpretations

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=0)

General Description

This soil type has currently not been described in the Boreal Subarctic subregion and the description of this site comes from 4 plots done in the Central Mixedwood subregion (Willoughby et al. 2019). In the Central Mixedwood this soil type is found on very dry silty or loamy materials that develop in a variety of parent materials



Comments

SV3 soils typically occur in topographic positions that shed water such as slope crests and steep, south-facing valley slopes where solar radiation is intense. Droughty conditions exist throughout most of the growing season. Those soils that occur on steep slopes are highly susceptible to water erosion.

Environmental Variables

Moisture Regime: Subxeric (4)
 Nutrient Regime: Submesotrophic (poor) (4)

Soil Variables

Soil Drainage: Rapidly drained (1), Well (3)
 Soil Subgroup: ELUVIATED EUTRIC BRUNISOL (1) ORTHIC EUTRIC BRUNISOL (3)
 Surface Texture: Silty Loam (2) Sand (2)
 Effective Texture: Silty Loam (1), Silt (2), Sand (1)
 Depth to Mottles/Gley: None (10)
 Parent Material: Fluvial (2), Saprolite (1), Eolian (1)

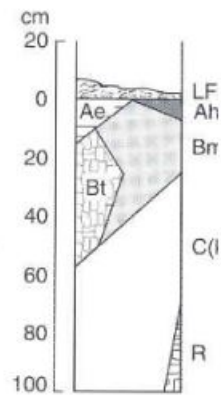
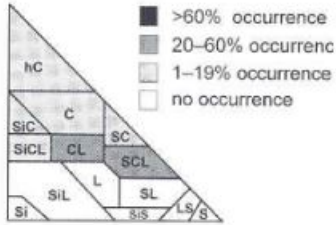
Interpretations

Drought Limitations	H
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L-M
Puddling Hazard	M
Soil Erosion Hazard	H
Frost Heave Hazard	L-M
Soil Temperature Limitations	L
Windthrow Hazard	L

SV4 Very Dry/Fine Loamy-Clayey (n=0)

General Description

This soil type has not been described in the Boreal Subarctic subregion and this soil description is taken from 6 plots done in the Lower Boreal Highlands subregion. These soils are very dry, fine loamy or clay soils that are found developed in all morainal and predominantly glaciofluvial parent materials in the Lower Boreal Highlands subregion.



Comments

The SV4 soils were found on midslope, upper slope and crest positions in the landscape. If plots occur on steep south-facing slopes (>45%) solar radiation can be intense (Beckingham and Archibald 1996). On such sites, droughty conditions persist throughout the growing season and the soil erosion hazard tends to be high.

Environmental Variables

Moisture Regime: Subxeric (6)

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

Soil Variables

Soil Drainage: Rapidly drained (1), Well (3), Moderately well (2)

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

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

Effective Texture: Silty Clay Loam (2), Clay (1), Sandy Clay (1), Clay (1), Clay Loam (1)

Depth to Mottles/Gley: None (5), 0-25 cm (1)

Parent Material: Morainal (2), Glaciofluvial (1), Lacustrine (3)

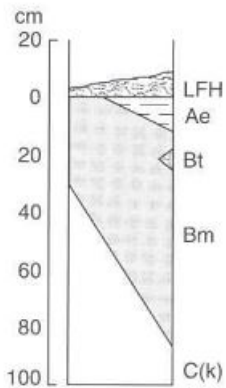
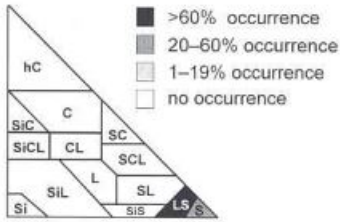
Interpretations

Drought Limitations	H
Excess Moisture	L
Rutting Hazard	L
Compaction Hazard	L-M
Puddling Hazard	M
Soil Erosion Hazard	H
Frost Heave Hazard	L-M
Soil Temperature Limitations	L
Windthrow Hazard	L

SD1 Dry/Sandy (n=0)

General Description

This soil type has not been described in the Boreal Subarctic subregion and this soil description is taken from 6 plots done in the Lower Boreal Highlands subregion. This soil type would be found on dry, sandy soils that were found on predominantly glaciofluvial parent materials.



Comments

SD1 soils exhibit rapid to well internal soil drainage and occur on a variety of topographic positions. Mottles are typically not encountered in the soil profile. Droughty conditions may persist for part of the growing season. A moderate windthrow hazard exists for shallow rooted white spruce trees.

Environmental Variables

Moisture Regime: Submesic (6)

Nutrient Regime: Mesotrophic (medium) (3), Submesotrophic (poor) (22), Permesotrophic (rich) (1)

Soil Variables

Soil Drainage: Rapidly drained (2), Well (3), Moderately well (1)

Soil Subgroup: ELUVIATED EUTRIC BRUNISOL (3), ORTHIC HUMO-FERRIC PODZOL (1), ELUVIATED DYSTRIC BRUNISOL (1)

Surface Texture: Loamy Sand (2), Sand (3), Sandy loam (1)

Effective Texture: Loamy Sand (2), Sand (4)

Depth to Mottles/Gley: None (6)

Parent Material: Eolian (1), Glaciofluvial (3), Fluvioeolian (1), Lacustrine (1)

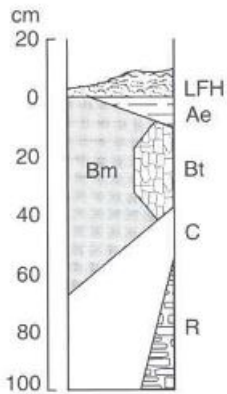
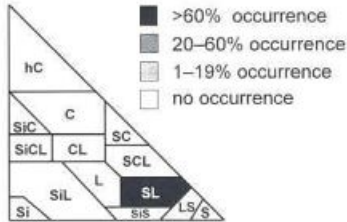
Interpretations

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=0)

General Description

This soil type has not been described in the Boreal Subarctic subregion and this soil description is taken from 4 plots done in the Lower Boreal Highlands subregion. This soil type occurs on dry, coarse loamy soils that most commonly develop in lacustrine or eolian deposits as described in the Lower Boreal Highlands subregion.



Comments

SD2 soils occur on crest to lower slope topographic positions. Mottles are typically not encountered in the soil profile.

Environmental Variables

Moisture Regime: Submesic (4)

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

Soil Variables

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

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

Surface Texture: Sandy Loam (2) Loamy sand (1), Sand (1)

Effective Texture: Sandy Loam (3), Loam (1)

Depth to Mottles/Gley: None (4)

Parent Material: Eolian (1), Morainal (1), Glaciolacustrine (1), Fluviolacustrine (1)

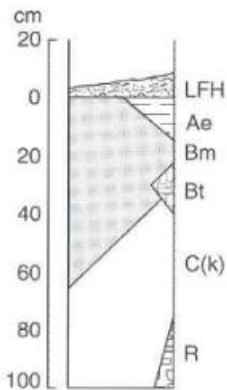
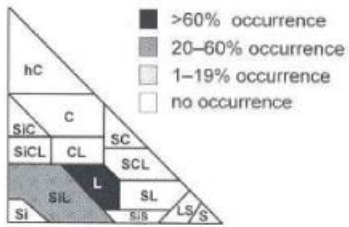
Interpretations

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

SD3 Dry/Silty-Loamy (n=2)

General Description

Dry, silty loamy soils that most commonly develop in eolian deposits as described in the Boreal Subarctic subregion.



Comments

SD3 soils occur on upper slope to level positions in the landscape. Those sites with SD3 soils that occur on straight slopes are most susceptible to soil erosion.

Environmental Variables

Moisture Regime: Submesic (2)

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

Soil Variables

Soil Drainage: Well (2)

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

Surface Texture: Silt (1)

Effective Texture: Silty Clay Loam (1), Silt (1)

Depth to Mottles/Gley: None (2)

Parent Material: Eolian (2)

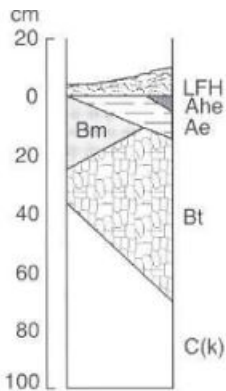
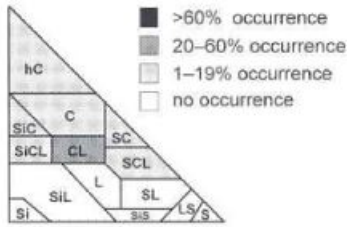
Interpretations

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=7)

General Description

Dry, fine loamy to clayey soils that were found developed in a variety of parent materials.



Comments

SD4 soils occur in upland landscape positions and are generally characterized by moderately coarse to medium-textured surface layers overlying a fine-textured Bt horizon. This illuviated horizon can become restrictively hard if extended periods of warm, dry weather persist. Under these conditions, root development and plant growth are reduced (Beckingham and Archibald 1996).

Environmental Variables

Moisture Regime: Submesic (7)

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

Soil Variables

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

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

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

Effective Texture: Clay Loam (4), Silty Clay (1), Silty Clay Loam (1), Clay (1)

Depth to Mottles/Gley: None (6), 26-50 (1)

Parent Material: Lacustromoraine (2), Morainal (3), Colluvial (1)

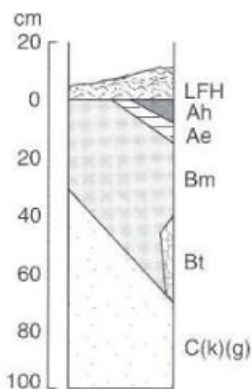
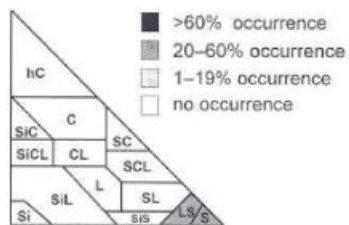
Interpretations

Drought Limitations	M
Excess Moisture	L
Rutting Hazard	M
Compaction Hazard	M
Puddling Hazard	H
Soil Erosion Hazard	M-H
Frost Heave Hazard	M
Soil Temperature Limitations	L
Windthrow Hazard	L

SM1 Moist/Sandy (n=1)

General Description

Moist sandy soils that develop on a variety of parent materials.



Comments

SM1 soils typically occur on level to gently sloping topography (<10%) and are predominantly well-drained. Although the upper 60 cm of SM1 soil profiles are sandy, soil water is not limited. Sites with SM1 soils tend to be located in water receiving topographic positions or are underlain by fine-textured material, which inhibits rapid drainage. Mottles are occasionally encountered in the soil profile (Beckingham and Archibald 1996).

Environmental Variables

Moisture Regime: Subhygric (1)

Nutrient Regime: Submesotrophic (poor) (1),

Soil Variables

Soil Drainage: Well (1), Moderately well (2), Rapid (3), Imperfect (1)

Soil Subgroup: ORTHIC LUVIC GLEYSOL (1)

Surface Texture: Loamy Sand (1)

Effective Texture: Loamy Sand (1)

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

Parent Material: Fluvial (1)

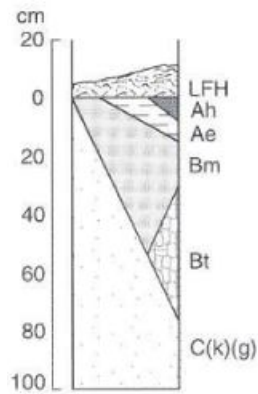
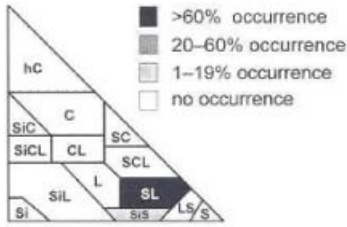
Interpretations

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=1)

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 (Beckingham and Archibald 1996).

Environmental Variables

Moisture Regime: Subhygric (1)

Nutrient Regime: Permesotrophic (rich)(1)

Soil Variables

Soil Drainage: Imperfectly (1)

Soil Subgroup: REGO STATIC CRYOSOL (1)

Surface Texture: Sandy Loam (1)

Effective Texture Sandy Loam (1)

Depth to Mottles/Gley: None (1)

Parent Material: Fluvial (1)

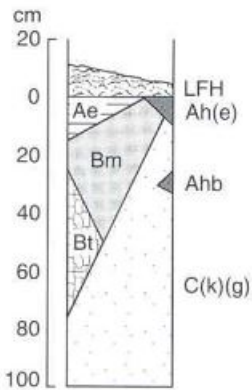
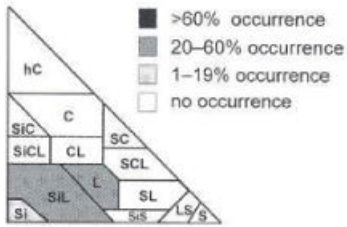
Interpretations

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=5)

General Description

Moist silty loamy soils that can develop on a variety of parent materials, but are most common on fluvial parent materials.



Comments

SM3 soils typically occur on level, fluvially deposited landscapes. Soils in this environment may exhibit buried, humified Ah horizons (Ahb). High hazard ratings generally apply to those SM3 soils that are associated with sites that have a subhygric moisture regime. Faint mottles may be present in any horizon.

Environmental Variables

Moisture Regime: Mesic (1), Subhygric (4)

Nutrient Regime: Mesotrophic (medium) (2) Eutrophic (very rich) (1), Permesotrophic (rich) (2)

Soil Variables

Soil Drainage: Well (3), Imperfectly (2), Rapidly (1)

Soil Subgroup: GLEYED CUMULIC REGOSOL (2), BRUNISOLIC GRAY LUVISOL (1), REGO STATIC CRYOSOL (1), ORTHIC DYSTRIC BRUNISOL (1)

Surface Texture: Loam (2), Silt Loam (3)

Effective Texture: Loam (1), Silt Loam (3), Silty Clay Loam (1)

Depth to Mottles/Gley: None (3), (0-25)(1), 26-50 (1)

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

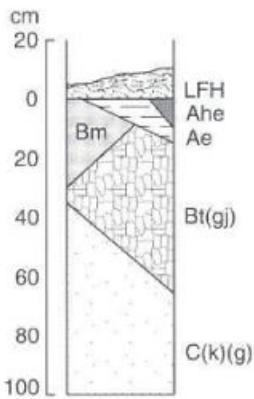
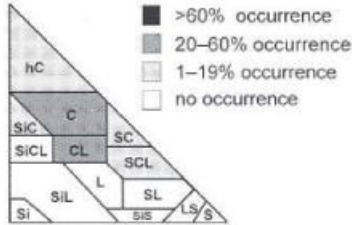
Interpretations

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=13)

General Description

Moist silty loamy to clayey soils that can develop on a variety of parent materials, but are most common on morainal and glaciolacustrine parent materials.



Comments

SM4 was the most extensively sampled soil type in northern Alberta and occurs on upper slope, lower slope and level positions in the landscape. Typically, these soils have a medium to moderately coarse-textured surface layer overlying a fine-textured Bt horizon. This illuvial horizon (Bt) may temporarily impede internal soil drainage during high rainfall and spring runoff periods causing saturated soil conditions in the upper horizons. High hazard ratings generally apply to those SM4 soils that are associated with sites that have a subhygric moisture regime.

Environmental Variables

Moisture Regime: Mesic (9), Subhygric (4)

Nutrient Regime: Mesotrophic (medium) (5), Submesotrophic (poor) (5), Permesotrophic (rich)(2), Oligotrophic (1)

Soil Variables

Soil Drainage: Well (8), Moderately well (5)

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

Surface Texture: Silt (1), Clay Loam (2), Sandy Clay Loam (1), Loam (4), Silt Loam (2), Silty Clay Loam (3), Sandy Loam (1)

Effective Texture Clay (3), Clay Loam (8), Silty Clay Loam (3)

Depth to Mottles/Gley: None (13), (0-25)(1)

Parent Material: Eolian (2), Fluvial (1), Lacustrine (1), Morainal (6)

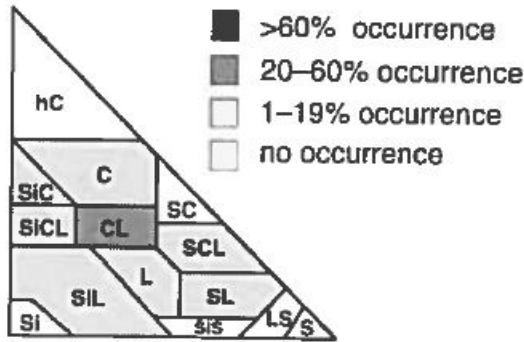
Interpretations

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=0)

General Description

This soil type has not been described in the Boreal Subarctic subregion and this soil description is taken from 14 plots done in the Lower Boreal Highlands subregion. SMp are moist soils with a duff layer thicker than 20cm. They are found on a variety of parent materials.



Environmental Variables

Moisture Regime: Mesic (10), Subhygric (4)

Nutrient Regime: Mesotrophic (medium) (12), Submesotrophic (poor) (1), Permesotrophic (rich)(1)

Soil Variables

Soil Drainage: Well (1), Moderately well (8), Imperfectly (5)

Soil Subgroup: BRUNISOLIC GRAY LUVISOL (2), ORTHIC EUTRIC BRUNISOL (1), ORTHIC GLEYSOL (1), ORTHIC GRAY LUVISOL (3), ORTHIC LUVIC GLEYSOL (5), ORTHIC REGOSOL (2)

Surface Texture: Silty Loam (8), Silty Clay Loam (2), Sandy Loam (1), Sandy Clay Loam (1), Mesic (1)

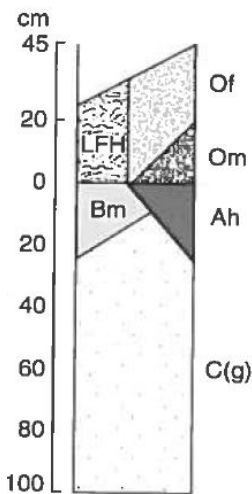
Effective Texture Clay Loam (6), Silty Clay Loam (6), Sandy Clay Loam (1), Clay (1)

Depth to Mottles/Gley: (0-25)(4), (51-75)(1), none (9)

Parent Material: Eolian (1), Morainal (9), Colluvial (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



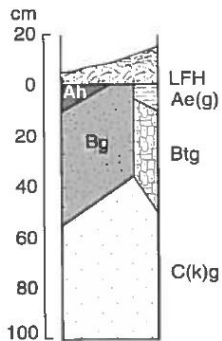
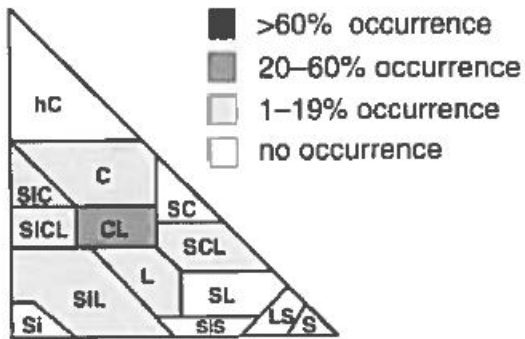
Comments

SMp soils have a higher mean moisture regime rating than other moist soil types (SM1-4), which implies that they are transitional to SWp. If the thick organic layer of SMp is not excessively disturbed, the effects of forestry operations on soil erosion, rutting, compaction and puddling can be reduced. Faint to distinct mottles are commonly encountered in the upper 25 cm of SMp soils.

SWm Wet/Mineral (n=3)

General Description

SWm soils are wet soils with an organic layer thickness of less than 20cm. They are found in a variety of parent materials



Comments

SWm are commonly associated with forested and non-forested plant community types that occur in two different environments. The forested plant community types tend to occur in lower slope, depressional, and toe positions in the landscape where seepage waters discharge or where water table levels rise into the rooting zone. These sites commonly have hygric to subhydric moisture regimes. Non-forested plant community types with SWm soils tend to occur on level topography adjacent to lakes and streams where water table levels are often above the mineral surface for a significant portion of the growing season. Hydric to subhydric moisture regimes are most common on SWm soils associated with non-forested sites (Beckingham and Archibald 1996).

Environmental Variables

Moisture Regime: Hygric (3)

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

Soil Variables

Soil Drainage: Poorly (2), Well (1)

Soil Subgroup: HUMIC LUVIC GLEYSOL (1), GLEYED STATIC CRYOSOL (2)

Surface Texture: Clay Loam (1), Loam (1), Silt Loam (1)

Effective Texture : Clay (1), Loam (1), Silt Loam (1)

Depth to Mottles/Gley: (0-25)(1), None (2)

Parent Material: Fluvial (2)

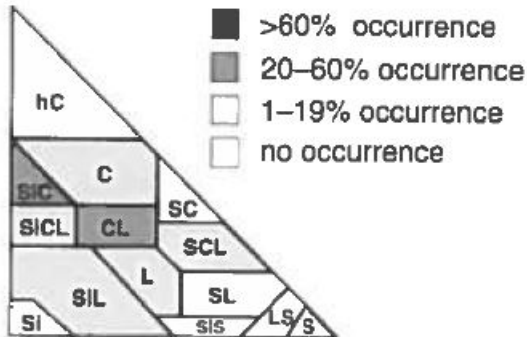
Interpretations

Drought Limitations	L
Excess Moisture	H
Rutting Hazard	H
Compaction Hazard	H
Puddling Hazard	H
Soil Erosion Hazard	L-M
Frost Heave Hazard	H
Soil Temperature Limitations	H
Windthrow Hazard	H

SWp Wet/Peaty (n=5)

General Description

SWp soils are wet soils with an organic layer thickness of greater than 20cm. This soil type is commonly associated with ecosites that have feather moss or sphagnum-dominated moss layers.



Environmental Variables

Moisture Regime: Hygric (3), Subhydic (2)

Nutrient Regime: Mesotrophic (medium) (1), Submesotrophic (3), Oligotrophic (1)

Soil Variables

Soil Drainage: Very poor (2), Imperfectly (1), Poorly (2)

Soil Subgroup: GLEYED STATIC CRYOSOL (4), GLEYED EUTRIC BRUNISOL (1)

Surface Texture: Mesic (1), Fibric (4)

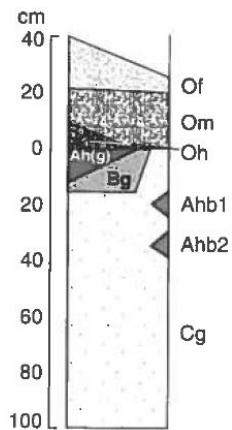
Effective Texture : Clay Loam (1), Silty Clay Loam (2), Loam (1), Sandy Loam (1)

Depth to Mottles/Gley: (0-25)(3), (26-50)(2)

Parent Material: Morainial (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



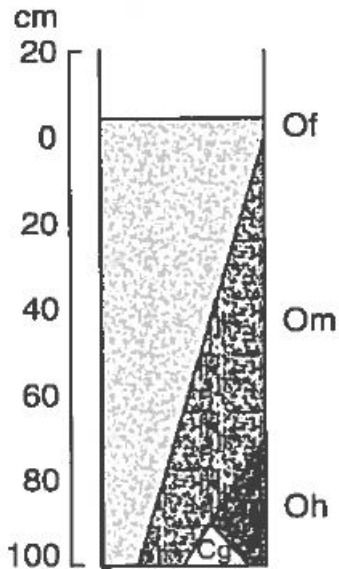
Comments

SWp soils most commonly occur on flat, depressional, or lower slope positions in the landscape where seepage waters discharge or where local drainage waters accumulate. SWp are transitional between SMP and SR soil types. Most of the tree roots found in this soil type occur in its thick peaty layers, increasing the risk of blowdown. Black spruce, tamarack, balsam poplar and white spruce are the most common tree species associated with SWp. Distinct prominent mottles are commonly encountered at any depth throughout the soil profile.

SR Organic (n=21)

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 (1), Subhydic (10), Hydic (10)
 Nutrient Regime: Mesotrophic (medium) (4), Oligotrophic (very poor) (9), Submesotrophic (poor) (5), Permesotrophic (rich) (3)

Soil Variables

Soil Drainage: Very poor (14), Poorly (6), Moderately well (1)
 Soil Subgroup: FIBRIC ORGANIC CRYOSOL (11), MESIC ORGANIC CRYOSOL (2), HUMIC ORGANIC CRYOSOL (1), TYPIC MESISOL (1), TYPIC HUMISOL (1), TYPIC FIBRISOL (4)
 Surface Texture: Mesic (1), Fibric (19)
 Effective Texture: Fibric (18), Mesic (1), Humic (1)
 Depth to Mottles/Gley: not applicable
 Parent Material: Organic (21)

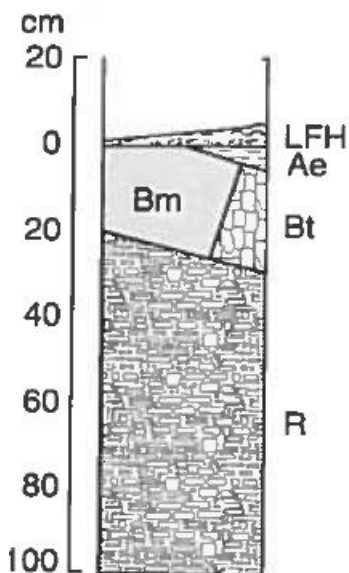
Interpretations

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=0)

General Description

This soil type has currently not been described in the Boreal Subarctic subregion, but maybe expected on shallow soils with less than or equal to 30 cm of mineral material overlying bedrock. This soil type includes exposed bedrock surfaces. The description for this soil type is taken from the Boreal Mixedwood (Beckingham and Archibald 1996).



Comments

These soils occur in areas where bedrock is encountered at or near the surface. Typically these soils are dry as their water-holding capacity is low. Windthrow hazard is one of the most limiting factors associated with shallow soils.

Environmental Variables

Moisture Regime: Subxeric (2), Xeric (1), Submesic (7)

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

Soil Variables

Soil Drainage: Rapidly (5), Moderately well (2), Well (3),

Soil Subgroup: ORTHIC REGOSOL (2), EUTRIC BRUNISOL ELUVIATED (6) ORTHIC EUTRIC BRUNISOL (2)

Surface Texture: Sand (4), Sandy Loam (2), Silt (4)

Effective Texture: bedrock (10)

Depth to Mottles/Gley: None (10)

Parent Material: Glaciofluvial/Rock (2), Fluvial/Rock (2), Eolian/Rock(4), Rock (2)

Interpretations

Drought Limitations	M-H
Excess Moisture	L
Rutting Hazard	M
Compaction Hazard	M
Puddling Hazard	M
Soil Erosion Hazard	M
Frost Heave Hazard	L-M
Soil Temperature Limitations	L
Windthrow Hazard	H

