

Field Guide to the Ecosites of Saskatchewan's Provincial Forests

M.S. McLaughlan, R.A. Wright, and R.D. Jiricka



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Front cover photo: Pitcher-plant and small bog cranberry; two species common
to Saskatchewan's wetland ecosites.

Back cover photo: Juniper hair-cap moss; a common upland moss found on dry
or exposed sites.

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Abstract

The forest ecosystems of Saskatchewan are represented at the site level with 81 ecosites that span Saskatchewan's four ecozones: Taiga Shield, Boreal Shield, Boreal Plain and Prairie. Field sampling provided the raw data upon which the ecosite classification was built. Nearly 1700 semi-permanent relevés were established in 69 of the province's 80 forested ecodistricts. Each relevé provided information about the cover-abundance and growth form of each plant encountered, forest mensuration data, and soil and site characteristics.

The ecosite classification provides summaries of the site attributes for each ecosite within the four ecozones; it also illustrates the relationship among the ecosites, within an ecozone, through a two-way matrix of moisture and species richness values.

This ecosystem classification facilitates better integration of forest management disciplines by providing a common ecosystem language that forms an explicit operational framework for resource managers.

Brief descriptions and ecological interpretations are also provided for each ecosite and usually include significant features and/or a statement about the possible successional trajectory for the ecosite in the absence and presence of disturbance.

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The building of a forest ecosystem classification system that spans eight ecoregions and is applicable to an area of 41 million hectares requires the talents and valued contributions of a large number of people. The authors would like to thank the following people for the roles they played:

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1. ABOUT THIS GUIDE

About this Guide

“Ecosystem management is place-based and the boundaries of the place of concern must be clearly and formally defined.”

- Lackey (1998)

Ecosystem-based management is a holistic approach that requires some detailed knowledge of landscapes and their variations. In forest and range ecology, an important element of that knowledge is the site. A good understanding of a site’s ecological conditions, the relationship amongst different sites, and the response of those sites to disturbance and time is an important aspect of resource management. (Slocombe 1993; Haufler *et al.* 1996).

In terms of the sequence of actions and procedures required to implement ecosystem-based management, defining an ecosystem’s characteristics is often listed as the initial step (Slocombe 1998). Another requirement of ecosystem-based management includes integration of the various management efforts and disciplines that manage the resource. Forest ecosystem classification is aimed at providing a better understanding of ecosystems for a broad resource management audience (*e.g.*, foresters, technicians, biologists).

Classification of complex ecological systems is not new. As early as 350 B.C., Aristotle documented the process of classification or taxonomy of species on the basis of similarities and differences. Aristotle also realized that species and systems were not only single entities, but also part of something larger: “And of such as these, some are called not parts merely, but limbs or members. Such are those parts that, while entire in themselves, have within themselves other diverse parts” (Aristotle 350 B.C.). This same sentiment is also reflected in the more contemporary works of Aldo Leopold. Leopold (1949) also described individuals as members of a community of interdependent parts and defined a “land ethic” as simply enlarging “the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land”. Perspectives such as these are the basis for ecological land and forest ecosystem classification.

Forest ecosystem classification is a process that examines the numerous variables that define a site and distills this information into site-specific ecological descriptions that can be recognized in the field and employed as map entities for the purpose of forest (ecosystem) management. The ecological site or ecosite descriptions can be used as a tool for determining and communicating the most appropriate management actions for the site. Silviculturalists may use the ecosite fact sheets to inform forest renewal planning, while biologists may use the fact sheets to define habitat, and forest fire managers may see the ecosites as potential fuel types.

While different disciplines may focus on specific elements of the ecosite guide, they will also use it in similar ways. The most common and obvious way to use it is as a site assessment tool to identify and classify ecosystems in the field. The guide can also be used to define classification rules that can be used along with spatial data, like forest inventory maps, to predict ecosystem distributions. Alternatively, it also functions as a

comprehensive reference tool, like an ecosystem encyclopaedia which lists the characteristic qualitative and quantitative features of our provincial forest ecosystems.

This guide is therefore a useful tool for planning. And, like other tools, it shares these characteristics that users should be cognizant of:

- It has specifically defined uses, both in terms of area of application and scale of application,
- The more familiar and skilled the user is with it, the more useful it is,
- Certain precautions should be noted in order to prevent misuse, and
- It should be periodically maintained to provide the best results.

1.1 Purpose

The purpose of this guide is two-fold. Its main goal is to explicitly describe Saskatchewan's forest ecosystems so that they can be better understood and consequently more wisely managed. This guide provides site-level summaries of the ecological conditions represented in Saskatchewan's forest lands¹. Both biotic features such as vegetation species abundance and abiotic features such as soil and moisture conditions are described. The relationship of one site to another is illustrated on an edatopic grid that features two environmental gradients; moisture and vascular plant species richness. Finally, rudimentary management interpretations and the site's probable response to disturbance are also presented.

A secondary purpose of this guide is to provide documentation of the ambient or baseline natural ecosystem conditions found across the province. In this way, resource managers will have a better idea of the forest vegetation composition and structure that they are to maintain or work to attain after site disturbance.

This guide is intended to facilitate better integration and communication among resource management disciplines. There are often ideological and perceptual differences between professional foresters and biologists, or foresters and geologists because of differences in training and experience. A common site description using well-defined terms and consistent approaches provides the means for each of the disciplines to better understand the attributes of a site and thus work toward a reasonable consensus when addressing management opportunities.

In addition to defining the site-level ecological framework on which to base forest or land management decisions, this guide partially addresses some provincial and national recommendations and objectives. Laird (1955) noted that "A system of site classification (in Saskatchewan) is a recognized need and some work along this line is contemplated in the near future". More recently, Saskatchewan's *Ecosystem Management Plan of Action* identified the need for development of the ecosite classification in addition to describing applications for it (SERM 1999).

¹ Forest land as defined in *The Forest Resources Management Act 1996*.

About this Guide

Similarly, Canada's national forest strategy, *Sustainable Forests: A Canadian Commitment (1998-2003)*, also identified the completion of forest ecosystem classifications as a target (CCFM 1998). Saskatchewan was signatory to the National Forest Accord, and has been striving to implement the recommendations outlined in the current and the previous National Forest Strategies.

Finally, this guide completes the ecological classification of forested ecozones in the province. In 1996, Beckingham *et al.* published the *Field Guide to Ecosites of the Mid-boreal Ecoregions of Saskatchewan*. In addition to revising and augmenting that work, the current guide provides an ecosite classification for the Shield ecozones as well as for some forest conditions in the Prairie ecozone. It also complements the *Saskatchewan Rangeland Ecosystems-Ecosites and Communities of Forested Rangelands* (Thorpe and Godwin 2008).

1.2 Project Objectives & Scope

Ecosystem classifications can be nearly as variable as the ecosystems that they are attempting to describe. Some describe geographically distinct ecosystems based on geologic and soil attributes at a very large scale, while others describe repetitive patterns of vegetation at site-level scales.

Each classification is designed with a specific purpose and a specific set of design criteria. Some criteria established for this project were that it:

- Includes both terrestrial and wetland ecosystems,
- Is applicable to both forest and non-forest ecosystems within the provincial forest zone,
- May be applied at a scale that is readily recognized for both planning and mapping,
- Utilizes readily recognized site features to distinguish between ecosystems,
- Addresses gaps in previous classifications,
- Is comparable or compatible with similar classifications within and outside the province, and
- Captures the regional variation of ecosystems across the forested portion of the province.

The scope of the classification project can be defined in terms of deliverables and geographical location. The primary deliverables associated with this project are the field guide (available in both hard copy and electronic copy versions) and a database of georeferenced ecosystem information (*e.g.*, species and abundance of vegetation, soil textures and horizon depths). The field guide provides a handy summary reference which describes the characteristic features and descriptions of our provincial forest ecosystems. The database includes the complete and detailed inventory of plant and lichen species encountered, forest mensuration data, and site and soil information for the

² Each plot measured 10 m x 10m.

network of nearly 1700 plots² established across the province.

The area covered by this classification includes the provincial forest contained within the Taiga Shield, Boreal Shield, Boreal Plain, and Prairie ecozones.

1.3 Primary Users

This classification was designed to meet the needs of resource professionals: foresters, forest technologists, biologists, and others who are responsible for managing Saskatchewan's forest landscapes. Their input was gathered part way through the guide's development process and it shaped the type and detail of information that is presented in the fact sheets. As such, the guide may be used both for field identification and as a reference manual. The combination of diagrams, tabular data, descriptive narratives, and schematics should help different readers build a consistent qualitative and quantitative mental picture of the ecosystems encountered across the forested landscapes of Saskatchewan.

While aimed at a technical audience, the information contained in this guide may also be of value to policy-makers, teachers, students, academics, and any other individual with an interest in, or connection to, the province's forest ecosystems.





2. ECOLOGICAL LAND CLASSIFICATION AND FOREST ECOSYSTEM CLASSIFICATION



Ecological Land Classification and Forest Ecosystem Classification

“Ecosystems are not only more complex than we think; they are more complex than we can think.”

- Egler, 1977

Ecological land classification is the process of defining, describing, and delineating large scale ecosystems for the purpose of land management. It integrates biotic (*e.g.*, vegetation) and abiotic (*e.g.*, climate, hydrology) features into single or simpler entities. It often provides a hierarchical organized framework in which the context and scale of ecosystems can be related, interpreted, and better understood (Sims *et al.* 1996). In short, ecological land classification takes complex natural landscapes and creates order by separating them according to differences.

The two primary approaches to ecological land classification are regionalization and classification. Regionalization is the process of decomposing or dividing larger units into smaller ones on the basis of differences (Rowe 1992). For example, a satellite image of Saskatchewan would reveal forests in the north and prairies in the south. Regionalization would separate the Prairie and Boreal Plain ecozones on the basis of such major trends in vegetation cover.

Classification in contrast merges sites into discrete units on the basis of similarities (Rowe 1992). With forest ecosystem classification, vegetation is often used as the primary attribute to define ecosystems or communities in a science that is referred to as phytosociology. Thus forest ecosystem classification can be defined as the process of collecting and analytically sorting site level ecosystem information into recognizable forest units.

In addition to the mechanism of how units are created and for the purpose of this guide, we make the following distinctions between ecological land classification and forest ecosystem classification:

- Typically, ecological land classification is conducted at scales of 1:100,000 or greater, while forest ecosystem classification is conducted at finer scales,
- Ecological land classifications are readily used for landscape planning or reporting purposes while forest ecosystem classification is more readily applied at the operational, tactical, or site levels,
- The degree of variability and detail of presented ecosystem attributes is generally greater for forest ecosystem classifications than with ecological land classifications, and
- Ecological land classification units (*e.g.*, ecozones, ecoregions) are usually contiguous units on the landscape while forest ecosystem classification units (*e.g.*, ecosites) are discontinuously distributed.

Ecological Land Classification and Forest Ecosystem Classification

2.1 Hierarchy

The Canadian system of ecological land classification has seven primary levels: 1) ecozone, 2) ecoprovince, 3) ecoregion, 4) ecodistrict, 5) ecosection, 6) ecosite, and 7) ecoelement (Uhlir and Jordan 1996). Each division is nested within its predecessor and is associated with an approximate range of map scales. Table 1 provides an overview of the Canadian classification.

The first four ecological levels in Table 1 represent relatively unique, discrete, and geographically contiguous ecosystems. However, there are exceptions. While most ecoregions are discrete entities, the Mid-Boreal Uplands ecoregion is made up of 10 separate polygons that are distributed across Alberta, Saskatchewan, and Manitoba. Similarly the Aspen Parkland ecoregion is made up of two separate polygons.

Ecosections, ecosites, and ecoelements are typically represented as recurring combinations of vegetation, soils, and landform. Ecoelements often take the form of vegetation or soil types (*e.g.*, V & S-types in Manitoba and Ontario) or they may be referred to as plant community types (*e.g.*, as in Alberta). Ecosections for the most part have not been defined and are considered by many to be equivalent, along with ecodistricts, to soil landscape units presented in the national classification system.



Ecological Land Classification and Forest Ecosystem Classification

Table 1. Units of the Canadian Ecological Land Classification System (adapted from Uhlig and Jordan, 1996)

Ecological Level	Often Defined by	Typical Map Scale	# of Units in SK	# of Units in Canada
Ecozone	- climate - landforms - regional vegetation patterns	1:1,000,000	4	15 Terrestrial 5 Marine
Ecoprovince	- surficial forms - hydrology - climate - landforms	1:500,000 to 1:1,000,000	6	53
Ecoregion	- climate - vegetation - soils - hydrology - landforms	1:250,000 to 1:500,000	11	194
Ecodistrict (Landscape Area) ³	- relief - geology - vegetation - soils - hydrology	1:100,000 to 1:500,000	159	1021
Ecosection	- soils - hydrology - climate - landforms - relief	1:50,000 to 1:250,000	-	-
Ecosite	- vegetation - soils - site features	1:20,000 to 1:50,000	81	> 4000
Ecoelement	- vegetation - soils - topography	1:10,000	-	-

³ In Saskatchewan, ecodistricts are also known as landscape areas (Acton, Padbury and Stushnoff 1998).

Ecological Land Classification and Forest Ecosystem Classification

“A system of site classification is a recognized need and some work along this line is contemplated in the near future.”

- Laird, 1955

2.2 Saskatchewan Context

Formal and informal ecological land classification has occurred in Saskatchewan since at least 1857. It was at this time that the Palliser expedition began cataloguing the flora, fauna, and geology of the province (Heinrichs 2007). In 1921, the Saskatchewan Soil Survey began the long process of describing, classifying, and mapping the province's soil conditions. In addition to collecting and mapping soils, surveyors also collected biological and botanical information (Moss 1983).

In 1950, the Canadian Institute of Forestry established a national committee on forest soils and site. Saskatchewan was represented on the committee by Alf Kabzems from the Department of Natural Resources and Industrial Development (Hills 1952). And in 1955, Laird reported that, “A system of site classification is a recognized need and some work along this line is contemplated in the near future.”

A considerable amount of work has occurred since that time including the Canada Land Inventory. In 1983, the Ecological Regions of Saskatchewan was published and again revised in 1989 (Harris *et al.* 1989). In 1986, Kabzems *et al.* described 23 ecosystems in the publication: *Mixedwood Section in an Ecological Perspective* which included management interpretations associated with these sites. In 1994, the Ecoregions of Saskatchewan poster map was produced which was followed in 1998 by the background technical document (Acton *et al.* 1998). **Figure 1** illustrates the 4 ecozones represented in Saskatchewan.

It was also about this time when Beckingham *et al.* (1996) published the *Field Guide to Ecosites of the Mid-Boreal Ecoregions of Saskatchewan*. That guide classified 13 ecosites (*i.e.*, eight terrestrial and five wetland sites), 23 ecosite phases, and 78 plant community types.

More recently two more focussed guides have been published; one specifically about wetlands and the other encompassing rangelands.

The wetland guide was produced by Ducks Unlimited Canada and is applicable to the Boreal Plain ecozone (Smith *et al.* 2007). It identifies 19 wetland types, is consistent with the Canadian wetland classification, and is designed to classify sites on the basis of remotely sensed information.

The rangeland guide (*Saskatchewan Rangeland Ecosystems - Ecosites and Communities of Forested Rangelands*) developed by Thorpe and Godwin (2008) describes and classifies the forested rangelands in the Aspen Parkland and Boreal Transition ecoregions. It also provides information to help in the assessment of rangeland sites from the Mid-Boreal Upland and Lowland ecoregions and the Moist Mixed Grassland ecoregion.

Ecological Land Classification and Forest Ecosystem Classification



Figure 1. Saskatchewan's four ecozones



3. BIOPHYSICAL CONTEXT

Ecological land classification and forest ecosystem classification are place-based processes. They are designed with data from and about specific areas. They present information in a format and structure that people can relate to.

A well designed classification will allow the reader to create a mental image of a site. It will also provide the reader with the ability to begin understanding the relationship between different types of sites in terms of physical (*i.e.*, abiotic) features and in terms of its living components.

3.1 Geographical Location and Area of Use

While the general area of application for this guide is the province of Saskatchewan, it is specifically intended to be applied within the provincial forests (**Figure 2**). The provincial forests are designated under Chapter F-19.1 of *The Forest Resources Management Act* and defined under Appendix III of *The Forest Resources Management Regulations* (Anonymous 1996).

The contiguous provincial forest encompasses the Taiga Shield, Boreal Shield, and much of the Boreal Plain ecozone. Only a limited area of the Prairie ecozone is covered by this guide; specifically Cypress Hills Provincial Park and Moose Mountain Provincial Park.

It is worth noting that although the field sampling for this guide occurred completely within the province, the ecozones extend into adjacent jurisdictions and the guide may have applicability in those bordering areas.

3.2 Geology and Surface Deposits

Both surficial and bedrock geology shape the landscapes of Saskatchewan. Ecozonal and ecoregional boundaries are in large part determined by these features. Some ecoregional boundaries can be difficult if not impossible to recognize from the ground, but most people can identify the differences in soil depth expressed by exposed bedrock at the border of the Boreal Shield and Boreal Plain ecozones.

The Precambrian Shield is conspicuously exposed across much of northern Saskatchewan (**Figure 3**). Glacial processes have deposited, moved, and reworked materials across the north and throughout the south of Saskatchewan. In the last two million years, at least five glacial periods have occurred in the province (Acton *et al.* 1998) although some areas such as parts of the Cypress Hills have escaped the most recent glaciation. Eskers, drumlins, and other ice contact features each contribute a physical backdrop supporting ecological diversity and are evidence of Saskatchewan's glacial history.

Biophysical Context

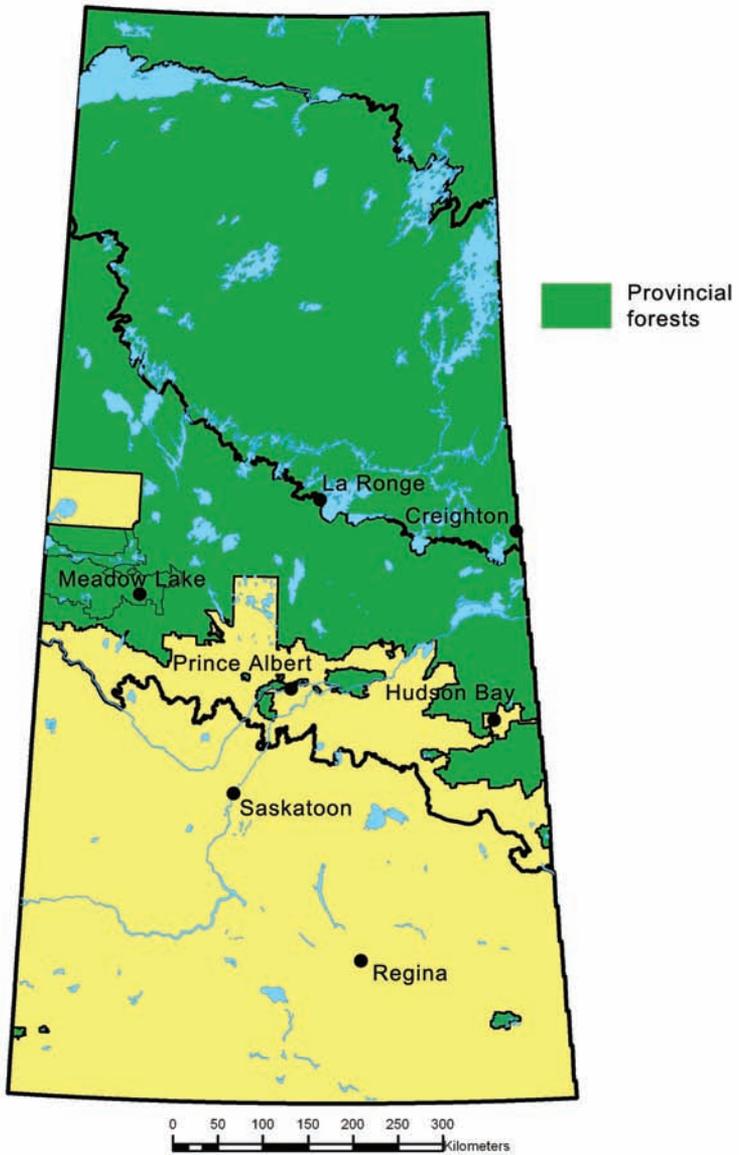


Figure 2. Saskatchewan's provincial forests and area of application for this field guide.

“We know more about the movement of celestial bodies than about the soils underfoot.”

- Leonardo Da Vinci, 1510

3.3 Topography and Soils

The topography of Saskatchewan is surprisingly diverse. The Cypress Hills of the south reach an elevation of 1392 m (600 m above the surrounding plain) while Lake Athabasca in the north is only 213m above sea level (Sauchyn 2009; Lewry 2009). In between these locations are examples of expansive plains, rolling hills, and even talus slopes. Physical soil attributes are initially established by their mode of deposition (e.g., eskers) and subsequently reworked by processes such as wind, erosion, and sedimentation.

The soils associated with the various landforms are in turn modified by climatic factors as well as vegetation and associated site disturbances such as fire or biochemical processes associated with plant growth or decay.

Soil orders commonly associated with our provincial forests are Brunisols, Organics, Luvisols, Gleysols, and Regosols which account for approximately 93 percent of the soils surveyed for this guide. The balance of the remaining ‘soils’ include Cryosols, Chernozems, and Podzols (**Figure 4**) and some nonsoil conditions such as exposed bedrock.

3.4 Climate

Saskatchewan’s climate is as variable as its topography. Two key climatic factors that influence the occurrence and abundance of vegetation are moisture availability and temperature. Table 2 provides an overview of the average annual precipitation and temperature associated with various locations in some of Saskatchewan’s ecozones. As latitude



Figure 3. Black spruce covered granitic bedrock (a BS7 ecosite) along the shores of Lower Foster Lake.



Figure 4. Soil pit established at Snare Lake showing an Eluviated Dystric Brunisol with a prominent (25 cm thick) ash-coloured Ae layer at the surface and a reddish-brown Bm layer underneath.

Biophysical Context

increases (*i.e.*, as you move north) the average annual temperature decreases from 3.6 °C to -0.7 °C.

Table 2. Average annual temperatures and precipitation associated with various ecozone locations (Environment Canada 2009).

Ecozone	Site	Location	Elevation (m)	Average Annual Temperature (°C)	Annual Precipitation (mm)
Prairie	Swift Current	50° 18' N 107° 41' W	818	3.6	377
Prairie	Cypress Hills	49° 40' N 109° 28' W	1196	3.1	607
Boreal Plain	Prince Albert	53° 13' N 105° 40' W	428	0.9	424
Boreal Plain	La Ronge	55° 09' N 105° 16' W	379	-0.1	483
Boreal Shield	Cluff Lake	58° 22' N 109° 22' W	330	-0.7	452

A lesser but evident decrease in temperature is also associated with an increase in elevation (*i.e.*, Cypress Hills are cooler than the adjacent plain). While temperature is an important factor in determining the distribution of vegetation types, Looman (1983) also attributes their distribution to the ratio of summer and spring precipitation as well as soils conditions.

3.5 Vegetation

Each of Saskatchewan's four ecozones has a distinctive vegetation assemblage. The Prairie ecozone is dominated by grasslands, but embedded in the Prairie are the Cypress Hills, known for their lodgepole pine. The Boreal Plain ecozone conjures up images of aspen parklands in the south and mixedwoods of trembling aspen and white spruce. The Boreal Shield ecozone often evokes images of bedrock-controlled terrain with continuous stands of black spruce and jack pine. The northern Taiga Shield is also associated with coniferous types, but the trees are shorter and grow in more widely spaced stands compared to southern forests. Wetlands or peatlands bring to mind open spruce bogs and tamarack fens scattered across the landscapes of the north.

While each of the described ecozones do in fact possess these forest vegetation conditions, they also support a wider diversity of other vegetation and soil conditions (*e.g.*, ecosites). Some of the ecosites are unique to particular ecozones (*e.g.*, BP17: Manitoba maple - balsam poplar/ostrich fern in the Boreal Plain) while other ecosites (*e.g.*, TS9 = BS17 = BP19 black spruce treed bogs) are found throughout much of the forested province.



4. DEVELOPMENT PROCESS

Development Process

Data collection for this guide began in 1999 and continued until 2003. This part of the process involved hundreds of staff and took thousands of hours to complete. In addition to this effort, considerable effort was also expended in the planning phases leading up to that period and even more effort occurred in the analysis, compilation, and documentation phases that completed the development process.

4.1 Project Planning

A project can be defined as “any temporary organized effort that creates a unique product...”. A project also brings “together people from a range of jobs and provide(s) them with the opportunity to collaborate in a unique way” (Martin and Tate 1997).

Due to the complex and longer-term nature of this project, a formal project management approach was utilized. The specific methodology used was the MartinTate project management approach (Martin Training 2002). The key steps in the project were:

- Creating the project charter,
- Developing the project plan, and
- Executing the project.

Of these steps, the development of the project charter was crucial because it provided the foundation for the project and provided the focus for its execution.

4.2 Experimental Design

The Saskatchewan forest ecosystem classification program included five major planning items within the domain of experimental design. They were:

- Selection of statistical/data analysis methods,
- Sampling design (including randomization and replication),
- Database design and maintenance,
- Data collection and entry, and
- Data analysis.

The major components of the experimental design process are outlined in **Figure 5**.

Forest classification in Canada was founded on the recognition that ecosystem productivity and biotic composition are closely tied to both physical site factors and the nature of the plant community. The long evolution of forest classification in Canada has embraced both sets of factors as essential to a logically-sufficient and operationally-useful description of forest ecosystems. Angus Hills’ pioneering work on forest site types in Ontario was an early, sophisticated example of a holistic classification system incorporating both types of factors (Hills and Pierpoint 1960; Hills 1961). Recent forest ecosystem classifications in Ontario and Western Canada have continued the tradition of combining both physical and biotic site factors to characterize ecosystems.

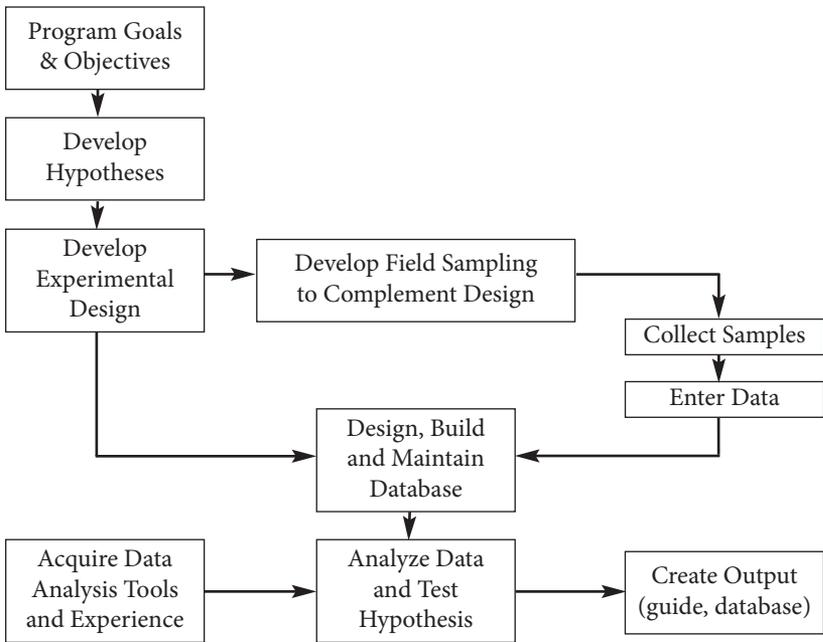


Figure 5. Experimental design, sampling and data analysis process associated with the creation of Saskatchewan's forest ecosystem classification.

4.3 Stratification and Sampling

Gauch (1982) gives an overview of the relative merits of random, stratified random, regular, and preferential placement of sampling points in the landscape. The Saskatchewan FEC program utilized a stratified random approach to sample with sampling intensity proportional to area of the recognized strata (*e.g.*, ecodistricts, soil landscape units, and surficial geology units). To capture the ecological variability of the province in one guide, sampling was stratified according to four primary criteria:

- Ecodistrict (*i.e.*, landscape area),
- Soil landscape unit,
- Surficial geology, and
- Dominant forest cover type.

Ecodistricts were selected as the primary level of stratification because of their inherent incorporation of biotic and abiotic characteristics, the scale at which they are mapped, and their place in the ecological land classification hierarchy (Table 1). Sampling occurred in over 85% (*i.e.*, 69) of the identified ecodistricts and the remainder (*i.e.*, 11) were not sampled because they were not readily accessible. The location and distribution of the sample plots can be seen in **Figure 6**.

Development Process

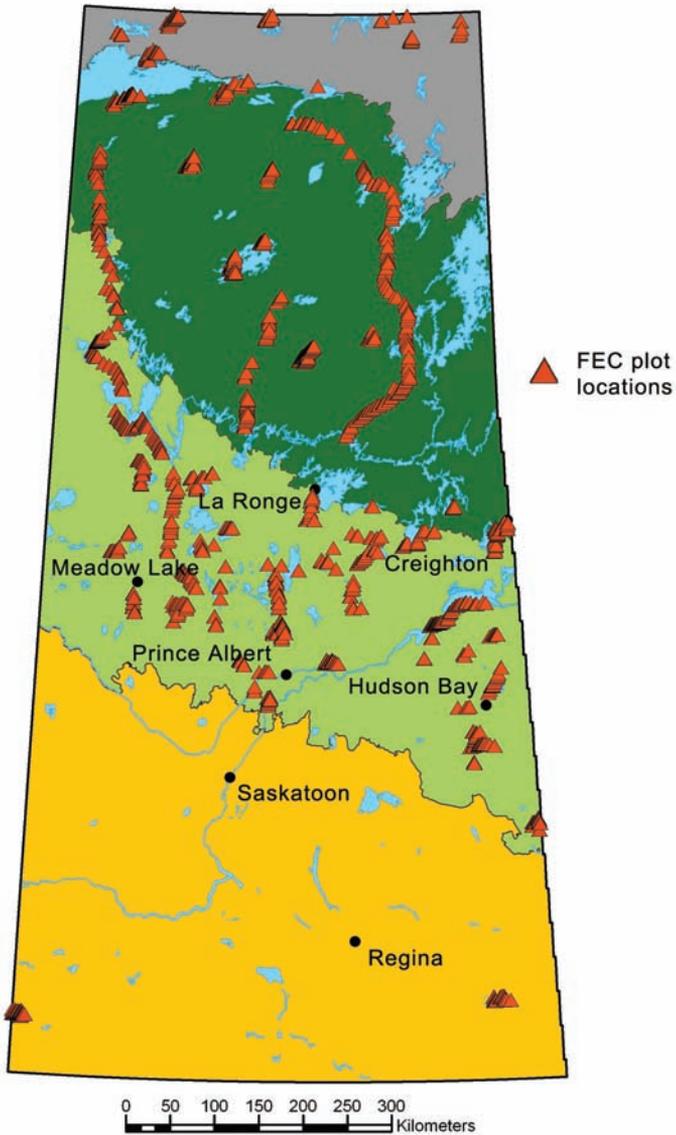


Figure 6. Location of the sample plots that were collected for the development of Saskatchewan's forest ecosystem classifications.

The second level of stratification was based on soil landscape units which provided information about the predominant soil orders and great groups. In addition, the parent material mode of deposition (*e.g.*, morainal, lacustrine), surface form (*e.g.*, level, hummocky) and percent slope were also evaluated at this level of stratification. This information was obtained from the 1:1,000,000 Soil Landscape Map of Canada (Saskatchewan).

The third level of sampling stratification was surficial geology. Saskatchewan Geological Survey maps of quaternary geology (at 1:250,000 scale) were used to identify the dominant environment categories (*e.g.*, morainal, glaciolacustrine, organic) and geomorphic modifiers (*e.g.*, veneer, plain, hummocky). This part of the process occurred concurrently with the secondary stratification and provided more detail than was provided on the soil landscape maps.

The final level of stratification considered was forest cover types. The dominant and secondary tree species were used to identify this stratum.

While not every variation of these criteria could be surveyed, a focus was put on trying to capture the dominantly expressed combinations. Field sampling methodology also allowed for the establishment of relevés in unmapped 'rare' ecosystems as identified by crews in the field.

Based on the desired stratification, sample site locations were plotted along access points (*e.g.*, lakes) and corridors (*e.g.*, roads). Occasionally disturbances such as recent fires required that the relevés be moved since one of the sampling criteria was that sites which were sampled had to be at least 40 years post-disturbance. Generally this was determined by aging trees around the plot. Other restrictions on the sampling included the season or timing in which the relevés could be established. Due to the emergence and senescence dates of the different vegetation encountered across the province, sampling was only conducted between June 20 and August 31.

4.4 Data Management

The primary data capture occurred on paper forms, one each for plot, vegetation, tree mensuration, and site/soil information. These field data sheets were scanned and the handwriting translated into a database output. Microsoft Access© was used to house, manipulate, and manage these data. The primary database was structured according to the physical arrangement on the datasheets. These primary databases were then scanned for errors. This secondary database was then used as the source of data for the application of Visual Basic programming to re-structure the databases into a form suitable for data analysis. The VB programming not only re-structured the databases but also provided automated error checking (*e.g.*, when data entries lay outside valid ranges). These tertiary databases were then utilized to create the spreadsheet output needed for most multivariate vegetation analysis programs.

Development Process

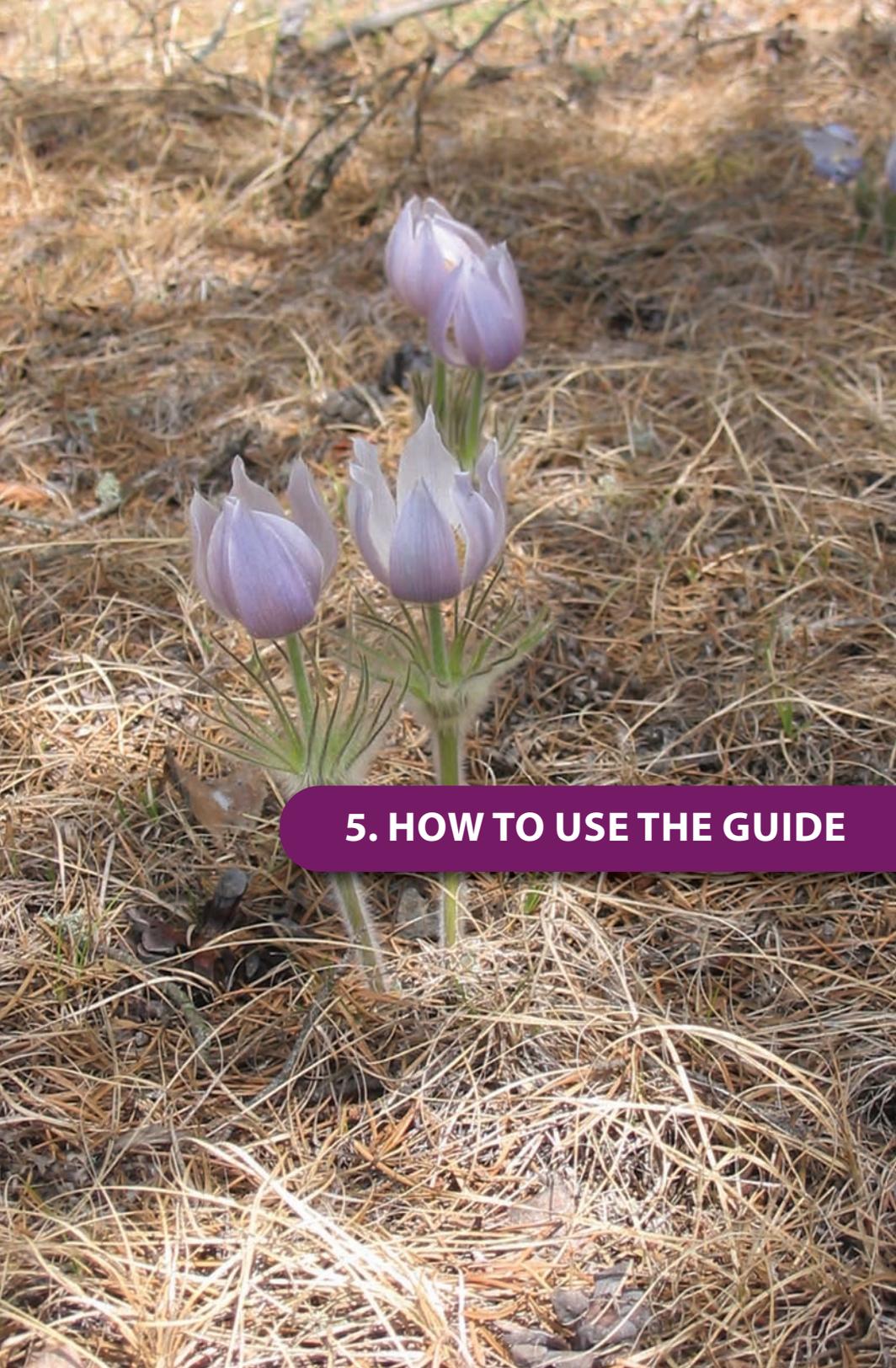
The database is currently maintained by the Saskatchewan Ministry of Environment - Forest Service Branch.

4.5 Data Analysis

Classification by clustering and ordination (Legendre and Legendre 1998) were the primary analytical approaches used to investigate the range of terrestrial ecosystem variation in Saskatchewan's forests. Results from these multivariate data exploration techniques were the basis for resolving the initial set of ecosites from the data. The relationships between ecosites and underlying environmental gradients were investigated using indirect gradient analysis (Gauch 1982). Expert opinion was used to fine-tune the ecosite plot compositions to derive the final set of plots used to describe each ecosite.

The data were analysed with clustering and ordination techniques using the algorithms found in the PC-ORD community analysis program (McCune and Mefford 1999). A structured program of combining clustering algorithms with various indices of similarity resulted in the decision to use Ward's method (hierarchical grouping) as the clustering algorithm and relative Sorensen distance as the measure of relevé (*i.e.*, plot floristic similarity). The dendrograms produced by the clustering technique were the basic information on which the initial identification of ecosites was based. Several ordination techniques (*i.e.*, PCA, DCA, RA, CCA, and NMS) were run to provide ordination diagrams to augment and interpret the dendrogram clusters. In general, DCA (detrended correspondence analysis), RA (reciprocal averaging), and CCA (canonical correspondence analysis) ordinations provided the most useful groupings for interpreting the dendrograms relative to site variables (*e.g.*, soil moisture regime, soil texture, slope, aspect, etc.) and synthetic community variables (*e.g.*, herbaceous species richness, total shrub cover, etc.).

A process of expert analysis by the program team was utilized to modify the original clusters to produce the second approximation ecosites. In this process, any relevés which appeared to be poor fits to their home cluster were examined more closely and compared to the membership of other, similar clusters. The relevé was then assigned to the cluster which best reflected its floristic and environmental characteristics. This process, when completed, resulted in the second version of the ecosites. A final process of examining the second order clusters produced the third and final arrangement. At that point, the relevés in each ecosite cluster were used to produce the summary description of species composition, forest structure, soil characteristics, and environmental conditions used in this manual.



5. HOW TO USE THE GUIDE

How to use the Guide

The ecosites identified in this guide are largely based on floristic similarities (and differences); however, one need not be a botanist in order to accurately identify Saskatchewan's forest ecosites. The following are a few tips to help the user select how, where, and when to assess site conditions for this purpose.

Site or stand variability may make it confusing or difficult to properly assign an ecosite. Where stand conditions are not naturally homogeneous, it is a good idea for the assessor to walk through a portion of the stand to obtain a better estimate of the forest, vegetation, and site conditions. Take care to note the overstorey species composition and canopy cover as well as species ground cover. Specifically, train your eye to look for some of the diagnostic species and quantities which are cited in the keys. Similarly, ecosites are characterized as much by what they don't have as by what they do, so also make note of which indicator species are absent.

When conducting your site reconnaissance be wary of straying into ecotones, or the boundaries between different ecosystem types. These often narrow areas typically contain a wider range of species that are associated with each condition. Boundaries are usually associated with changes in topography or moisture regime. Areas being assessed should be representative of the stand.

While assessments based on the guide can be obtained virtually any time of year, accuracy increases when more of the site conditions (*e.g.*, vegetation) are visible. Most plant species are at their peak occurrence and cover between July and September. However, other site features such as soils and topography provide other cues which assist in determining the ecosite.

Once you become familiar with the nuances of the ecosites from their descriptions, you will readily be able to classify a site without using the keys.

5.1 Keys

To help users classify their sites and landscapes into ecosystems (*i.e.*, ecosites), a series of diagnostic dichotomous keys have been developed to assist navigation through the numerous characteristics that distinguish one ecosite from another. It is important to note that the keys are not the classification; rather they are simply tools to help guide the user to the most likely ecosite. The fact sheets and their component descriptions and summaries represent the classification.

Keys have been developed and are presented for each of the four ecozones. While the ecozones are different, the keys are similar and have parallel structure to assist users in relating their knowledge across areas. Each ecozone⁴ begins with an overview key that separates major classes of systems such as wetlands from terrestrial sites. The terrestrial sites are then further divided into forest types, largely by the dominant tree lifeforms (*e.g.*, coniferous, deciduous).

⁴ With the exception of the Prairie ecozone.

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Since some terrestrial forest ecosystems are represented by a range of intergrading conditions, it is possible to classify some ecosites from more than one key. For example, the BP4 ecosite (Jack pine - trembling aspen / feathermoss: Moderately fresh sand) can be arrived at by following either the coniferous or the mixedwood ecosites key, while the BP5 ecosite (Trembling aspen / prickly rose / grass: Fresh sand) can be arrived at by following the deciduous or mixedwood ecosites key.

Each of the forest type and wetland keys associated with the ecozones uses three primary features to distinguish the most likely ecosite: 1) abiotic condition (*e.g.*, moisture regime), 2) plant species present on the site, and 3) cover values associated with the plant species.

The abiotic condition assessment identified in the keys is primarily used to distinguish between wetland and terrestrial conditions. It relies on the identification of:

- Depth of organic material,
- Depth to water table,
- Permanently frozen condition, and
- Moisture regime.

Similarly, the wetland keys also use “open water” as an indicator of the fen condition, and the Boreal Shield ecozone also contains a key which requires readers to identify the surface material (*i.e.*, predominantly rock or not).

The plant species that need to be identified to classify terrestrial sites are predominantly trees, although some identification of lesser vegetation is required to tease apart a couple of similar, but distinct ecosites. **Table 3** summarizes the diagnostic species referenced in the terrestrial keys for each of the individual ecozones. Users who are unfamiliar with the species identified in this guide are encouraged to obtain a copy of: “*Plants of the Western Boreal Forest & Aspen Parkland*” (Johnson *et al.* 1995). This plant guide covers all of the species referred to in this ecosite guide, is easy to use, and provides clear descriptions, illustrations, and photographs. Section 7 of this guide provides a complete listing of the common and scientific species names referenced in this guide. The species naming convention for vascular plants follows the taxonomy of Harms (2006).

Unlike the terrestrial sites, wetland sites are keyed first by the predominant physiognomy class (*e.g.*, growth form of the plants such as trees, shrubs, herbs, etc.). Next they are keyed with a calculation using specific diagnostic species associated with bog and fen conditions.

How to use the Guide

Table 3. Diagnostic species identified in the terrestrial keys to the ecosites by ecozone.

Ecozone	Trees	Shrubs & Herbs	Mosses & Lichens
Taiga Shield	balsam poplar trembling aspen white birch black spruce jack pine white spruce	3-toothed saxifrage pink corydalis twinflower	-
Boreal Shield	balsam poplar trembling aspen white birch balsam fir black spruce jack pine white spruce	-	feathermosses lichens
Boreal Plain	balsam poplar Manitoba maple trembling aspen white birch balsam fir black spruce jack pine white spruce	mountain maple beaked hazel bearberry bluebell blueberry green alder Labrador tea lingonberry golden-bean goldenrod common yarrow	feathermosses reindeer lichens
Prairie	balsam poplar trembling aspen green ash lodgepole pine white spruce	-	-

While the calculation may seem complex or cumbersome at first, repeated use and understanding of the site features will allow rapid and accurate assessment of wetlands. Until one becomes familiar with the nuances of wetlands, it is important to consider all of the vegetation in the key as well as the other site features. Many people make the mistake of using a single species as an indicator (such as tamarack) and will sometimes misclassify a site as a fen, when it is actually a bog.

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The terrestrial ecosite keys differ considerably by ecozone; the wetland ecosite keys are much more similar in nature. Each wetland key shares similar diagnostic species with a couple of exceptions that recognize the slightly greater diversity of wetland types in the Boreal Plain ecozone. **Table 4** summarizes the wetland diagnostic species.

Table 4. Diagnostic species identified in the wetland ecosite keys.

Trees	Shrubs	Herbs	Mosses & Lichens
tamarack	alder-leaved buckthorn	bladderworts	dicranum moss
	bog bilberry	buck-bean	golden fuzzy fen moss
	bog birch	cattail	Schreber's moss
	common blueberry	dwarf raspberry	tufted moss
	creeping snowberry	hooded ladies'-tresses	club, cup, & spike lichens
	dwarf bog rosemary	Kalm's lobelia	reindeer lichen
	Labrador tea	marsh cinquefoil	
	leatherleaf	marsh marigold	
	lingonberry	marsh reed grass	
	northern bog laurel	marsh skullcap	
	river alder	marsh violet	
	shrubby cinquefoil	marsh willowherb	
	small bog cranberry	northern grass-of-Parnassus	
	sweet gale	rough cinquefoil	
	willow	seaside arrow-grass	
		slender arrow-grass	
		sticky false asphodel	
		swamp horsetail	
		3-leaved false Solomon's seal	
		tufted loosetrife	
		water hemlock	
		water parsnip	
		western dock	
		wild mint	

Cover or abundance of plants on a site not only define the site, but are indicative of other ecological features such as moisture regime, calcareousness, pH, productivity, or salinity. The keys in this guide use both relative and absolute cover values to distinguish between sites. The values presented in the keys are based on actual field data and represent the thresholds that distinguish between similar ecosites. It is important to remember that natural populations vary considerably, so when vegetation cover estimates in the field are uncertain or borderline conditions occur, consider following both

How to use the Guide

possible decision paths and compare the different resulting factsheet descriptions to one another and to the site in question to determine the best fit.

When working through the keys, it is important to note that ‘% canopy cover’ or ‘% cover’ are different from ‘% of the canopy’. Canopy cover or percent cover are measures of the ground area covered by the species being assessed (e.g., Taiga Shield Wetlands Ecosites Key: “Canopy cover of tree species (>2m) is $\geq 10\%$ ”). They are absolute measures that are illustrated in **Figure 7**. Decision points in the keys that refer to a specific percent of the canopy (e.g., ‘jack pine is $\geq 20\%$ of the canopy’) are relative measures of one tree species’ abundance in comparison to other tree species on the site. That is, a stand/or site which is entirely composed of jack pine would be described as having jack pine at 100% of the canopy, even though the canopy cover may only be at 65%.

Relative percent canopy measures can be roughly estimated by visually counting the number of stems of each species and considering the ratio. For example, if from your observation point you count 15 stems of jack pine and 35 stems of aspen, then jack pine occupies approximately 30% of the canopy while the aspen occupies 70% of the canopy. Of course this assumes that the tree species being compared have equivalent canopy sizes. Accuracy of the canopy ratio (percent) can be improved by taking into account the canopy size differences.

Cover value can be difficult to estimate and many people have limited experience estimating cover values, so three approaches are recommended to improve your cover estimates.

- 1) Compare the plant cover being estimated to the standardized cover values illustrated in **Figure 7**.
- 2) If percentages are difficult to visualize, then consider the values as simple fractions (e.g., $50\% = \frac{1}{2}$, $65\% \approx \frac{2}{3}$, $30\% \approx \frac{1}{3}$).
- 3) Visualize all of the cover associated with the plant being assessed into one continuous portion of the total area. Then ask yourself these questions:
 - Does the cover constitute more than half of the area?
 - If Yes - Does it cover $> 75\%$ of the area?
 - If Yes - cover class choices are 75, 80, or 90%
 - If No - cover class choices are 50 or 65%
 - If No - Does it cover $> 25\%$ of the area?
 - If Yes - cover class choices are 25, or 30%
 - If No - cover class choices are 5, 10, or 20%

For the most part, the terrestrial ecosite keys refer to relative measures (i.e., ‘% of the canopy’) while the wetland ecosite keys refer to absolute canopy cover values although there are exceptions.

Of all the decision points in the dichotomous keys, approximately 70 percent rely upon identification of the site’s tree species and associated cover. Sometimes the term

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'leading species' or 'leading conifer' is used in the keys. A 'leading' species is the species with the greatest canopy cover from (usually) the tallest stratum of trees. Using these features was a conscious decision made to assist with the identification of sites on the basis of remotely-sensed (*i.e.*, forest inventory) data.

Finally, the absence of an ecosite on a key (*e.g.*, no marsh ecosite on the Boreal Shield) may not necessarily mean that it does not exist on the landscape, but rather that its presence is uncommon enough to have escaped observation and sampling. In these cases, it is usually worthwhile to note the aberrant ecosite rather than force-fit a clearly unmatched field condition into the defined ecosite classes.

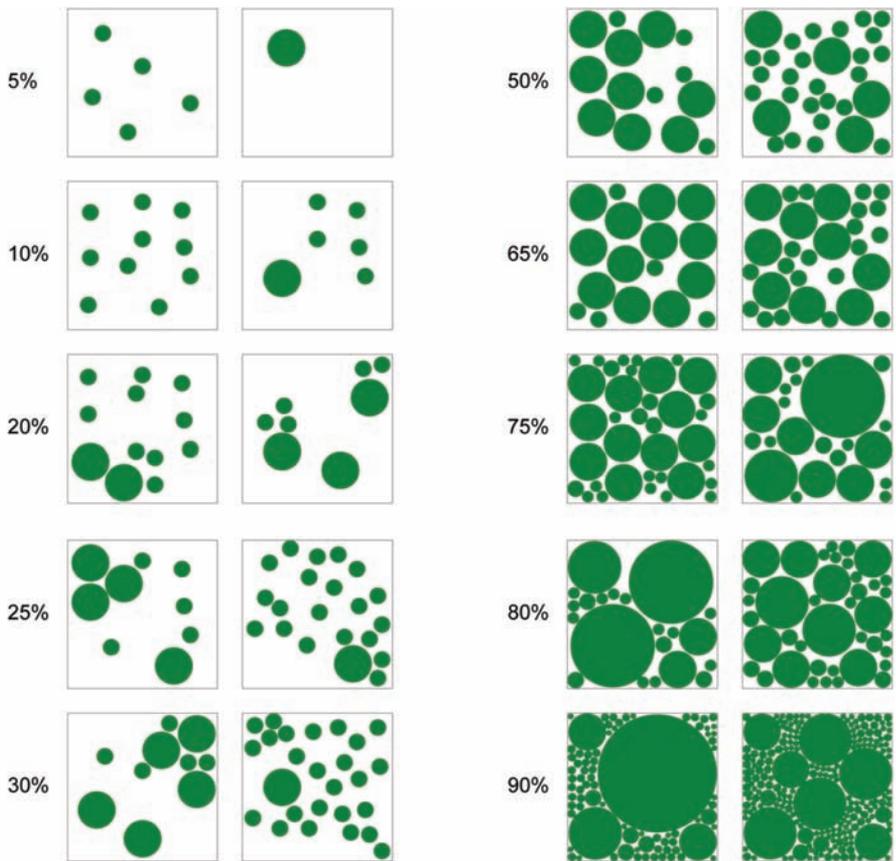


Figure 7. Standardized cover value illustrations for cover values of 5 - 90%.

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5.2 Wetland Key Calculations

Each of the forested ecozone keys is composed of two primary divisions: terrestrial and wetland. While the terrestrial keys differ considerably between ecozones, the wetland keys share common decision points. In addition, each wetland key refers to a fen indicator calculation (**Table 5**). The calculation consists of three steps to help readers arrive at the most appropriate ecosite:

- 1) Counting the number of fen indicators that are readily found on the site (e.g., within a 100 m² area).
- 2) Subtracting the number of bog indicators that are readily found on the site.
- 3) If the resulting number is ≥ 3 then the site is likely a fen, otherwise it is likely a bog.

If borderline conditions are encountered (e.g., calculation result = 3), then consider the abundance or quantities of the indicators that are found on the site, the size and representativeness of the surveyed area (of the site), and the amount of sampling effort expended (e.g., too little or too much effort may skew the results). If unsure, compare and contrast the possible ecosite fact sheets to determine the ecosite. It is also important to note that bogs and fens are also distinguished by their hydrology. Fens are mineral-rich wetlands influenced by ground water, whereas bogs are nutrient-poor wetlands dependent on rain and snowfall for their water supply.

Table 5. Fen Indicator Calculation

		Fen Indicators		
1. Count the # of fen indicators encountered	open water	tufted loosestrife	hooded ladies'-tresses	
	tamarack	rough cinquefoil	marsh willowherb	
	river alder	buck-bean	marsh violet	
	bog/dwarf birch	marsh cinquefoil	Kalm's lobelia	
	willow species	marsh reed grass	N. grass-of-Parnassus	
	alder-leaved buckthorn	dwarf raspberry	sticky false asphodel	
	shrubby cinquefoil	marsh marigold	golden fuzzy fen moss	
	sweet gale	bladderwort species	tufted moss	
	swamp horsetail	slender arrow-grass	-	
			Bog Indicators	
2. Subtract the # of bog indicators encountered	lingonberry	Schreber's moss	reindeer lichens	
	3-leaved false Solomon's seal	dicranum moss	club, cup, & spike lichens	
3. If the resulting number is ≥ 3 , then fen; else = bog				

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Some of the wetland keys reference ericaceous shrubs. A listing of important ericaceous shrubs is found in **Table 6**.

Table 6. Important ericaceous shrubs.

Ericaceous Shrubs	
bog bilberry	Labrador tea
common blueberry	leatherleaf
creeping snowberry	northern bog laurel
dwarf bog rosemary	small bog cranberry
lingonberry	

In using the wetlands keys, note that although black spruce and tamarack may be listed on the ecosite fact sheets in both the tree and shrub categories (*i.e.*, because of height), do not include tree species that are > 2 m tall in the cumulative cover of shrubs in the wetland keys.



How to use the Guide

5.3 Nested Format Keys

5.3.1 Taiga Shield

5.3.1.1 Taiga Shield Overview Key

1. Site has ≥ 2 of the following characteristics: **follow Wetland Ecosites Key**
 - Organic horizons (Of, Om, Oh) ≥ 40 cm thick
 - Water table within 50 cm of the surface
 - Permanently frozen within 60 cm of the surface
 - Moisture regime wetter than *moist*
 - Non-soil adjacent to water body
1. Site has < 2 of the above characteristics: **follow Terrestrial Ecosites Key**

5.3.1.2 Taiga Shield Terrestrial Ecosites Key

1. Jack pine and/or black spruce are $\geq 80\%$ of the canopy 2
1. Jack pine and/or black spruce are $< 80\%$ of the canopy 4
 2. Jack pine is $\geq 50\%$ of the canopy 3
 2. Jack pine is $< 50\%$ of the canopy **TS4**
 3. ≥ 2 of the following are true **TS1**
 - 3-toothed saxifrage present
 - pink corydalis present
 - no twinflower
 3. < 2 of the above are true **TS2**
4. White spruce, trembling aspen, or balsam poplar obvious in the canopy 5
4. White spruce, trembling aspen, and balsam poplar usually absent from the canopy 6
 5. Trembling aspen is $\geq 50\%$ of the canopy **TS5**
 5. Trembling aspen is $< 50\%$ of the canopy **TS6**
 6. White birch is $\geq 80\%$ of the canopy **TS3**
 6. White birch is $< 80\%$ of the canopy **TS7**

5.3.1.3 Taiga Shield Wetland Ecosites Key

1. Vascular and/or bryophyte species cover is $\geq 10\%$	2
1. Vascular and/or bryophyte species cover is $< 10\%$	TS17
2. Canopy cover of tree species ($>2m$) is $\geq 10\%$	3
2. Canopy cover of tree species ($>2m$) is $< 10\%$	5
3. Canopy cover of tree species ($>10m$) is $\geq 25\%$	TS8
3. Canopy cover of tree species ($>10m$) is $< 25\%$	4
4. Fen indicator count is ≥ 3	TS13
4. Fen indicator count is < 3	TS9
5. Cumulative cover of shrub species is $\geq 20\%$	6
5. Cumulative cover of shrub species is $< 20\%$	7
6. Fen indicator count is ≥ 3	TS14
6. Fen indicator count is < 3	TS10
7. Cumulative cover of graminoid species is $\geq 20\%$	8
7. Cumulative cover of graminoid species is $< 20\%$	9
8. Fen indicator count is ≥ 3	TS15
8. Fen indicator count is < 3	TS11
9. Fen indicator count is ≥ 3	TS16
9. Fen indicator count is < 3	TS12

How to use the Guide

5.3.2 Boreal Shield

5.3.2.1 Boreal Shield Overview Key

1. Vascular and/or bryophyte species cover $\geq 10\%$ 2
1. Vascular and/or bryophyte species cover $< 10\%$ **follow Sparsely Vegetated Ecosites Key**
2. Site has ≥ 2 of the following characteristics: **follow Wetland Ecosites Key**
 - Organic horizons (Of, Om, Oh) ≥ 40 cm thick
 - Water table within 50 cm of the surface
 - Permanently frozen within 60 cm of the surface
 - Moisture regime wetter than *moist*
2. Site has < 2 of the above characteristics: 3
 3. Coniferous trees are $\geq 75\%$ of the canopy **follow Coniferous Ecosites Key**
 3. Coniferous trees are $< 75\%$ of the canopy **follow Deciduous-Mixedwood Ecosites Key**

5.3.2.2 Boreal Shield Coniferous Ecosites Key

1. White spruce is $\geq 50\%$ or balsam fir is $\geq 10\%$ of the canopy 2
1. White spruce is $< 50\%$ and balsam fir is $< 10\%$ of the canopy 3
 2. Balsam fir is present in the understory **BS11**
 2. Balsam fir is absent from the understory **BS12**
 3. Trembling aspen and/or white birch are $\geq 5\%$ of the canopy 4
 3. Trembling aspen and/or white birch are $< 5\%$ of the canopy 7
 4. Trembling aspen canopy cover is $>$ white birch canopy cover **BS6**
 4. Trembling aspen canopy cover is $<$ white birch canopy cover 5
 5. Jack pine is $\geq 50\%$ of the canopy **BS5**
 5. Jack pine is $< 50\%$ of the canopy 6
 6. Feathermosses cover $\geq 25\%$ of the forest floor **BS10**
 6. Feathermosses cover $< 25\%$ of the forest floor **BS8**
 7. Black spruce is $\geq 50\%$ of the canopy 8
 7. Black spruce is $< 50\%$ of the canopy 9
 8. Feathermosses cover $\geq 25\%$ of the forest floor **BS9**
 8. Feathermosses cover $< 25\%$ of the forest floor **BS7**
 9. Lichens cover $\geq 25\%$ of the forest floor **BS3**
 9. Lichens cover $< 25\%$ of the forest floor **BS4**

5.3.2.3 Boreal Shield Deciduous-Mixedwood Ecosites Key

- 1. White birch is $\geq 65\%$ ($\frac{2}{3}$) of the canopy **BS14**
- 1. White birch is $< 65\%$ ($\frac{2}{3}$) of the canopy 2
 - 2. Trembling aspen and/or balsam poplar are $\geq 65\%$ ($\frac{2}{3}$) of the canopy **BS15**
 - 2. Trembling aspen and/or balsam poplar are $< 65\%$ ($\frac{2}{3}$) of the canopy 3
 - 3. White spruce is $\geq 50\%$ or balsam fir is $\geq 10\%$ of the canopy 4
 - 3. White spruce is $< 50\%$ and balsam fir is $< 10\%$ of the canopy 5
 - 4. Balsam fir is present in the understory **BS11**
 - 4. Balsam fir is absent from the understory **BS12**
 - 5. Jack pine is the leading conifer in the canopy 6
 - 5. Jack pine is not the leading conifer in the canopy **BS13**
 - 6. Trembling aspen cover is $>$ white birch cover **BS6**
 - 6. Trembling aspen cover $<$ white birch cover **BS5**

5.3.2.4 Boreal Shield Sparsely Vegetated Ecosites Key

- 1. Water table is within 50 cm of surface 2
- 1. Water table is not within 50 cm of surface 3
 - 2. Surface material is predominantly rock **BS27**
 - 2. Surface material is not predominantly rock **BS26**
 - 3. Surface material is predominantly rock **BS2**
 - 3. Surface material is not predominantly rock **BS1**

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5.3.2.5 Boreal Shield Wetland Ecosites Key

1. Canopy cover of tree species (>2m) is \geq 10%	2
1. Canopy cover of tree species (>2m) is < 10%	4
2. Canopy cover of tree species (>10m) is \geq 25%	BS16
2. Canopy cover of tree species (>10m) is < 25%	3
3. Fen indicator count is \geq 3	BS21
3. Fen indicator count is < 3	BS17
4. Cumulative cover of shrub species is \geq 20%	5
4. Cumulative cover of shrub species is < 20%	7
5. Fen indicator count is \geq 3	6
5. Fen indicator count is < 3	BS18
6. Ericaceous shrubs are \geq 50% of the total shrub cover or \geq 2 ericaceous species are present	BS22
6. Ericaceous shrubs are < 50% of the total shrub cover and < 2 ericaceous species are present	BS23
7. Cumulative cover of graminoid species is \geq 20%	8
7. Cumulative cover of graminoid species is < 20%	9
8. Fen indicator count is \geq 3	BS24
8. Fen indicator count is < 3	BS19
9. Fen indicator count is \geq 3	BS25
9. Fen indicator count is < 3	BS20

5.3.3 Boreal Plain

5.3.3.1 Boreal Plain Overview Key

1. Site has ≥ 2 of the following characteristics: **follow Wetland Ecosites Key**
 - Organic horizons (Of, Om, Oh) ≥ 40 cm thick
 - Water table within 50 cm of the surface
 - Permanently frozen within 60 cm of the surface
 - Moisture regime wetter than *moist*
1. Site has < 2 of the above characteristics: 2
2. Site has $\geq 10\%$ tree ($>2\text{m}$) canopy cover 3
2. Site has $< 10\%$ tree ($>2\text{m}$) canopy cover **follow Non-forested Ecosites Key**
3. Coniferous trees are $\geq 75\%$ of the canopy **follow Coniferous Ecosites Key**
3. Coniferous trees are $< 75\%$ of the canopy 4
4. Deciduous trees are $\geq 75\%$ of the canopy ... **follow Deciduous Ecosites Key**
4. Deciduous trees are $< 75\%$ of the canopy **follow Mixedwood Ecosites Key**

5.3.3.2 Boreal Plain Coniferous Ecosites Key

1. Jack pine is $\geq 50\%$ of the canopy 2
1. Jack pine is $< 50\%$ of the canopy 5
2. Jack pine is $\geq 90\%$ of the canopy 3
2. Jack pine is $< 90\%$ of the canopy 4
3. Reindeer lichens cover $\geq 25\%$ of the forest floor **BP2**
3. Reindeer lichens cover $< 25\%$ of the forest floor **BP3**
4. Black and/or white spruce is $\geq 25\%$ of the canopy **BP12**
4. Black and/or white spruce is $< 25\%$ of the canopy **BP4**
5. Balsam fir is $\geq 10\%$ of the canopy **BP13**
5. Balsam fir is $< 10\%$ of the canopy 6
6. Jack pine is $\geq 25\%$ of the canopy 7
6. Jack pine is $< 25\%$ of the canopy 8
7. Trembling aspen and/or white birch are $\geq 10\%$ of the canopy **BP4**
7. Trembling aspen and/or white birch are $< 10\%$ of the canopy **BP12**
8. Black spruce is $\geq 25\%$ of the canopy **BP14**
8. Black spruce is $< 25\%$ of the canopy **BP9**

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5.3.3.3 Boreal Plain Deciduous Ecosites Key

1. Manitoba maple is present in the canopy **BP17**
1. Manitoba maple is absent from the canopy 2
 2. Mountain maple is present on the site **BP8**
 2. Mountain maple is absent from the site 3
 3. Balsam poplar is $\geq 25\%$ of the canopy **BP16**
 3. Balsam poplar is $< 25\%$ of the canopy 4
 4. Trembling aspen is $\geq 30\%$ of the canopy 5
 4. Trembling aspen is $< 30\%$ of the canopy **BP11**
 5. White birch is $\geq 10\%$ of the canopy **BP7**
 5. White birch is $< 10\%$ of the canopy 6
 6. Balsam poplar is $\geq 10\%$ of the canopy **BP15**
 6. Balsam poplar is $< 10\%$ of the canopy 7
 7. Black and/or white spruce and/or fir are $\geq 20\%$ of the canopy **BP10**
 7. Black and/or white spruce and/or fir are $< 20\%$ of the canopy 8
 8. Site has ≥ 2 of the following species present **BP5**
 - bearberry • golden-bear
 - common yarrow • goldenrod
 - bluebell
 8. Site has < 2 of the above species present **BP6**

How to use the Guide

5.3.3.4 Boreal Plain Mixedwood Ecosites Key

1. Jack pine is $\geq 20\%$ of the canopy **BP4**
1. Jack pine is $< 20\%$ of the canopy 2
 2. White birch is $\geq 20\%$ of the canopy **BP11**
 2. White birch is $< 20\%$ of the canopy 3
 3. Conifer species are $\geq 50\%$ of the canopy 4
 3. Conifer species are $< 50\%$ of the canopy 6
 4. Black spruce and ≥ 1 of the following are present **BP14**
 - blueberry • Labrador tea
 - lingonberry • green alder
 4. Black spruce and all of the above listed species are absent 5
 5. ≥ 2 of the following are true **BP13**
 - balsam fir present
 - $> 10\%$ feathermoss
 - no beaked hazel
 5. < 2 of the above are true **BP9**
 6. White birch is $\geq 10\%$ of the canopy **BP7**
 6. White birch is $< 10\%$ of the canopy 7
 7. Balsam poplar is $\geq 10\%$ of the canopy **BP15**
 7. Balsam poplar is $< 10\%$ of the canopy 8
 8. Black and/or white spruce and/or balsam fir are $\geq 20\%$ of the canopy **BP10**
 8. Black and/or white spruce and/or balsam fir are $< 20\%$ of the canopy 9
 9. Site has ≥ 2 of the following species present **BP5**
 - bearberry • golden-bean
 - common yarrow • goldenrod
 - bluebell
 9. Site has < 2 of the above species present **BP6**

5.3.3.5 Boreal Plain Non-Forested Ecosites Key

1. Site is predominantly upland **BP1**
1. Site is predominantly wetland 2
 2. Shrub cover is $\geq 20\%$ **BP25**
 2. Shrub cover is $< 20\%$ **BP28**

How to use the Guide

5.3.3.6 Boreal Plain Wetland Ecosites Key

1. Canopy cover of tree species (>2m) is \geq 10%	2
1. Canopy cover of tree species (>2m) is < 10%	4
2. Canopy cover of tree species (>10m) is \geq 25%	BP18
2. Canopy cover of tree species (>10m) is < 25%	3
3. Fen indicator count is \geq 3	BP23
3. Fen indicator count is < 3	BP19
4. Cumulative cover of shrub species is \geq 20%	5
4. Cumulative cover of shrub species is < 20%	7
5. Fen indicator count is \geq 3	6
5. Fen indicator count is < 3	BP20
6. Ericaceous shrubs are \geq 50% of the total shrub cover or \geq 2 ericaceous species are present	BP24
6. Ericaceous shrubs are < 50% of the total shrub cover and < 2 ericaceous species are present	BP25
7. Cumulative cover of graminoid species is \geq 20%	8
7. Cumulative cover of graminoid species is < 20%	10
8. Fen indicator count is \geq 3	BP26
8. Fen indicator count is < 3	9
9. Site has \geq 3 of the following species present	BP28
• cattail	• western dock
• wild mint	• water parsnip
• water hemlock	• marsh skullcap
• seaside arrow grass	
9. Site has <3 of the above species present	BP21
10. Fen indicator count is \geq 3	BS27
10. Fen indicator count is < 3	BS22

5.3.4 Prairie

5.3.4.1 Prairie Ecosites Key

1. Tree cover is \geq 10%	2
1. Tree cover is $<$ 10%	8
2. Coniferous trees are \geq 25% of the canopy	3
2. Coniferous trees are $<$ 25% of the canopy	6
3. Coniferous trees are \geq 75% of the canopy	4
3. Coniferous trees are $<$ 75% of the canopy	5
4. White spruce is \geq 75% of the canopy	PR6
4. White spruce is $<$ 75% of the canopy	PR2
5. Lodgepole pine is the leading conifer in the canopy	PR3
5. Lodgepole pine is not the leading conifer in the canopy	PR7
6. Trembling aspen is \geq 80% of the canopy and no green ash in the understory	PR4
6. Trembling aspen is $<$ 80% of the canopy or green ash in the understory	7
7. Balsam poplar is \geq 20% of the canopy and the moisture regime is <i>moist to moderately moist</i>	PR8
7. Trembling aspen is $<$ 80% of the canopy or the moisture regime is not <i>moist to moderately moist</i>	PR5
8. Moisture regime is <i>dry to fresh</i>	PR1
8. Moisture regime is not <i>dry to fresh</i>	PR9

How to use the Guide

5.4 Interpreting the Fact Sheets

The fact sheets for each of the four ecozones all follow a parallel structure and each is composed of 10 sections (Figure 8). For the most part, each fact sheet is a composite or average representation of many individual plots. For this reason, finding conditions in the field that exactly match the features would be unusual.

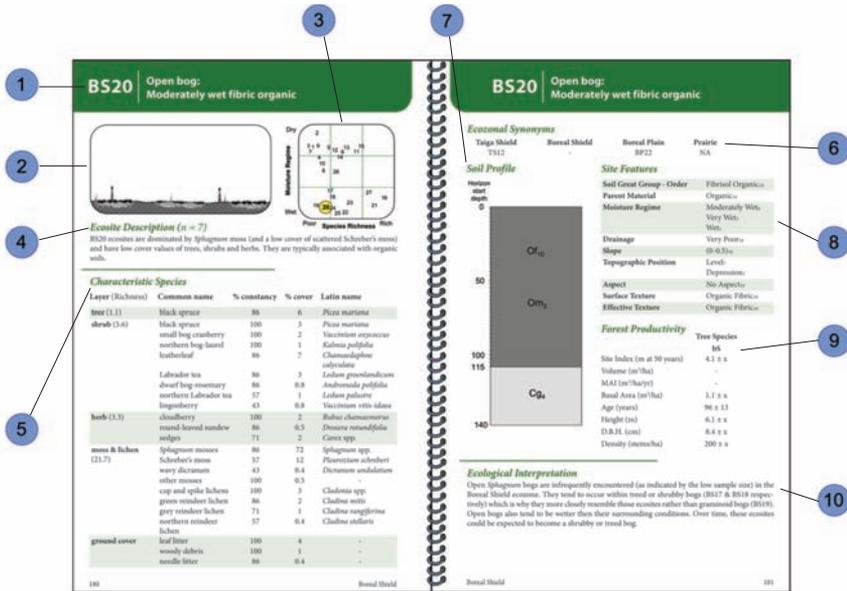


Figure 8. The 10 primary sections of Saskatchewan's forest ecosite fact sheets.

1 The title section identifies the ecosite coding (e.g., BS20), the common descriptive name of the ecosite (e.g., Open bog: Moderately wet fibric organic), and the ecozone that the ecosite is associated with (e.g., Boreal Shield). The species and soil conditions used to name the site are the most dominant or are diagnostic of the ecosite.

2 The silhouette profile provides a pictorial representation of the stand composition and structure associated with each ecosite. The average tree species composition and canopy covers are proportionally represented by the tree silhouettes. Similarly, the tree heights are also reflected to scale. The substrate (e.g., soil) conditions reflected in each profile are the most frequently encountered parent materials and slope conditions associated with the ecosite.

A legend which identifies the species illustrated on the profile is provided in Figure 9.

How to use the Guide

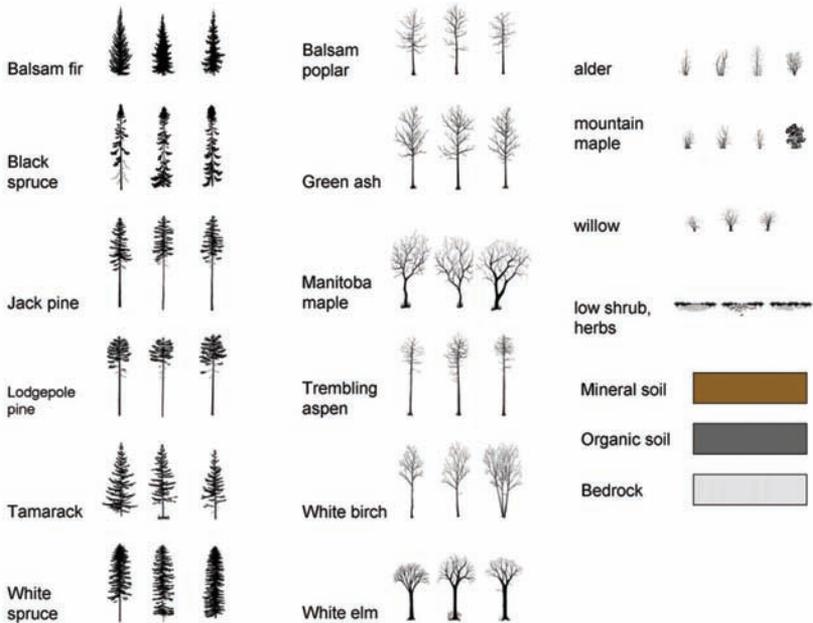


Figure 9. The profile illustrations associated with species depicted on the ecosite fact sheets.

3 The edatopic grid presents the comparative position of each ecosite in each ecozone according to relative moisture and species richness. The edatopic grid illustrates the relative position of each ecosite according to soil moisture regime and species richness. The scale of each axis represents the range of conditions measured for all ecosites within each ecozone. Therefore, the scale of the edatopic grid axes differs among ecozones. For each ecosite the moisture regime coordinate represents the mean soil moisture regime for all of the plots associated with the ecosite. The species richness coordinate represents the mean number of vascular plants (*i.e.*, excluding mosses and lichens) encountered on each ecosite in a 10 m x 10 m sample area.

4 The ecosite description provides a narrative depiction of the attributes associated with the ecosite. It usually includes the identification of frequently encountered or diagnostic species or features that are indicative of the ecosite. The description may also present tips to help distinguish between similar ecosites. This section identifies the number (*n*) of relevés (*i.e.*, plots) that were used to classify and describe the ecosite. Generally, relevé is used in this guide to refer to the vegetation assessment while the term 'plot' refers to entire site assessment. Ecosites with larger 'n' value are more commonly encountered across the landscape than those with smaller 'n' values.

How to use the Guide

5 The characteristic species section lists all of the trees, shrubs, herbs, and mosses and lichens that were found in ≥ 40 percent of the relevés upon which the ecosite was described. The scientific name (*i.e.*, Latin binomial) of each listed species generally follows the nomenclature convention used by the W.P. Fraser Herbarium, University of Saskatchewan, (Harms 2006), the *List of Mosses of North America North of Mexico* (Anderson, Crum & Buck 1990) and *A Checklist of Sphagnum in North America North of Mexico* (Anderson 1990). Section 7 of this guide provides a comprehensive listing of the common and scientific names of species referenced in this guide.

For each species, constancy and percent cover are presented. The constancy figure represents the percent of the ecosite's relevés in which the species occurred. The percent cover represents the average cover of the species based only on the relevés in which it occurred.

Species richness is a basic measure of plant diversity, represented in this guide by the average number of species within each plant physiognomy class (*e.g.*, tree, shrub) averaged across all of the plots of the ecosite. The species represented by this number are almost exclusively native species because sampling was restricted to undisturbed sites.

The forest floor categories reflect the non-living surface condition of the ecosites. Possible categories include needle litter, leaf litter, woody material, rock, soil, and water.

6 The ecozonal synonyms section identifies comparable ecosites found in other ecozones. In some cases, ecosites are unique to an ecozone and have no documented equivalent, analogous, or similar condition in other ecozones.

7 The soil profile section identifies the range of soil horizons that were encountered within the plots from which the ecosite was described, as well as the proportion of the plots in which they occurred. Specifically, the subscript value (which can range from 1 through 10) refers to the proportion of plots in which a particular horizon was present (*e.g.*, 7 = 70%). It is important to note that all of the horizons presented would not necessarily be associated with one soil pit. The figure represents a composite of the dominant soil horizons associated with the ecosite.

The average horizon start depth (*i.e.*, uppermost occurring depth) associated with each horizon is presented (in cm). The commonly encountered horizons are summarized in **Table 7**. For a more thorough and complete description of soil horizons and modifiers, refer to The Canadian System of Soil Classification (Soil Classification Working Group 1998).

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Table 7. Soil horizon labels and modifiers used in this guide.

Horizon	Description
L	The L - layer is the <u>l</u> itter layer and consists of the relatively unaltered remains of plants.
F	The F - layer is the <u>f</u> ibric layer which lies beneath the litter layer. It is composed of partially decomposed plant material but is sufficiently well preserved so as to allow identification of its origin (Pritchett 1979).
H	The H - layer is the <u>h</u> umic layer which consists of predominantly decomposed plant material.
A	The A horizon is the uppermost mineral soil horizon and is considered to be the leached zone and a zone of humic accumulation (Pritchett 1979).
B	The B horizon is usually the next horizon below the 'A' and is considered to be the area of accumulation (<i>e.g.</i> , of clay, iron, aluminium).
AB	AB horizons are transition horizons that share characteristics of both the A and B horizons.
C	The C horizon is the unweathered parent material which may be affected by the processes of mottling, gleying or accumulation of carbonates.
O	The O horizon is made up of organic material, typically originating from mosses, rushes, and woody materials in various states of decomposition.
R	The R horizon usually represents bedrock, but may infrequently refer to rocks.
Horizon modifier ⁵	Description
e	<i>eluviated</i> - as in Ae. This mineral soil modifier indicates that the horizon has lost iron, aluminium, organic material, or clay.
f	<i>ferrum</i> (Latin for iron) - as in Bf. This mineral or organic soil modifier indicates that the horizon has accumulated iron, aluminium, and/or organic matter. When combined with the organic horizon (<i>i.e.</i> , Of), it indicates that the horizon predominantly consists of <u>f</u> ibric material.
g	<i>grey</i> colours (technically lowercase 'g' refers to mottling while a capital G refers to gleying). These mineral soil modifiers indicate that the horizon is developing in the periodic or continuous presence of water.
h	<i>humic</i> - as in Ah. This mineral or organic soil modifier indicates that the horizon has been enriched with organic matter. When combined with the organic horizon, (<i>i.e.</i> , Oh), it indicates that the horizon predominantly consists of <u>h</u> umic material.
j	<i>juvenile</i> - as in Ae _j . This mineral soil modifier is used in combination with another modifier to indicate a weak or poorly discernable expression of the other modifier.
k	carbonate - as in Ck. This mineral soil modifier indicates that calcium and/or magnesium carbonates are present in the horizon.
m	as in Bm. This mineral or organic soil modifier indicates that the horizon has been slightly altered by hydrolysis, oxidation, and/or solution, which may result in only a slight accumulation of iron, aluminium, or clay or be expressed as a change in color and/or structure (Soil Classification Working Group 1998). When combined with the organic horizon (<i>i.e.</i> , Om) it indicates that the horizon predominantly consists of <u>m</u> esic material.

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Table 7. Soil horizon labels and modifiers used in this guide, cont'd

Horizon modifier ⁵	Description
t	as in Bt. This mineral soil modifier indicates a horizon that has been enriched with clay that has moved down from an overlying horizon.
z	frozen - as in Cz. This modifier indicates that the horizon is frozen.

⁵ Each soil horizon (*e.g.*, A, B, C) may have one or more suffix modifier letters which indicate modification to that layer. Only the commonly used modifiers are presented in this guide.

8 The site features section of the fact sheet identifies soil features such as soil great group, order, and textures; moisture features such as moisture regime and drainage, and topography features such as topographic position, slope, and aspect. The composition of each feature is presented to the nearest 10%. For example, an ecosite with a surface texture of LS₆ - SiS₄ had loamy sand on 60% of the plots and silty sand on 40% of the plots. While the sum of the subscript values for each feature should equal 10 (*i.e.*, 100%), rounding may produce a composition percentage that can be greater or less than 100%.

The soil orders commonly referenced in this guide are listed in **Table 8**.

Table 8. Soil orders identified in this guide.

Soil Orders	
Organic	Regosol
Cryosol (organic)	Luvisol
Gleysol	Chernozem
Brunisol	Podzol

For a description of the soil orders and great groups refer to The Canadian System of Soil Classification (Soil Classification Working Group 1998).

Soil texture is identified for both the surface (*e.g.*, typically the A horizon) and effective conditions. For the purpose of this guide, effective texture can be described as the finest soil texture encountered within 50 cm of the surface.

Soil textures are arranged in the texture triangle (**Figure 10**) according to the proportion of sand, silt, and clay (*e.g.*, particle sizes) that they contain. Procedures which describe how to estimate the texture of soils in the field can be found in the “Field Manual for Describing Soils in Ontario” (Ontario Centre for Soil Resource Evaluation 2001). In addition to the texture triangle, soil textures can be arranged linearly along a gradient from coarse to fine. **Figure 11** presents the texture gradient for the 13 soil textures identified in this guide. The linear gradient represents an ordering of the average particle size according to the percent contribution of each texture (*i.e.*, sand, silt, clay).

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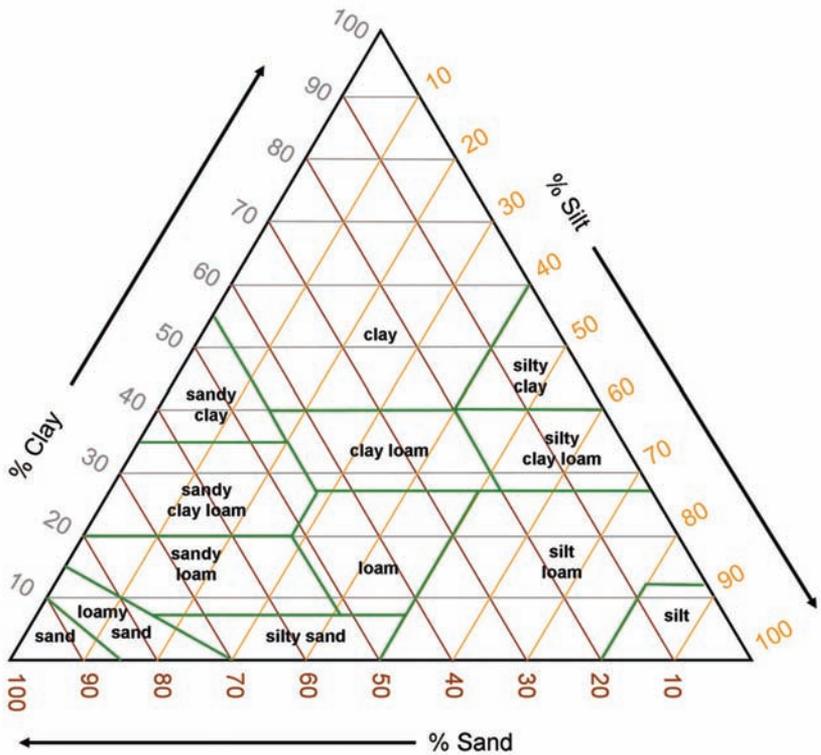


Figure 10. The soil texture triangle (adapted from Brady, 1984).

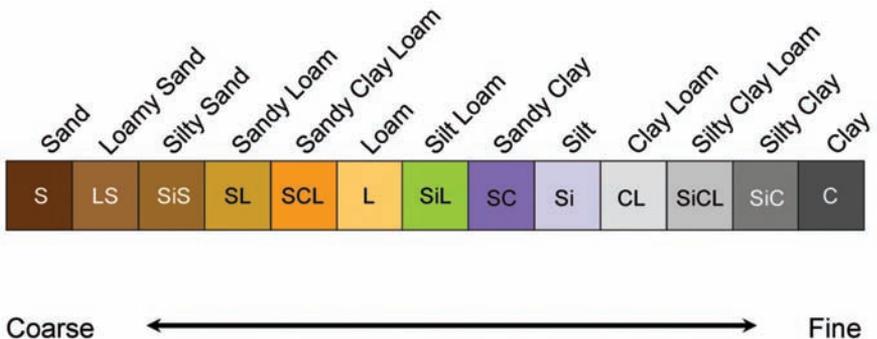


Figure 11. The soil texture gradient.

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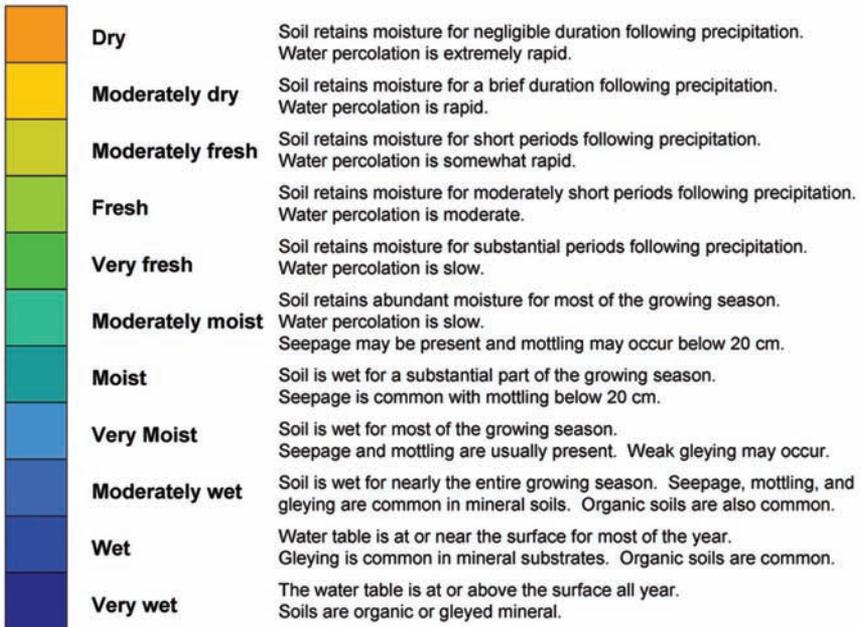


Figure 12. The soil moisture regime gradient (adapted from Nesby 1997).

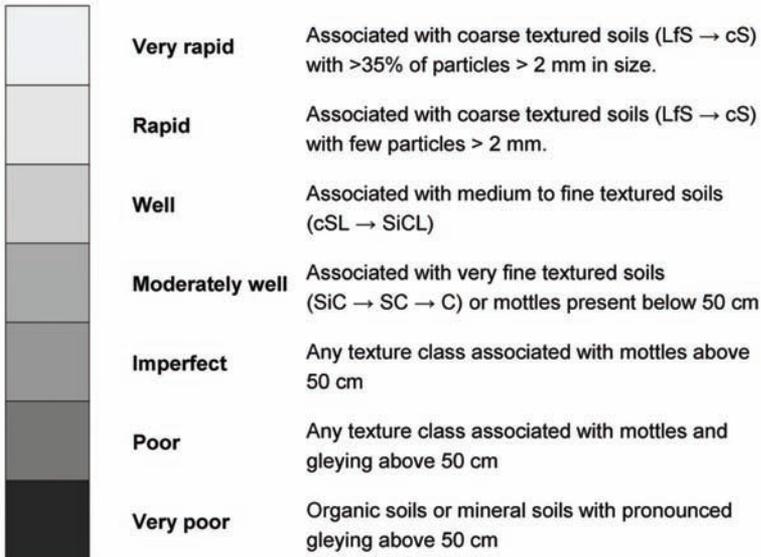


Figure 13. The soil drainage classes (adapted from the Ontario Centre for Soil Resource Evaluation 2001).

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The seven soil drainage classes used in this guide can be found in [Figure 13](#).

Topographic position refers to the location of the site with respect to the surrounding landscape. Ecosites occupying lower slope positions typically receive more moisture and nutrients from both overland and subsurface flow. Ecosites occupying crest positions will receive much of their moisture and nutrients from precipitation; similarly some ecosites such as bogs, which usually occupy depressions or level positions, also receive almost all of their nutrients from precipitation. For this reason, ecosites occupying these topographic positions will tend to be clustered on the same side of the edatopic grid.

[Figure 14](#) presents the seven topographic positions referred to in the guide.

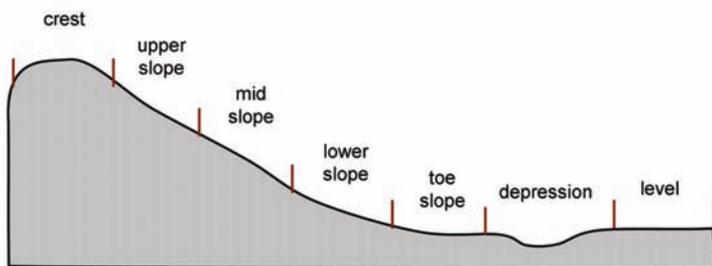


Figure 14. The topographic positions.

Slope refers to the angle of the site (in degrees) as it deviates from level. It quantifies the magnitude of the change from level and provides more context for the topographic position. Seven slope classes were used to describe the sites in this guide ([Figure 15](#)).

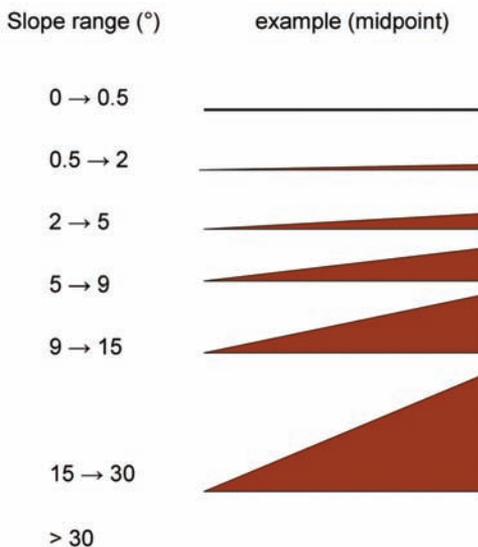


Figure 15. The slope classes.

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Aspect refers to the compass direction that the site faces (*i.e.*, when facing downhill) however a level site has no aspect. Since different aspects receive solar radiation differently (*e.g.*, north aspects tend to be cooler and south aspects warmer), aspect can affect the development of vegetation that will occupy the site. Aspects of the ecosites are grouped according to the four cardinal directions as well as a 'no aspect' class (**Figure 16**).

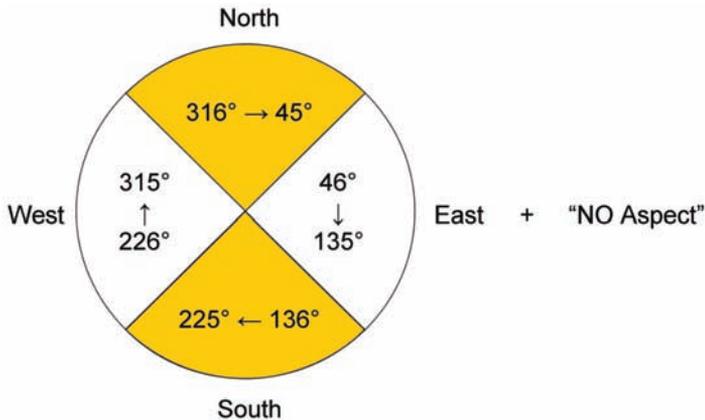


Figure 16. The azimuths associated with the five aspect classes.

9 The forest productivity section provides growth and yield information about each tree species associated with the ecosite. The tree species abbreviations follow the convention identified in the Saskatchewan Forest Vegetation Inventory standards (Forest Service 2004) and are summarized in **Table 10**.

Summary statistics (*i.e.*, mean and confidence interval at the 95% confidence level) are provided for both the directly measured attributes (*e.g.*, tree height) and the derived attributes (*e.g.*, site index). Where the sample size was insufficient, individual fields may be blank. Since these values are derived from plot collected data, small sample sizes may affect these values.

The features described in the productivity section include: site index, mean annual increment, basal area, age, height, diameter at breast height, and stem density.

Site index values are useful for assessing site quality or productivity. Specifically, site index reflects the relationship between tree height and age. It is a useful indicator for the value of the site for tree production because tree height is relatively independent of stem density. The site index values represented in this guide are the average tree height (in m) at 50 years .

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Table 10. Tree species and their abbreviations identified in this guide.

Common Tree Species Name	Tree Species Abbreviation
balsam fir	bF
balsam poplar	bP
black spruce	bS
green ash	gA
jack pine	jP
lodgepole pine	lP
Manitoba maple	mM
tamarack	tL
trembling aspen	tA
white birch	wB
white elm	wE
white spruce	wS

The mean annual increment (MAI) value represents the cumulative tree volume divided by the total tree age; it is expressed in $\text{m}^3/\text{ha}/\text{year}$. Mean annual increment represents the yearly growth of the stand and this value multiplied by the area of the forest represents the theoretical maximum sustainable harvest or the long-term sustained yield.

Basal area represents the cross sectional area of trees (in m^2) on a per hectare basis. Since tree volume is a function of tree height and cross section area, it is useful as a measure of fibre volume. It is also a reasonable measure of stand density (Husch *et al.* 1982).

The average age of the tree species on the ecosite represents the age since germination and not necessarily age since last disturbance. Trees selected for aging were co-dominant in the canopy. Ecosites with deciduous tree species may not always have an age in this field due to the difficulty associated with counting the rings of hardwoods.

Tree height is the average tree height for each species (by ecosite) of all the trees in the plots with a diameter at breast height of greater than 7.5 cm.

Diameter at breast height (1.3 m) is the average diameter associated with each species (by ecosite) of all the trees in the plots with a diameter at breast height of greater than 7.5 cm.

Stem density is a measure of the number of trees (with a d.b.h. greater than 7.5 cm) per hectare. Density is useful for making assessments of ecosystem structure and provides an indication of site occupancy or utilization by trees.

Volume represents the average stand gross merchantable volume established to the 30/05 utilization tree-length series (*e.g.*, 30 cm stump height, 5 cm inside bark top diameter limit) (Gelhorn and Carter 2009).

10 The ecological interpretations section provides a description of how the site may respond to disturbance (*e.g.*, fire, harvesting) and may also include a prediction about the successional trajectory of the ecosite. Where available, information about unique features or associated conditions is also included.

5.5 Cautionary Notes & Limitations

The ecosite classifications for the four ecozones were assembled from nearly 2000 individual site assessments. These sites were identified through a process similar to stratified random sampling however a conscious effort was also made by field crews to sample unique or even rare ecosystems that were observed on the ground. Yet despite these approaches and efforts, it is likely that some site conditions remain unsampled.

When readers encounter a site that does not fit well within the framework of the guide, it is recommended that the reader find the ecosite in the guide which it most closely resembles and then note the differences.

Each ecosite fact sheet summary represents the average natural and mature site condition. Young (*e.g.*, <40 years old) or modified sites may still be classified according to the guide, but elements or specific features of these sites may vary from the mature natural condition. For both young and modified sites, the reader should anticipate differences in vegetation and are encouraged to supplement their ecosite evaluation with features such as moisture regime and other soil attributes.

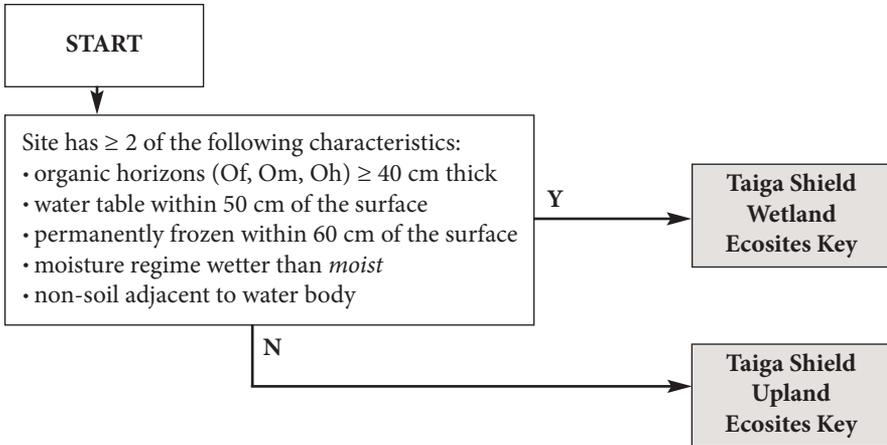
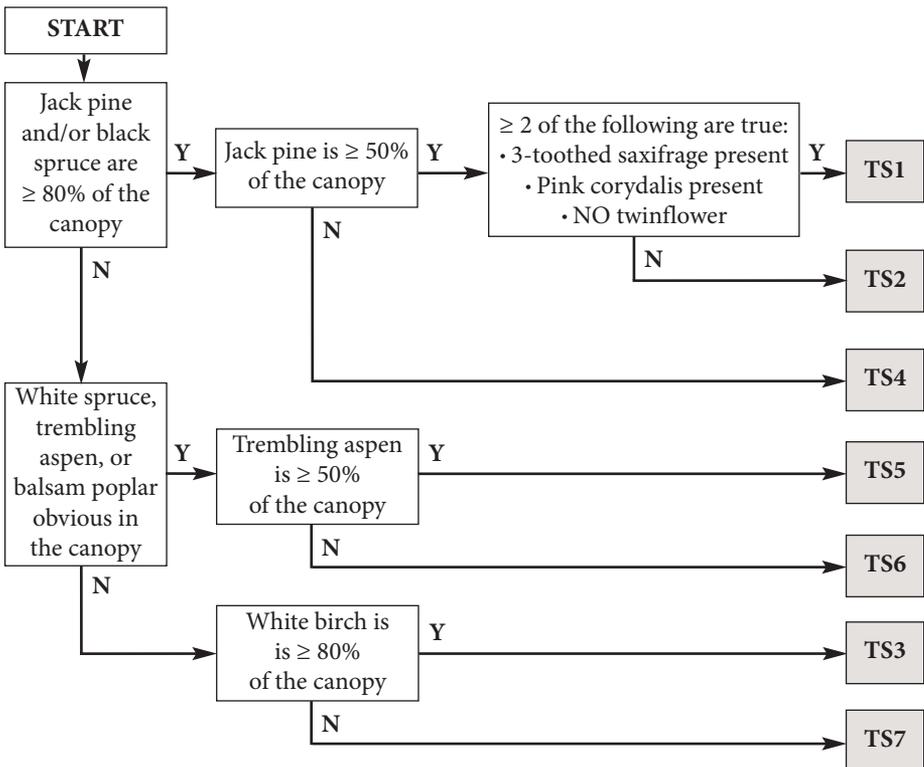


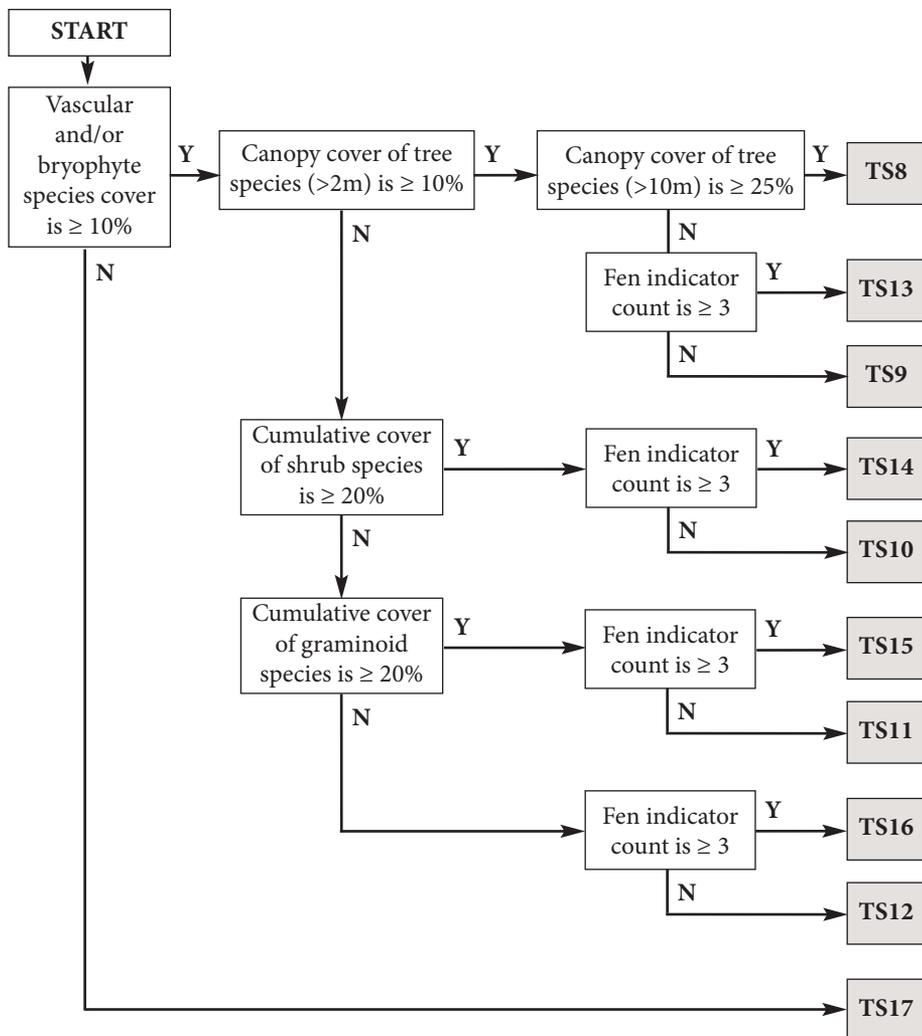
6.1 TAIGA SHIELD

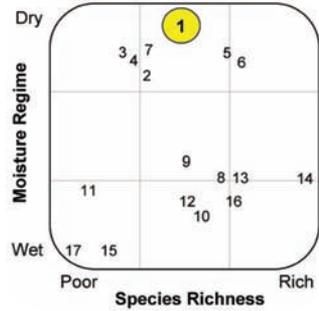
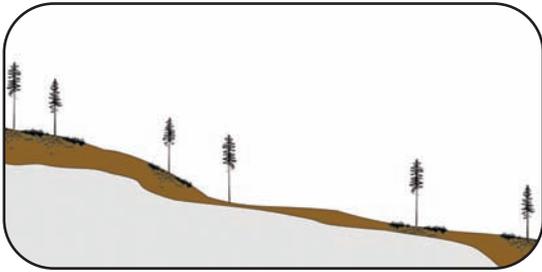
Keys & Fact Sheets

Ecosites of the Taiga Shield

- TS1 - Jack pine / bearberry / lichen: Dry nonsoil
- TS2 - Jack pine - black spruce / lichen: Moderately dry sand
- TS3 - White birch / lingonberry / lichen: Moderately dry loamy sand
- TS4 - Black spruce / lingonberry / feathermoss: Moderately dry silty sand
- TS5 - Trembling aspen / prickly rose - twinflower: Moderately dry sand
- TS6 - White birch - spruce / green alder: Moderately fresh sand
- TS7 - White birch - black spruce / lingonberry: Moderately dry loamy sand
- TS8 - White birch / river alder / feathermoss: Very moist clay loam
- TS9 - Black spruce treed bog: Moderately wet mesic organic
- TS10 - Labrador tea shrubby bog: Very wet humic organic
- TS11 - Graminoid bog: Moderately wet fibric organic
- TS12 - Open bog: Moderately wet mesic organic
- TS13 - Tamarack treed fen: Very moist fibric organic
- TS14 - Labrador tea shrubby fen: Very moist fibric organic
- TS15 - Graminoid fen: Very wet fibric organic
- TS16 - Open fen: Moderately wet mesic organic
- TS17 - Lichen rocky shore: Very wet nonsoil

Taiga Shield Overview Key**Taiga Shield Upland Ecosites Key**

Taiga Shield Wetland Ecosites Key



Ecosite Description (n = 6)

TS1 ecosites are typically occupied by jack pine although black spruce and/or white birch may be locally abundant. Tree growth is slow and heights rarely exceed 10 m. Canopy cover is usually low (<10%) and openings in the stand are common. Exposed bedrock is characteristic of these sites and, where soil does occur, it consists of very shallow silty loams. These stands are poor in vascular plant species, have a high cover of ground lichens, and have an open, park-like appearance. This type of forest has been described by Rowe (1972) as subarctic woodland.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.5)	jack pine	83	9	<i>Pinus banksiana</i>
shrub (3.0)	bearberry	67	22	<i>Arctostaphylos uva-ursi</i>
	common juniper	67	2	<i>Juniperus communis</i>
	pin cherry	50	0.7	<i>Prunus pensylvanica</i>
herb (8.2)	three-toothed saxifrage	83	0.9	<i>Saxifraga tricuspidata</i>
	parsley fern	83	0.5	<i>Cryptogramma acrostichoides</i>
	pink corydalis	67	0.4	<i>Corydalis sempervirens</i>
	tickle grass	67	0.4	<i>Agrostis scabra</i>
	fireweed	50	0.7	<i>Chamerion angustifolium</i>
	rocky mountain fescue	50	0.2	<i>Festuca saximontana</i>
	moss & lichen (28.0)	hair-cap mosses	83	0.7
other mosses		83	5	-
cup and spike lichens		100	12	<i>Cladonia</i> spp.
green reindeer lichen		100	3	<i>Cladina mitis</i>
other lichens		100	37	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	needle litter	100	3	-
	woody debris	100	2	-
	leaf litter	83	5	-
	rock	50	22	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

NA

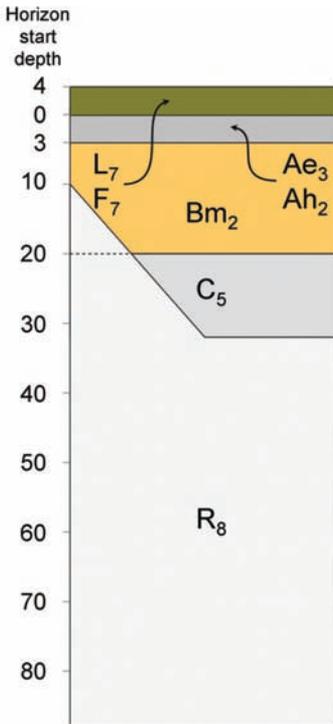
Boreal Plain

NA

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Nonsoils ₅ Dystric Brunisols ₃ Regosols ₂
Parent Material	Rocks ₅ Morainals ₂ Glacio-fluvial ₂ Fluvial ₂
Moisture Regime	Dry ₇ Moderately Dry ₂ Moderately Fresh ₂
Drainage	Very Rapid ₇ Rapid ₃
Slope	(>30) ₃ (15-30) ₃ (5-9) ₂ (2-3) ₂
Topographic Position	Upper Slope ₅ Mid-Slope ₄ Crest ₂
Aspect	East ₅ South ₃ North ₂
Surface Texture	Sand ₃ Silty Sand ₃ Silty Loam ₃
Effective Texture	Rock ₅ Silty Loam ₃ Sand ₂

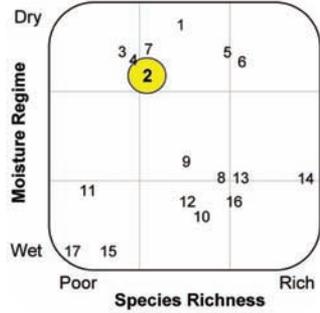
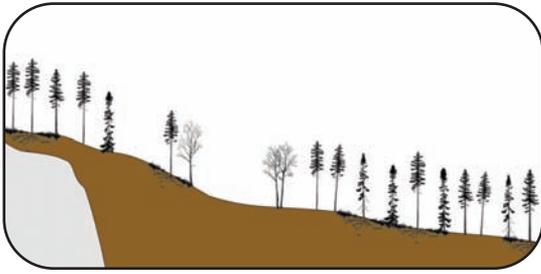
Forest Productivity**Tree Species****jP**

Site Index (m at 50 years)	7.8 ± 5.1
Volume (m ³ /ha)	12.8 ± 25.7
MAI (m ³ /ha/yr)	0.22 ± 0.44
Basal Area (m ² /ha)	5.7 ± 6.4
Age (years)	71 ± 26
Height (m)	7.7 ± 3.1
D.B.H. (cm)	15.3 ± 8.0
Density (stems/ha)	325 ± 328

Ecological Interpretation

These sites are restricted to upper- and mid-slope positions. They are commercially unproductive and tree growth is relatively slow following fire or any other stand-replacing disturbance. The exposed bedrock and shallow soils preclude rapid tree growth and it is not uncommon for these sites to support very stunted and open stands of trees for extended periods. Moss and lichen species richness is relatively high. The vascular plant community is characteristic of sites that have very low nutrient and moisture regimes and are frequently disturbed by fire. Older forest inventories often classified these sites as treed rock.





Ecosite Description (n = 19)

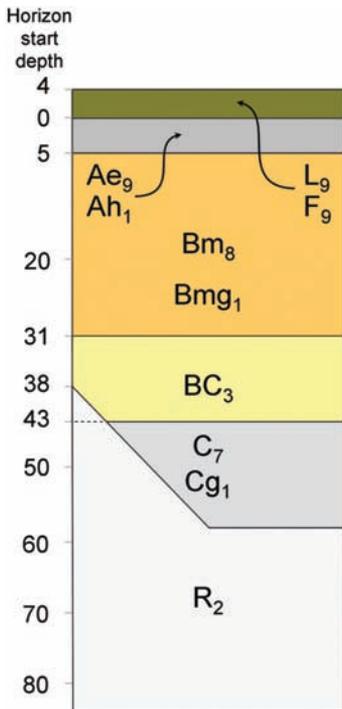
TS2 ecosites are commonly occupied by open, park-like stands of slow-growing and low-stature jack pine. Black spruce and/or white birch may occur on the site but rarely make up more than ten percent of stand tree cover. The shrub cover on these sites is almost exclusively ericaceous shrubs, and the area covered is relatively low. Herbs are relatively sparse. This ecosite has the greatest consistent cover of lichens in the Taiga Shield and is important winter caribou habitat. Prevalence of cup and spike lichens is indicative of recent stand-replacing disturbance while dominance of reindeer lichens indicates a more mature condition and a greater time-since-disturbance (usually by fire). Heavy use of these sites by caribou is thought to leave them with a higher proportion of less palatable lichen species (e.g., woolly coral lichens)(van der Wal, 2001).

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.6)	jack pine	100	34	<i>Pinus banksiana</i>
	black spruce	63	12	<i>Picea mariana</i>
	white birch	53	11	<i>Betula papyrifera</i>
shrub (3.6)	bearberry	89	5	<i>Arctostaphylos uva-ursi</i>
	lingonberry	84	15	<i>Vaccinium vitis-idaea</i>
	black spruce	74	4	<i>Picea mariana</i>
	white birch	53	0.4	<i>Betula papyrifera</i>
	crowberry	42	5	<i>Empetrum nigrum</i>
	Labrador tea	42	2	<i>Ledum groenlandicum</i>
herb (3.4)	northern bastard toadflax	74	2	<i>Geocalaon lividum</i>
	fireweed	47	0.4	<i>Chamerion angustifolium</i>
moss & lichen (29.3)	Schreber's moss	74	3	<i>Pleurozium schreberi</i>
	hair-cap moss	53	0.5	<i>Polytrichum</i> spp.
	<i>Dicranum</i> moss	58	0.6	<i>Dicranum</i> spp.
	other mosses	95	2	-
	stair-step moss	42	0.4	<i>Hylocomium splendens</i>
	green reindeer lichen	100	19	<i>Cladina mitis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
	cup and spike lichens	100	7	<i>Cladonia</i> spp.
	grey reindeer lichen	68	7	<i>Cladina rangiferina</i>
	northern reindeer lichen	58	5	<i>Cladina stellaris</i>
	other lichens	100	12	-
ground cover	needle litter	100	16	-
	woody debris	95	7	-
	leaf litter	84	16	-
	rock	58	13	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
-	BS3 + BS7
Boreal Plain	Prairie
BP2	NA

Taiga Shield

Site Features

Soil Great Group - Order	Dystric Brunisol ₉ Regosol ₁
Parent Material	Morainal ₅ Fluvial ₃ Glaciolacustrine ₂
Moisture Regime	Moderately Dry ₇ Moderately Fresh ₃ Moderately Moist ₁ Very Moist ₁
Drainage	Rapid ₅ Very Rapid ₄ Imperfect ₁
Slope	(15-30) ₃ (9-15) ₂ (5-9) ₂ (2-5) ₂ (0.5-2) ₁
Topographic Position	Crest ₃ Upper Slope ₃ Mid-Slope ₂ Lower Slope ₁ Toe Slope ₁
Aspect	South ₄ East ₂ North ₂ West ₁ No Aspect ₁

Site Features

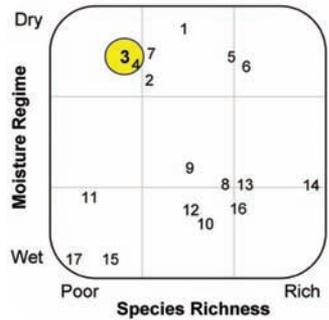
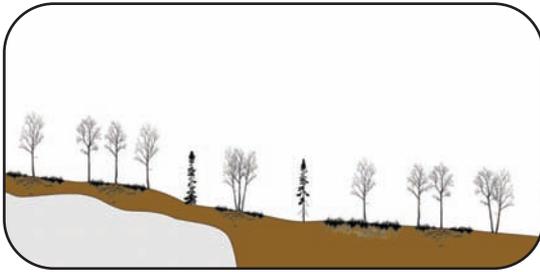
Surface Texture	Sand ₆ Loamy Sand ₃ Silty Sand ₂ Silty Loam ₂
Effective Texture	Sand ₅ Loamy Sand ₂ Silty Loam ₂ Silty Sand ₁

Forest Productivity

	Tree Species		
	jP	bS	wB
Site Index (m at 50 years)	9.0 ± 1.2	7.9 ± 2.4	8.0 ± 39.4
Volume (m ³ /ha)	25.3 ± 11.8	8.6 ± 16.9	1.6 ± 6.9
MAI (m ³ /ha/yr)	0.49 ± 0.20	0.16 ± 0.35	0.10 ± x
Basal Area (m ² /ha)	9.0 ± 2.2	2.6 ± 3.3	1.0 ± 2.0
Age (years)	65 ± 9	77 ± 16	52 ± 19
Height (m)	8.4 ± 0.9	8.5 ± 1.8	8.7 ± 4.6
D.B.H. (cm)	11.8 ± 1.1	10.7 ± 1.6	8.8 ± 0.7
Density (stems/ha)	835 ± 231	243 ± 250	167 ± 287

Ecological Interpretation

These ecosites are relatively dry and typically associated with a sandy substrate although they may be bedrock controlled about 20% of the time. Following fire or other disturbance, these sites usually return to dominance by pine provided an adequate cone crop existed prior to disturbance. The shrub and herb community is typical of nutrient poor, xeric sites frequently disturbed by fire. Most of the living ground cover is comprised of drought-tolerant mosses and lichens. The sites are commonly on upper- and mid-slope positions but may occupy lower slope positions as well. The ecosite is commonly associated with glacial features such as eskers and drumlins. These ecosystems may also be found on sandy outwash plains.



Ecosite Description (n = 13)

TS3 ecosites are almost always pure birch stands, often with minor amounts of shrubby black spruce. Black spruce may also occur in the overstorey, but rarely exceeds 10% of stand canopy cover. Trembling aspen and jack pine are occasionally present but with very low cover values (*i.e.*, <3%). Small amounts of ericaceous shrubs are found on these sites as well as the occasional willow. Most of the ground cover is leaf litter and very few (if any) herbs are present. Lichens and mosses are present but have low cover. In addition to being found on very shallow-to-bedrock conditions, these sites frequently have surface exposures of rock.

These sites are very similar to the TS7 ecosite. TS3 ecosites are distinguished from TS7 ecosites by having a lower proportion of black spruce, much lower incidence of northern Labrador tea, crowberry, and northern bastard toad flax, lower proportions of feathermoss and, as would be expected, relatively more leaf litter and less needle litter on the ground.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	white birch	100	32	<i>Betula papyrifera</i>
	black spruce	77	4	<i>Picea mariana</i>
shrub (4.1)	lingonberry	100	10	<i>Vaccinium vitis-idaea</i>
	Labrador tea	77	9	<i>Ledum groenlandicum</i>
	black spruce	69	4	<i>Picea mariana</i>
	white birch	54	2	<i>Betula papyrifera</i>
	willows	46	6	<i>Salix</i> spp.
	bearberry	46	1	<i>Arctostaphylos uva-ursi</i>
herb (1.6)				
moss & lichen (33.5)	Schreber's moss	92	1	<i>Pleurozium schreberi</i>
	stair-step moss	77	3	<i>Hylocomium splendens</i>
	hair-cap moss	62	0.5	<i>Polytrichum</i> spp.
	<i>Dicranum</i> moss	62	0.6	<i>Dicranum</i> spp.
	other mosses	100	3	-
	cup and spike lichens	100	0.9	<i>Cladonia</i> spp.
	green reindeer lichen	92	2	<i>Cladina mitis</i>
	other lichens	77	10	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	leaf litter	100	41	-
	woody debris	92	8	-
	rock	85	12	-
	needle litter	62	0.4	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS14

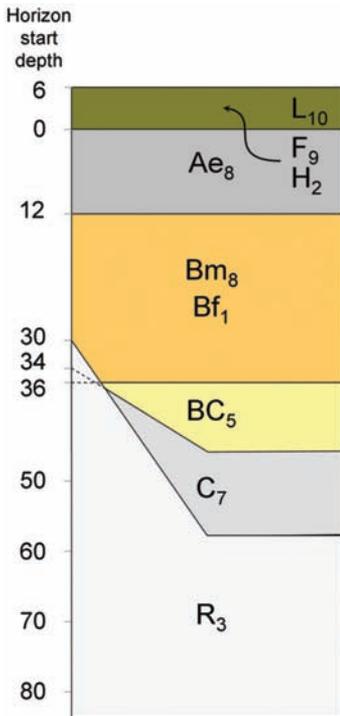
Boreal Plain

NA

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Dystric Brunisols ₈ Folisol Organic ₂ Regosol ₁
Parent Material	Morainals ₆ Fluvial ₂ Organic ₂
Moisture Regime	Moderately Dry ₆ Moderately Fresh ₂ Dry ₁ Moderately Wet ₁
Drainage	Very Rapid ₆ Rapid ₃ Very Poor ₁
Slope	(5-9) ₄ (15-30) ₃ (9-15) ₂ (2-5) ₁ (0.5-2) ₁
Topographic Position	Lower Slope ₅ Crest ₂ Upper Slope ₂ Mid-Slope ₁
Aspect	South ₄ North ₃ West ₂ East ₁ No Aspect ₁
Surface Texture	Loamy Sands ₅ Sand ₄ Silty Sand ₁ Sandy Loam ₁

Site Features

Effective Texture	Loamy Sand ₄ Sand ₃ Rock ₂ Silty Sand ₁ Sandy Loam ₁
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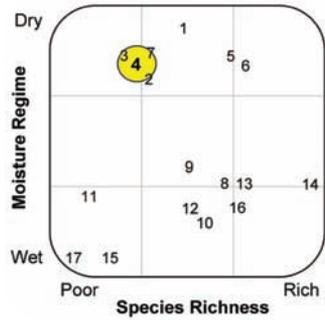
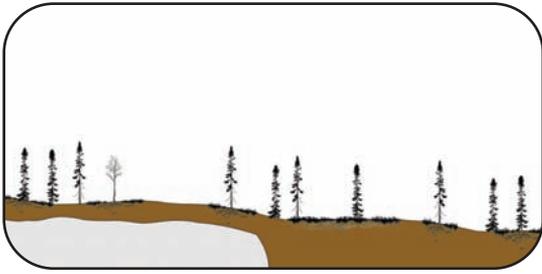
Forest Productivity

	jP	bS	wB
Site Index (m at 50 years)	10.1 ± x	5.8 ± 5.4	7.8 ± 2.1
Volume (m ³ /ha)	-	1.0 ± 2.9	9.8 ± 15.2
MAI (m ³ /ha/yr)	-	0.08 ± x	0.25 ± 0.39
Basal Area (m ² /ha)	1.2 ± x	1.0 ± 0.5	4.5 ± 3.4
Age (years)	40 ± 25	102 ± 36	63 ± 12
Height (m)	8.2 ± x	6.7 ± 2.1	8.0 ± 1.7
D.B.H. (cm)	8.7 ± x	10.2 ± 3.1	9.5 ± 0.6
Density (stems/ha)	200 ± x	120 ± 56	570 ± 366

Ecological Interpretation

While somewhat similar to TS1 ecosites, these sites are more commonly found in lower slope positions, and are sometimes associated with talus slopes.

This ecosite is relatively dry, very unproductive, and frequently controlled by rocks, boulders, and bedrock. Following fire or other disturbance, these sites will usually return to being birch dominated as the birch readily regenerates from root collar sprouts and, with the virtual absence of conifers, there are no other candidates for dominant tree. In the absence of fire or other disturbance, the proportion of black spruce is likely to increase over time as this species is able to reproduce vegetatively by the process of lower branch layering. The very open nature of these sites supports a relatively diverse lichen and moss community.



Ecosite Description ($n = 57$)

TS4 ecosites are nearly always pure black spruce stands, with minor amounts of white birch in the overstorey. Advanced growth of black spruce is consistently present across this ecosite. This ecosite is characterized by low but constant cover of ericaceous shrubs as well as the occasional willow. Northern Labrador tea is a notable species that is present in ecosites of the Taiga Shield. Bog bilberry is also present about one-third of the time but with a cover of <2%. The most common herb found on these sites is northern bastard toadflax, but it occurs with only about 40% constancy and low cover. These sites often have nearly equal proportions of lichens and feathermosses and other bryophytes. TS4 is the most common upland ecosite of the Taiga Shield ecozone.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.9)	black spruce	98	29	<i>Picea mariana</i>
	white birch	47	4	<i>Betula papyrifera</i>
shrub (4.5)	lingonberry	100	14	<i>Vaccinium vitis-idaea</i>
	Labrador tea	88	5	<i>Ledum groenlandicum</i>
	black spruce	86	9	<i>Picea mariana</i>
	crowberry	67	5	<i>Empetrum nigrum</i>
	northern Labrador tea	49	3	<i>Ledum palustre</i>
herb (2.3)	northern bastard toadflax	40	1	<i>Geocalaon lividum</i>
moss & lichen (33.4)	Schreber's moss	93	17	<i>Pleurozium schreberi</i>
	stair-step moss	63	8	<i>Hylocomium splendens</i>
	<i>Dicranum</i> moss	42	0.6	<i>Dicranum</i> spp.
	other mosses	100	9	-
	cup and spike lichens	98	3	<i>Cladonia</i> spp.
	green reindeer lichen	96	5	<i>Cladina mitis</i>
	grey reindeer lichen	89	6	<i>Cladina rangiferina</i>
	northern reindeer lichen	88	2	<i>Cladina stellaris</i>
	other lichens	100	17	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	woody debris	89	5	-
	leaf litter	79	6	-
	needle litter	77	2	-
	rock	67	7	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS9 + BS10

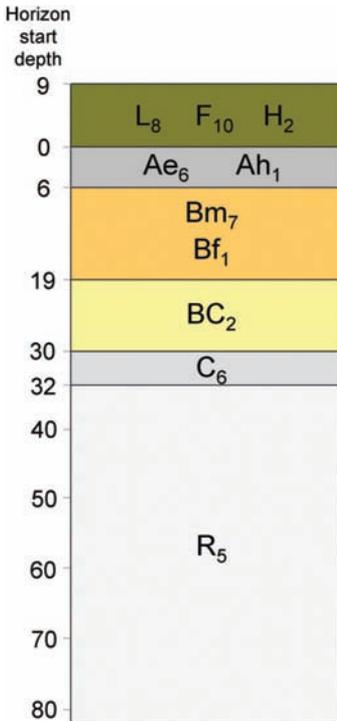
Boreal Plain

BP14

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Dystric Brunisol ₇ Regosol ₁ Nonsoil ₁
Parent Material	Morainal ₇ Fluvial ₁ Lacustrine ₁ Bedrock ₁
Moisture Regime	Moderately Dry ₄ Moderately Fresh ₃ Dry ₂ Fresh ₁ Very Moist ₁
Drainage	Very Rapid ₄ Rapid ₄ Well ₁ Imperfect ₁
Slope	(15-30) ₂ (2-5) ₂ (0-0.5) ₂ (9-15) ₁ (5-9) ₁ (0.5-2) ₁
Topographic Position	Crest ₂ Upper Slope ₂ Mid-Slope ₂ Lower Slope ₂ Level ₁
Aspect	North ₃ East ₂ South ₂ West ₂

Site Features

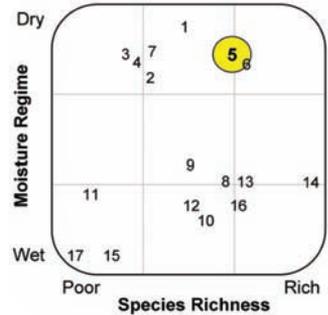
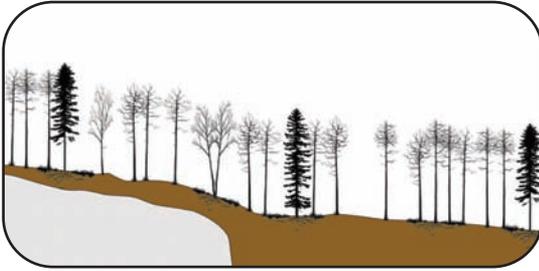
Aspect	No Aspect ₂
Surface Texture	Sand ₃
	Loamy Sand ₂
	Silty Sand ₂
	Sandy Loam ₁
	Silty Loam ₁
Effective Texture	Silty Sand ₃
	Loamy Sand ₂
	Sand ₁
	Sandy Loam ₁
	Silty Loam ₁
	Rock ₁

Forest Productivity

	Tree Species			
	bS	jP	tA	wB
Site Index (m at 50 years)	5.1 ± 0.6	7.5 ± 3.5	-	5.8 ± 1.9
Volume (m ³ /ha)	14.6 ± 5.7	16.9 ± 17.7	4.8 ± x	2.5 ± 5.9
MAI (m ³ /ha/yr)	0.20 ± 0.08	0.25 ± 0.38	0.05 ± x	0.13 ± x
Basal Area (m ² /ha)	8.7 ± 1.6	5.2 ± 3.7	2.4 ± x	1.5 ± 1.1
Age (years)	126 ± 9	89 ± 26	-	73 ± 18
Height (m)	7.3 ± 0.4	8.8 ± 2.2	6.9 ± x	5.8 ± 3.6
D.B.H. (cm)	10.2 ± 0.5	14.5 ± 6.2	12.0 ± x	10.7 ± 4.1
Density (stems/ha)	1057 ± 198	560 ± 672	200 ± x	163 ± 89

Ecological Interpretation

This ecosite can be found across all topographic positions and all slopes and aspect classes. Despite being relatively dry, the soils have enough silts and clays to sustain the development of feathermosses as well as small-statured black spruce reproducing as seedlings or by layering. Following fire, these sites will usually return to being black spruce dominated because of the seed released from the semi-serotinous black spruce cones by the heat of the fire, the shallow duff layer, presence of relatively fine-textured sands, and adequate moisture regime that combine to create good seed beds for black spruce regeneration. The relatively old average age of trees on these sites may indicate a comparatively long average fire interval (*i.e.*, time between consecutive fires on the same site).



Ecosite Description ($n = 5$)

TS5 ecosites are aspen dominated and vary from pure hardwood to a hardwood dominated mixedwood condition. The conifer component of the mixedwoods is usually white spruce, but may also be jack pine. The species richness for shrubs of over 40% constancy is the highest of any upland ecosite in the Taiga Shield ecozone, but the cover values are relatively low. Species richness of herbs with over 40% constancy is second only to TS6. Moss and lichen cover is consistently low and leaf litter is characteristically very high. Woody debris cover tends to be higher on these sites than other Taiga Shield ecosites.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	trembling aspen	100	66	<i>Populus tremuloides</i>
	white birch	60	14	<i>Betula papyrifera</i>
	white spruce	40	29	<i>Picea glauca</i>
shrub (6.6)	prickly rose	80	8	<i>Rosa acicularis</i>
	trembling aspen	80	2	<i>Populus tremuloides</i>
	lingonberry	80	2	<i>Vaccinium vitis-idaea</i>
	low bush-cranberry	80	0.8	<i>Viburnum edule</i>
	green alder	60	23	<i>Alnus viridis</i>
	bearberry	60	16	<i>Arctostaphylos uva-ursi</i>
	buffaloberry	60	4	<i>Shepherdia canadensis</i>
	white spruce	60	0.6	<i>Picea glauca</i>
	common juniper	40	32	<i>Juniperus communis</i>
	twining honeysuckle	40	0.9	<i>Lonicera dioica</i>
	black spruce	40	0.5	<i>Picea mariana</i>
Saskatoon	40	0.4	<i>Amelanchier alnifolia</i>	
herb (7.0)	fireweed	100	2	<i>Chamerion angustifolium</i>
	twinflower	80	9	<i>Linnaea borealis</i>
	northern bastard	80	2	<i>Geocaulon lividum</i>
	toadflax			
	one-sided wintergreen	80	0.9	<i>Orthilia secunda</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (7.0)	common pink wintergreen	60	2	<i>Pyrola asarifolia</i>
	grasses	60	0.3	Graminoid spp.
	bunchberry	40	9	<i>Cornus canadensis</i>
	wild sarsaparilla	40	0.9	<i>Aralia nudicaulis</i>
	wild strawberry	40	0.4	<i>Fragaria virginiana</i>
moss & lichen (24.0)	Schreber's moss	100	0.6	<i>Pleurozium schreberi</i>
	stair-step moss	60	0.6	<i>Hylocomium splendens</i>
	<i>Dicranum</i> moss	60	0.3	<i>Dicranum</i> spp.
	other mosses	100	2	-
	cup and spike lichens	80	0.9	<i>Cladonia</i> spp.
	green reindeer lichen	40	1	<i>Cladina mitis</i>
	grey reindeer lichen	40	0.4	<i>Cladina rangiferina</i>
ground cover	leaf litter	100	80	-
	woody debris	100	10	-
	needle litter	80	9	-
	rock	40	0.9	-

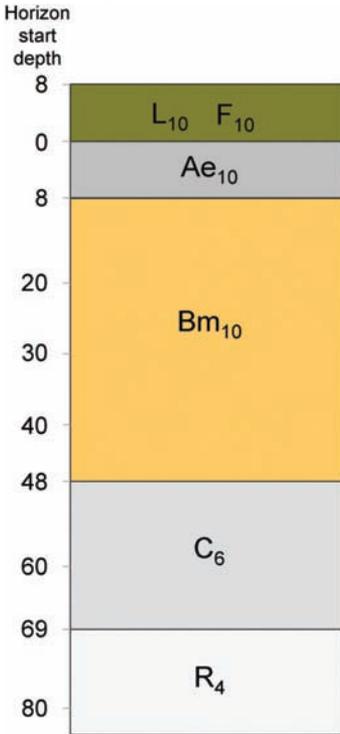
Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
-	BS15	BP6 + BP7 + BP10	NA

Forest Productivity

	Tree Species				
	bP	jP	tA	wB	wS
Site Index (m at 50 years)	18.3 ± x	12.8 ± x	12.0 ± 6.0	-	12.1 ± 28.0
Volume (m ³ /ha)	3.1 ± x	31.4 ± x	96.1 ± 118.9	17.2 ± x	50.8 ± 598.8
MAI (m ³ /yr/ha)	0.04 ± x	0.48 ± x	1.25 ± 1.47	0.18 ± x	0.53 ± 6.23
Basal Area	.08 ± x	8.5 ± x	17.5 ± 15.1	3.3 ± x	8.2 ± 55.9
Age (years)	43 ± 64	45 ± 25	78 ± 29	-	84 ± 37
Height (m)	13.5 ± x	10.1 ± x	12.3 ± 4.1	14.4 ± x	14.5 ± 88.1
D.B.H. (cm)	9.8 ± x	10.9 ± x	13.1 ± 4.7	10.0 ± x	24.8 ± 192.6
Density (stems/ha)	100 ± x	900 ± x	1140 ± 559	400 ± x	300 ± 2541

Soil Profile

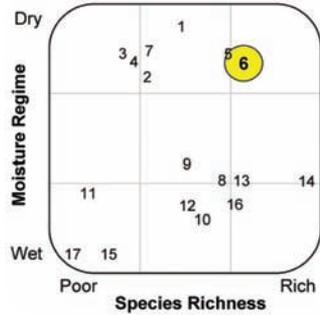
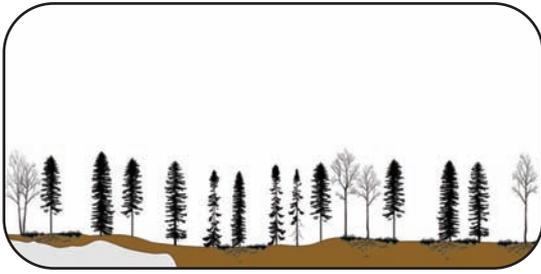


Site Features

Soil Great Group - Order	Dystric Brunisol ₁₀
Parent Material	Morainal ₆ Fluvial ₂ Glaciofluvial ₂
Moisture Regime	Moderately Dry ₆ Fresh ₄
Drainage	Well ₄ Very Rapid ₄ Rapid ₂
Slope	(5-9) ₄ (15-30) ₂ (9-15) ₂ (0-0.5) ₂
Topographic Position	Upper Slope ₄ Mid-Slope ₂ Lower Slope ₂ Level ₂
Aspect	South ₆ East ₂ No Aspect ₂
Surface Texture	Sand ₄ Loamy Sand ₂ Silty Sand ₂ Silty Loam ₂
Effective Texture	Sand ₄ Loamy Sand ₂ Silty Sand ₂ Silty Loam ₂

Ecological Interpretation

These ecosites resemble aspen ecosites of more southerly ecozones, but with less diverse vegetation and a drier soil condition. The soil textures and moisture regimes associated with these sites, and the typically southern and eastern aspects, are responsible for the micro-climates that make possible the growth of aspen and the associated species of herbs and shrubs. The most remarkable feature of this ecosite is the constancy of the vegetation assemblage that accompanies the growth of aspen, despite the great physical distances separating examples of this ecosite type on the Taiga Shield. The southerly aspect, relatively open canopy, and low vascular plant cover allow soils to warm and suckering aspen can be found on these sites. For these same reasons, it is expected that, post-fire, these sites will return to being aspen dominated. These ecosites are very uncommon on the Taiga Shield, covering only a minuscule proportion of the upland area of the ecozone.



Ecosite Description (n = 10)

TS6 ecosites are dominated by white spruce about half of the time. Other tree canopy permutations may include variable amounts of black spruce and jack pine, but always in combination with small amounts of either trembling aspen or even balsam poplar. These are productive ecosites with relatively high site indices and the highest standing volumes and mean annual increment of any upland Taiga Shield ecosite. Green alder and prickly rose are the dominant shrubs and cover values for other shrubs are relatively low. The species richness for herbs with over 40% constancy is the highest of any upland ecosite in the Taiga Shield ecozone and richness of shrubs is second only to TS5. Cover of feathermosses and reindeer lichen is generally high on these sites.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.3)	white birch	80	23	<i>Betula papyrifera</i>
	white spruce	70	30	<i>Picea glauca</i>
	black spruce	40	31	<i>Picea mariana</i>
	trembling aspen	40	12	<i>Populus tremuloides</i>
shrub (5.7)	green alder	70	18	<i>Alnus viridis</i>
	prickly rose	70	5	<i>Rosa acicularis</i>
	lingonberry	60	3	<i>Vaccinium vitis-idaea</i>
	black spruce	50	3	<i>Picea mariana</i>
	low bush-cranberry	50	4	<i>Viburnum edule</i>
	white birch	50	0.4	<i>Betula papyrifera</i>
	willows	40	25	<i>Salix</i> spp.
	white spruce	50	2	<i>Picea glauca</i>
	bearberry	40	2	<i>Arctostaphylos uva-ursi</i>
	herb (8.8)	bunchberry	70	4
twinflower		60	4	<i>Linnaea borealis</i>
fireweed		60	2	<i>Chamerion angustifolium</i>
northern bastard toadflax		60	2	<i>Geocaulon lividum</i>
common pink		50	0.9	<i>Pyrola asarifolia</i>
wintergreen				

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (8.8)	grasses	50	0.6	Graminoid spp.
	one-sided wintergreen	50	0.8	<i>Orthilia secunda</i>
	sedges	40	8	<i>Carex</i> spp.
	wild strawberry	40	0.6	<i>Fragaria virginiana</i>
	dewberry	40	0.4	<i>Rubus pubescens</i>
	common yarrow	40	0.4	<i>Achillea millefolium</i>
	moss & lichen (26.1)	Schreber's moss	80	17
stair-step moss		70	9	<i>Hylocomium splendens</i>
<i>Dicranum</i> moss		70	1	<i>Dicranum</i> spp.
hair-cap moss		50	0.8	<i>Polytrichum</i> spp.
other mosses		100	2	-
cup and spike lichens		90	10	<i>Cladonia</i> spp.
green reindeer lichen		60	4	<i>Cladina mitis</i>
grey reindeer lichen		40	6	<i>Cladina rangiferina</i>
northern reindeer lichen		40	0.3	<i>Cladina stellaris</i>
other lichens		100	1	-
ground cover	leaf litter	100	45	-
	woody debris	100	8	-
	needle litter	80	8	-
	rock	50	22	-

Ecozonal Synonyms

Taiga Shield

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Boreal Shield

BS12 + BS13

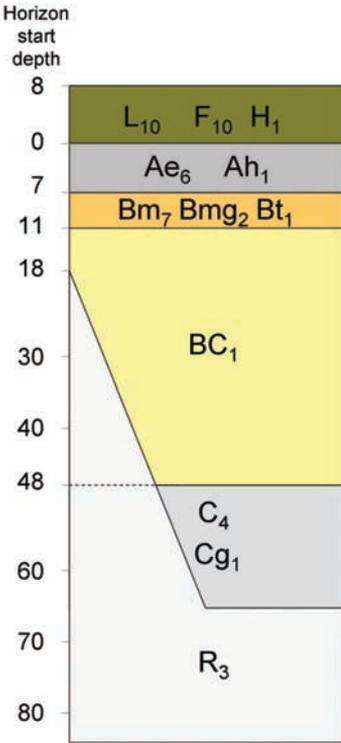
Boreal Plain

BP9

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Dystric Brunisol ₇ Humic Regosol ₁ Gray Luvisol ₁ Nonsoil ₁
Parent Material	Glaciofluvial ₅ Glaciolacustrine ₁ Eolian ₁ Fluvial ₁ Lacustrine ₁ Morainal ₁ Rock ₁
Moisture Regime	Moderately Dry ₃ Moderately Fresh ₃ Fresh ₂ Very Moist ₁ Dry ₁
Drainage	Rapid ₄ Very Rapid ₃ Imperfect ₂ Well ₁
Slope	(0-0.5) ₃ (0.5-2) ₂ (5-9) ₂ (9-15) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Upper Slope ₃ Crest ₂ Mid-Slope ₂ Lower Slope ₂ Level ₁
Aspect	East ₃ South ₂ West ₂ No Aspect ₂ North ₁
Surface Texture	Sand ₃ Silty Loam ₃ Sandy Loam ₁ Silty Clay Loam ₁

Site Features

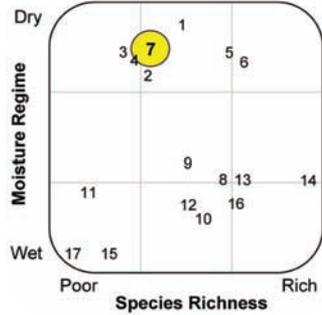
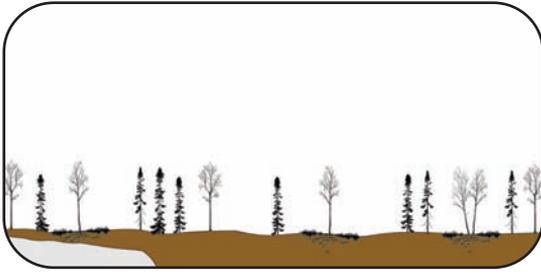
Effective Texture	Sand ₆
	Silty Loam ₂
	Sandy Loam ₁
	Clay ₁
	Rock ₁

Forest Productivity

	Tree Species					
	bP	bS	jP	tA	wB	wS
Site Index	9.4 ±	10.9 ±	9.8 ±	11.6 ±	9.5 ± x	9.8 ±
(m at 50 years)	21.3	9.8	18.4	10.4		2.6
Volume	20.1 ±	25.0 ±	24.9 ±	90.6 ±	19.7 ±	83.3 ±
(m ³ /ha)	255.7	49.5	30.4	343.7	19.5	100.2
MAI	0.48 ± x	0.29 ±	0.36 ±	1.59 ±	0.25 ±	1.00 ±
(m ³ /ha/yr)		0.63	1.51	6.29	0.24	1.35
Basal Area	6.2 ±	6.7 ±	5.8 ±	17.5 ±	4.9 ±	15.9 ±
(m ² /ha)	72.7	11.4	20.7	65.3	4.0	17.5
Age (years)	59 ± 43	87 ± 11	74 ± 123	57 ± 11	87 ± 57	89 ± 21
Height (m)	9.5 ± 16.5	9.8 ± 0.8	12.4 ± 40.3	12.9 ± 4.3	11.3 ± 1.1	10.4 ± 2.9
D.B.H. (cm)	9.8 ± 27.6	10.8 ±	13.5 ±	24.7 ±	12.9 ±	13.1 ±
		3.7	35.3	44.8	2.5	4.8
Density	550 ±	567 ±	500 ±	167 ±	283 ±	933 ±
(stems/ha)	5718	574	3812	143	181	950

Ecological Interpretation

These ecosites have the greatest range of overstory species combinations of all Taiga Shield ecosites. The specific soil and other site conditions, capable of producing an ecosystem able to support white spruce, trembling aspen and balsam poplar, occur only very rarely in this ecozone. Consequently, these are among the least common sites of the Taiga Shield, covering only a very small proportion of the upland area of the ecozone.



Ecosite Description (n = 10)

TS7 ecosites are typically occupied by a black spruce and white birch canopy (with spruce leading) although occasionally jack pine may be substituted for the black spruce. Most of the shrub cover on these sites is ericaceous, accounting for about one-third of the understory vegetative cover. Herb and moss cover is generally low. The lichen community may be more prominent on some examples of this ecosite and is then likely to be dominated by woolly coral lichen. These sites are very similar to the TS3 ecosite. TS7 ecosites are distinguished from TS3 ecosites by having a higher proportion of black spruce, higher incidence of northern Labrador tea, crowberry, and northern bastard toad flax, higher proportions of feathermoss, and as would be expected, relatively less leaf litter and more needle litter on the ground.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	black spruce	100	15	<i>Picea mariana</i>
	white birch	100	15	<i>Betula papyrifera</i>
shrub (4.3)	lingonberry	100	18	<i>Vaccinium vitis-idaea</i>
	Labrador tea	70	9	<i>Ledum groenlandicum</i>
	black spruce	70	5	<i>Picea mariana</i>
	bearberry	60	4	<i>Arctostaphylos uva-ursi</i>
	crowberry	50	4	<i>Empetrum nigrum</i>
	white birch	40	2	<i>Betula papyrifera</i>
	willows	40	1	<i>Salix</i> spp.
	northern Labrador tea	40	0.9	<i>Ledum palustre</i>
herb (3.2)	northern bastard toadflax	70	1	<i>Geocalaon lividum</i>
	grasses	40	0.3	Graminoid spp.
	moss & lichen (34.9)	Schreber's moss	80	3
	stair-step moss	60	8	<i>Hylocomium splendens</i>
	hair-cap moss	50	5	<i>Polytrichum</i> spp.
	<i>Dicranum</i> moss	40	0.5	<i>Dicranum</i> spp.
	other mosses	100	3	-
	cup and spike lichens	100	1	<i>Cladonia</i> spp.
	green reindeer lichen	90	5	<i>Cladina mitis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (34.9)	grey reindeer lichen	70	4	<i>Cladina rangiferina</i>
	northern reindeer lichen	60	0.4	<i>Cladina stellaris</i>
	other lichens	100	15	-
	woody debris	90	6	-
ground cover	leaf litter	80	29	-
	needle litter	60	6	-
	rock	60	9	-

Ecozonal Synonyms

Taiga Shield

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Boreal Shield

BS9 + BS10

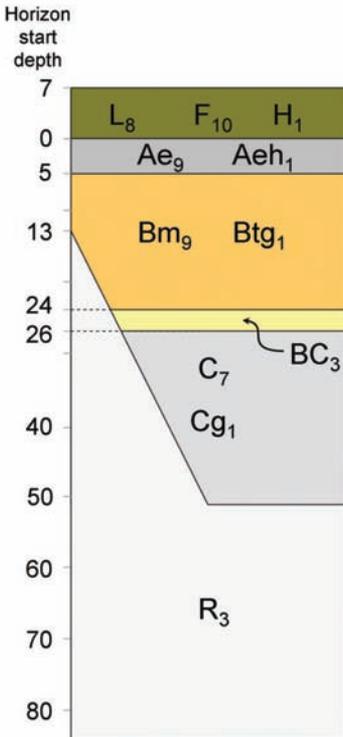
Boreal Plain

BP14

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Dystric Brunisols ₈ Luvic Gleysol ₁ Nonsoil ₁
Parent Material	Morainals ₅ Fluvial ₄ Rock ₁
Moisture Regime	Moderately Dry ₆ Moderately Fresh ₂ Dry ₁ Very Moist ₁
Drainage	Rapids ₅ Very Rapid ₃ Well ₁ Very Poor ₁
Slope	(0-0.5) ₄ (15-30) ₃ (2-5) ₂ (>30) ₁
Topographic Position	Crest ₄ Mid-Slope ₂ Lower Slope ₂ Upper Slope ₁ Level ₁
Aspect	East ₃ No Aspect ₄ South ₂ West ₂

Site Features

Aspect	North ₂
Surface Texture	Loamy Sand ₅ Sand ₃ Sandy Loam ₂
Effective Texture	Sand ₃ Loamy Sand ₃ Silty Sand ₃ Sandy Loam ₂ Sandy Clay Loam ₁

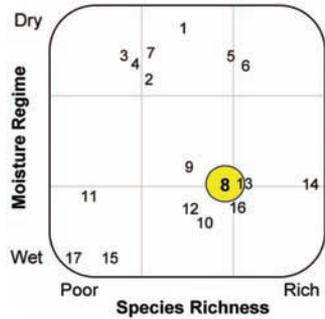
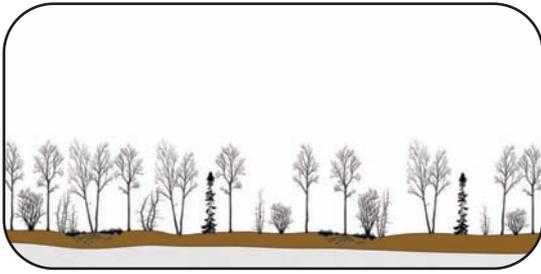
Forest Productivity

	Tree Species		
	bS	jP	wB
Site Index (m at 50 years)	7.8 ± 2.6	11.3 ± x	7.9 ± 2.4
Volume (m ³ /ha)	12.4 ± 22.1	35.4 ± x	23.0 ± 52.3
MAI (m ³ /ha/yr)	0.22 ± 0.40	0.56 ± x	1.15 ± x
Basal Area (m ² /ha)	4.4 ± 4.2	9.5 ± x	5.2 ± 8.8
Age (years)	91 ± 18	62 ± 6	71 ± 29
Height (m)	7.1 ± 1.6	9.9 ± x	8.7 ± 3.4
D.B.H. (cm)	10.4 ± 1.6	11.4 ± x	11.5 ± 4.2
Density (stems/ha)	400 ± 261	900 ± x	414 ± 313

Ecological Interpretation

TS3 and TS7 may be temporally- and successionaly-related ecosites. In the absence of disturbance, TS3 ecosites can transition to TS7 ecosites, as the stands open up with the death of white birch and the black spruce reproducing by layering. A stand-replacing crown fire will tend to convert TS7 stands back to TS3 stands if white birch is present as it will reproduce vigorously after fire by root-collar sprouting at the base of the trunks and from seed. Another indicator of the close relationship between these two ecosites is their similarity in parent material and soil texture. The high frequency and large size of extensive forest fires in the Taiga Shield limits the succession of TS3 to TS7 and consequently also limits the spatial extent of this ecosite. The generally open condition of these sites, consistent presence of shrubby black spruce, and loamy sand surface soil conditions suggest that layering of black spruce is a substantial source of regeneration, in the absence of fire.





Ecosite Description (n = 2)

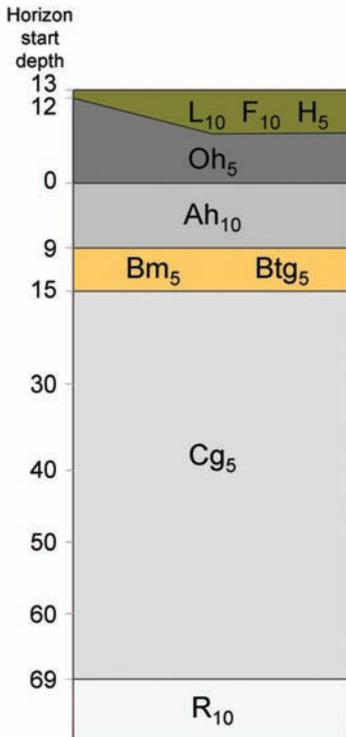
TS8 are wetland ecosites, typically occupied by a white birch canopy. They have a tall shrub layer of river alder and some willow. Both the alder and willow can be large (up to 10 and 8 m respectively). Due to the high alder and tree canopy cover, herb cover is low but the moist, rich conditions support the occurrence of a relatively high diversity of herbaceous species. Similarly, the heavy fall of leaf litter largely precludes cryptogams. These sites are productive because of abundant moisture and rich fluvial soils but the cyclical occurrence of seasonal flooding probably causes the surprisingly low cap on site index.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	white birch	100	39	<i>Betula papyrifera</i>
	black spruce	100	3	<i>Picea mariana</i>
shrub (5.5)	river alder	100	40	<i>Alnus incana</i>
	low bush-cranberry	100	2	<i>Viburnum edule</i>
	black spruce	100	2	<i>Picea mariana</i>
	white birch	100	0.6	<i>Betula papyrifera</i>
	lingonberry	100	0.5	<i>Vaccinium vitis-idaea</i>
	red currant	100	0.4	<i>Ribes triste</i>
	Labrador tea	50	24	<i>Ledum groenlandicum</i>
	pussy willow	50	4	<i>Salix discolor</i>
herb (9.0)	willows	100	3	<i>Salix</i> spp.
	two-seeded sedge	100	0.4	<i>Carex disperma</i>
	cloudberry	100	0.4	<i>Rubus chamaemorus</i>
	marsh violet	100	0.4	<i>Viola palustris</i>
	woodland horsetail	100	0.3	<i>Equisetum sylvaticum</i>
	bunchberry	50	2	<i>Cornus canadensis</i>
	sedges	50	1	<i>Carex</i> spp.
	dwarf scouring rush	50	0.5	<i>Equisetum scirpoides</i>
	three-leaved false	50	0.5	<i>Similacina trifolia</i>
	Solomon's-seal			
pale coralroot	50	0.5	<i>Corallorhiza trifida</i>	
marsh cinquefoil	50	0.5	<i>Comarum palustre</i>	

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (9.0)	one-sided wintergreen	50	0.3	<i>Orthilia secunda</i>
	grasses	50	0.3	Graminoid spp.
	Lapland buttercup	50	0.1	<i>Ranunculus lapponicus</i>
moss & lichen (23.5)	stair-step moss	100	10	<i>Hylocomium splendens</i>
	<i>Sphagnum</i> moss	100	0.4	<i>Sphagnum</i> spp.
	fragile cushion moss	50	0.5	<i>Dicranum fragilifolium</i>
	slender hair-cap moss	50	0.5	<i>Polytrichum strictum</i>
	other mosses	100	2	-
	cup and spike lichens	100	0.3	<i>Cladonia</i> spp.
	other lichens	100	0.3	-
ground cover	leaf litter	100	81	-
	woody debris	100	4	-
	rock	50	1	-
	needle litter	100	0.3	-

Soil Profile



Site Features

Soil Great Group - Order	Gleysol ₁₀
Parent Material	Fluvial ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Imperfect ₅ Very Poor ₅
Slope	(0.5-2) ₅ (2-5) ₅
Topographic Position	Toe Slope ₅ Depressions ₅
Aspect	East ₅ North ₅
Surface Texture	Loamy Sand ₅ Clay Loam ₅
Effective Texture	Organic Humic ₅ Clay Loam ₅

Ecozonal Synonyms

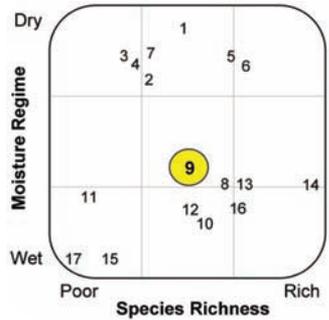
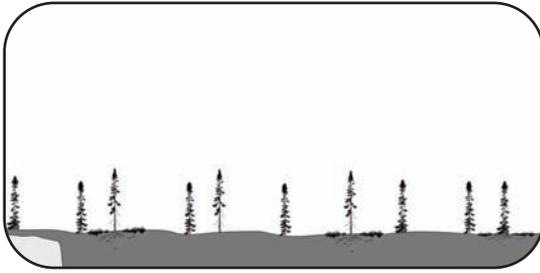
Taiga Shield	Boreal Shield	Boreal Plain	Prairie
-	BS16	NA	NA

Forest Productivity

	Tree Species	
	bS	wB
Site Index (m at 50 years)	8.3 ± 11.8	9.1 ± 32.1
Volume (m ³ /ha)	7.3 ± 56.8	51.2 ± 17.9
MAI (m ³ /ha/yr)	0.07 ± 0.32	0.57 ± 2.07
Basal Area (m ² /ha)	1.8 ± 12.8	13.8 ± 46.8
Age (years)	110 ± 17	98 ± 63
Height (m)	9.9 ± 8.9	10.7 ± 13.9
D.B.H. (cm)	11.9 ± 19.7	14.0 ± 5.3
Density (stems/ha)	150 ± 635	800 ± 3812

Ecological Interpretation

This wetland ecosite is uncommon on the Taiga Shield due to the rarity of the combination of flowing water, good drainage, and mineral parent material. This ecosite is associated with seasonal fluctuations in the water table which allows for the good growth of the birch, alder and willow. They are always located beside ephemeral or seasonally variable stream courses. The soil conditions may have humic layers interspersed with buried mineral horizons of fine-textured fluvial material. The combination of abundant moisture and rich soils produces conditions supporting a herbaceous layer of sparse cover but high species diversity.



Ecosite Description (n = 23)

TS9 ecosites are dominated by black spruce both in tree form and as a shrub. Tamarack is occasionally present. A rich diversity of ericaceous shrubs is common on these sites with Labrador tea being the most abundant. Small bog cranberry and northern Labrador tea are also frequently encountered. *Sphagnum* mosses typically cover most of the soil surface but feathermosses and reindeer lichens are also commonly encountered. Cloudberry is the only herb that is a constant on these sites but a relatively rich diversity of other herb species can be observed with very low cover values. These sites usually occur on frozen organic soils (permafrost), but can also be found in lower and toe slope positions that may have moist to wet mineral soils. Both site index and tree productivity are low due to the cold and frequently flooded organic soils.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.9)	black spruce	100	20	<i>Picea mariana</i>
shrub (7.1)	black spruce	100	8	<i>Picea mariana</i>
	lingonberry	100	6	<i>Vaccinium vitis-idaea</i>
	Labrador tea	96	13	<i>Ledum groenlandicum</i>
	small bog cranberry	87	0.7	<i>Vaccinium oxycoccos</i>
	northern Labrador tea	70	4	<i>Ledum palustre</i>
	crowberry	57	5	<i>Empetrum nigrum</i>
	leatherleaf	52	6	<i>Chamaedaphne calyculata</i>
	northern bog-laurel	52	0.5	<i>Kalmia polifolia</i>
	bog bilberry	43	3	<i>Vaccinium uliginosum</i>
	tamarack	43	0.9	<i>Larix laricina</i>
willows	39	2	<i>Salix</i> spp.	
dwarf bog-rosemary	39	0.6	<i>Andromeda polifolia</i>	
herb (4.0)	cloudberry	87	5	<i>Rubus chamaemorus</i>
moss & lichen (33.8)	<i>Sphagnum</i> moss	100	38	<i>Sphagnum</i> spp.
	Schreber's moss	91	13	<i>Pleurozium schreberi</i>
	<i>Dicranum</i> moss	70	0.5	<i>Dicranum</i> spp.
	stair-step moss	52	5	<i>Hylocomium splendens</i>
	other mosses	100	4	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (33.8)	cup and spike lichens	96	2	<i>Cladonia</i> spp.
	green reindeer lichen	100	4	<i>Cladina mitis</i>
	grey reindeer lichen	91	7	<i>Cladina rangiferina</i>
	northern reindeer lichen	74	2	<i>Cladina stellaris</i>
	other lichens	100	9	-
ground cover	woody debris	91	5	-
	leaf litter	78	3	-
	needle litter	74	0.7	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS17

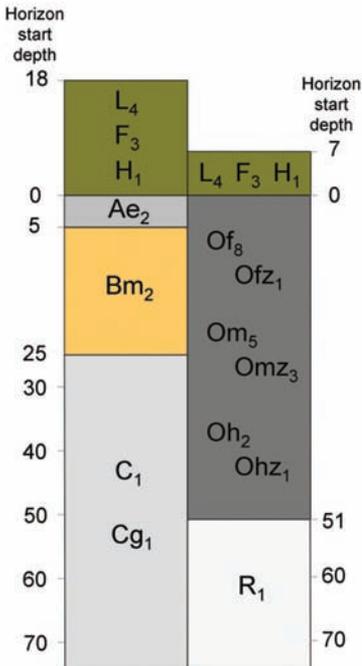
Boreal Plain

BP19

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Organic Cryosol ₆ Dystric Brunisol ₂ Mesisol Organic ₁ Gleysol ₁
Parent Material	Organic ₇ Morainal ₂
Moisture Regime	Moderately Wet ₅ Wet ₂ Very Moist ₁
Drainage	Very Poor ₇ Imperfect ₁ Well ₁
Slope	(0-0.5) ₅ (2-5) ₃ (0.5-2) ₂
Topographic Position	Level ₄ Toe Slope ₂ Lower Slope ₂ Mid-Slope ₂
Aspect	No Aspect ₄ North ₂ West ₂ South ₁ East ₁

Site Features

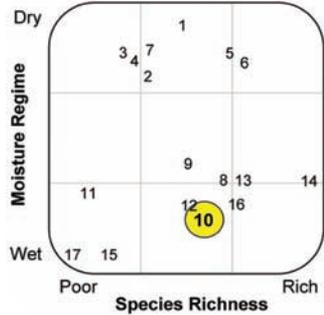
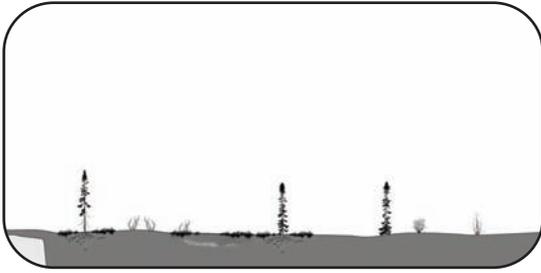
Surface Texture	Organic Fibric ₇ Sand ₁ Loamy Sand ₁ Sandy Loam ₁ Silty Loam ₁ Silty Clay ₁
Effective Texture	Organic Mesic ₆ Organic Fibric ₁ Organic Humic ₁

Forest Productivity

	Tree Species	
	bS	tL
Site Index (m at 50 years)	4.4 ± 0.8	7.1 ± 10.0
Volume (m ³ /ha)	7.9 ± 7.4	3.4 ± 9.5
MAI (m ³ /ha/yr)	0.18 ± 0.16	0.08 ± 0.57
Basal Area (m ² /ha)	4.7 ± 2.1	2.1 ± 2.8
Age (years)	126 ± 15	103 ± 82
Height (m)	6.9 ± 0.8	7.9 ± 4.3
D.B.H. (cm)	9.8 ± 0.7	9.8 ± 1.0
Density (stems/ha)	582 ± 244	300 ± 430

Ecological Interpretation

Treed bogs are commonly encountered on the Taiga Shield. They usually occur along the fringe or transition from the upland to wetter, more open bogs or fens. They are also often associated with extensive permafrost landforms known as peat plateaus. Treed bogs in the Taiga Shield are differentiated from those in the southern ecozones by the presence of northern Labrador tea and bog bilberry. The trees found on these ecosites are usually all-aged as the *Sphagnum* moss on the site encourages layering of spruce and stand-replacing fires are relatively infrequent. *Sphagnum* is also a suitable seedbed for spruce germination, provided that the moss isn't Girgensohn's or another fast-growing peat moss (which can outcompete and smother black spruce germinants). Despite the wet conditions, black spruce on these sites can remain free from rot for long periods and trees can reach ages in excess of 240 years. In the absence of disturbances these ecosites will likely remain in their current condition. Following disturbance by fire or flood, they may return to TS9 or may come to more closely resemble TS10 or TS12 if post-disturbance tree regeneration is very low or absent.



Ecosite Description ($n = 10$)

TS10 ecosites are dominated by a variety of ericaceous shrubs, notably Labrador tea, lingonberry, small bog cranberry and, less often, leatherleaf. Both black spruce and tamarack may occur in tree form (*i.e.*, > 2 m), but their cover is usually low (*i.e.*, < 10%). Aside from the expected absence of trees, shrubby bogs tend to have a higher cover of *Sphagnum* moss, and a lower proportion of feathermoss, than treed bogs. Reindeer lichens and the cup and spike lichens are common on the dry tops of *Sphagnum* hummocks. Shrubby bogs are also more closely associated with wet to very wet organic soils and a micro-topography characterized by small water-filled depressions among the *Sphagnum* hummocks.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	black spruce	70	5	<i>Picea mariana</i>
	tamarack	40	3	<i>Larix laricina</i>
shrub (7.6)	Labrador tea	100	13	<i>Ledum groenlandicum</i>
	northern bog-laurel	100	2	<i>Kalmia polifolia</i>
	black spruce	90	9	<i>Picea mariana</i>
	small bog cranberry	90	2	<i>Vaccinium oxycoccos</i>
	lingonberry	80	3	<i>Vaccinium vitis-idaea</i>
	northern Labrador tea	80	1	<i>Ledum palustre</i>
	bog bilberry	60	3	<i>Vaccinium uliginosum</i>
	tamarack	60	0.8	<i>Larix laricina</i>
	dwarf bog-rosemary	50	2	<i>Andromeda polifolia</i>
	leatherleaf	40	24	<i>Chamaedaphne calyculata</i>
herb (4.8)	crowberry	40	4	<i>Empetrum nigrum</i>
	cloudberry	100	2	<i>Rubus chamaemorus</i>
	sedges	60	2	<i>Carex</i> spp.
	round-leaved sundew	40	0.5	<i>Drosera rotundifolia</i>
moss & lichen (21.5)	hairy butterwort	40	0.3	<i>Pinguicula villosa</i>
	<i>Sphagnum</i> moss	100	43	<i>Sphagnum</i> spp.
	wavy dicranum	60	0.5	<i>Dicranum undulatum</i>
	Schreber's moss	50	0.7	<i>Pleurozium schreberi</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (21.5)	slender hair-cap moss	50	0.5	<i>Polytrichum strictum</i>
	other mosses	100	1	-
	green reindeer lichen	90	7	<i>Cladina mitis</i>
	cup and spike lichens	80	2	<i>Cladonia</i> spp.
	grey reindeer lichen	70	7	<i>Cladina rangiferina</i>
	northern reindeer lichen	60	0.5	<i>Cladina stellaris</i>
	other lichens	100	0.4	-
ground cover	leaf litter	100	11	-
	woody debris	100	2	-
	needle litter	50	0.9	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS18

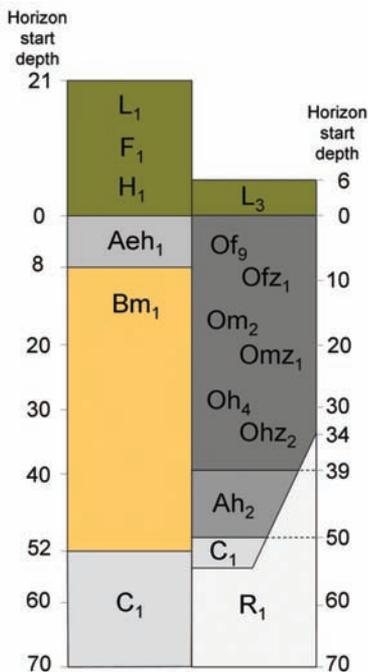
Boreal Plain

BP20

Prairie

NA

Soil Profile



Site Features

Soil Great Group - Order	Organic Cryosol ₄ Fibrisol Organic ₃ Humisol Organic ₂ Dystric Brunisol ₁
Parent Material	Organic ₉ Fluvial ₁
Moisture Regime	Very Wet ₄ Wet ₃ Moderately Wet ₂ Moderately Dry ₁
Drainage	Very Poor ₉ Rapid ₁
Slope	(0-0.5) ₈ (2-5) ₂
Topographic Position	Level ₇ Depression ₁ Lower Slope ₁ Mid-Slope ₁
Aspect	No Aspect ₇ East ₁ North ₁ South ₁

Site Features

Surface Texture	Organic Fibric ₈ Sand ₁ Loam ₁
Effective Texture	Organic Humic ₅ Organic Fibric ₄ Sand ₁

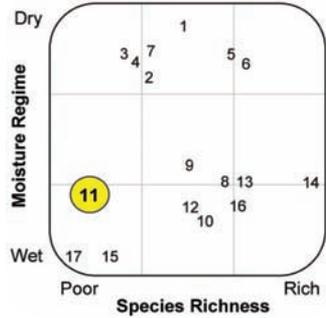
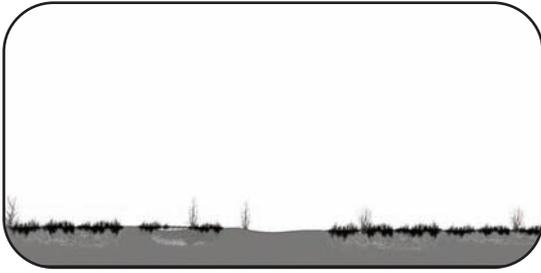
Forest Productivity**Tree Species****bS**

Site Index (m at 50 years)	3.7 ± 0.8
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	1.1 ± 1.8
Age (years)	138 ± 22
Height (m)	6.8 ± 2.9
D.B.H. (cm)	9.1 ± 2.8
Density (stems/ha)	167 ± 287

Ecological Interpretation

Shrubby bogs are common on the Taiga Shield. Being wetter than treed bogs, they tend to be associated with Fibrisol and Humisol organic soils although organic Cryosols are also common and these ecosites are often found on the extensive landform type known as peat plateaus. As with the other forms of bogs, most of the moisture they receive comes from precipitation, not ground water. With little influence from groundwater, they are nutrient poor (*i.e.*, ombrotrophic). This scarcity of nutrients gives rise to conditions which promote the growth of carnivorous plants (*e.g.*, sundew, butterwort) that are able to meet their nutritional needs by catching insects and digesting their proteins to obtain nitrogen. Shrubby bogs occur on sites characterized by even flatter terrain than those supporting treed bogs. Since the water table associated with shrubby bogs is usually below the site surface, they are still susceptible to disturbance from fire. Fires with a long enough duration or intensity may kill shrub species and the bog may transition into an open (TS12) or graminoid dominated (TS11) condition. In a minority of these sites, past successional fluctuations in water table are manifest as buried alluvium horizons which can create an organic Cumulic Humisol soil profile. Buried alluvium layers indicate shifts in environmental conditions (*e.g.*, moisture regimes, hydrology) have occurred sometime in the past.





Ecosite Description ($n = 2$)

TS11 ecosites are dominated by sedges and other graminoids in association with *Sphagnum* moss. They typically lack any substantial tree or shrub cover and can occur on mineral or organic substrates. While not listed as a characteristic species, these are sites in which cotton grasses are sometimes encountered.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.0)				
shrub (2.0)	willows	50	10	<i>Salix</i> spp.
	leatherleaf	50	5	<i>Chamaedaphne calyculata</i>
	northern bog-laurel	50	1	<i>Kalmia polifolia</i>
	small bog cranberry	50	0.5	<i>Vaccinium oxycoccus</i>
herb (3.0)	grasses	50	88	Graminoid spp.
	water sedge	50	50	<i>Carex aquatilis</i>
	cattail	50	1	<i>Typha latifolia</i>
	sedges	50	0.5	<i>Carex</i> spp.
	round-leaved sundew	50	0.5	<i>Drosera rotundifolia</i>
	woodland horsetail	50	0.1	<i>Equisetum sylvaticum</i>
moss & lichen (2.5)	<i>Sphagnum</i> moss	50	75	<i>Sphagnum</i> spp.
	other mosses	50	63	-
ground cover	leaf litter	50	3	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS19

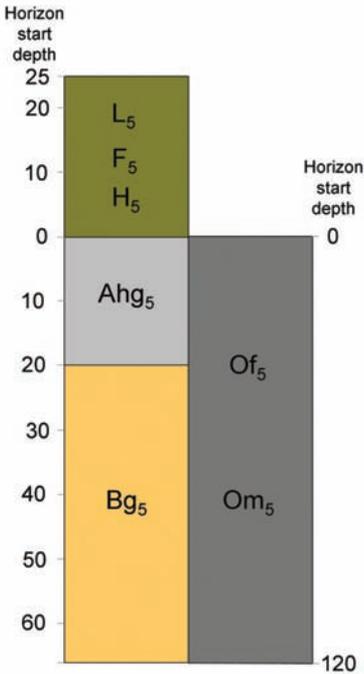
Boreal Plain

BP21

Prairie

NA

Soil Profile



Site Features

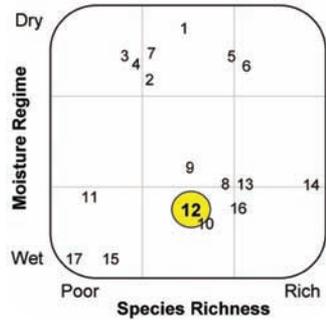
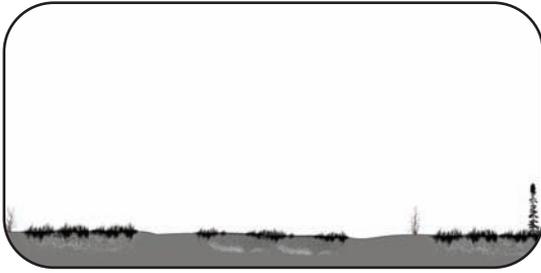
Soil Great Group - Order	Fibrisol Organic ₅ Humic Gleysol ₅
Parent Material	Organic ₅ Lacustrine ₅
Moisture Regime	Moderately Wet ₅ Very Moist ₅
Drainage	Very Poor ₅ Poor ₅
Slope	(0-0.5) ₁₀
Topographic Position	Levels Depression ₅
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₅ Silty Loam ₅
Effective Texture	Organic Fibric ₅ Silt ₅

Forest Productivity

none

Ecological Interpretation

Graminoid bogs are infrequently encountered (as indicated by the low sample size). While similar to sedge fens they lack fen species and standing water is not readily seen. Following disturbance by either fire or prolonged flooding, these sites will typically return to being a graminoid bog. However, they may revert to an open bog condition until the grasses become re-established. These ecosites may become more common as climate change-induced permafrost melting becomes more extensive in the north and peat plateaus give way to collapse scars and thermokarst ponds.



Ecosite Description (n = 1)

TS12 ecosites are dominated by *Sphagnum* moss with low cover of trees (<10%), shrubs (<20%), and herbs (<20%). They are typically associated with organic soils. The typical organic texture for these sites is mesic organic but the presence of permafrost may cause the soils of these sites to be classed as Organic Cryosols.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	black spruce	100	2	<i>Picea mariana</i>
shrub (7.0)	Labrador tea	100	10	<i>Ledum groenlandicum</i>
	black spruce	100	3	<i>Picea mariana</i>
	leatherleaf	100	2	<i>Chamaedaphne calyculata</i>
	lingonberry	100	2	<i>Vaccinium vitis-idaea</i>
	northern bog-laurel	100	0.5	<i>Kalmia polifolia</i>
	small bog cranberry	100	0.5	<i>Vaccinium oxycoccos</i>
	northern Labrador tea	100	0.3	<i>Ledum palustre</i>
herb (4.0)	cloudberry	100	6	<i>Rubus chamaemorus</i>
	sedges	100	0.5	<i>Carex</i> spp.
	woodland horsetail	100	0.3	<i>Equisetum sylvaticum</i>
moss & lichen (13.0)	<i>Sphagnum</i> moss	100	88	<i>Sphagnum</i> spp.
	Schreber's moss	100	1	<i>Pleurozium schreberi</i>
	<i>Dicranum</i> moss	100	0.5	<i>Dicranum</i> spp.
	hair-cap moss	100	0.5	<i>Polytrichum</i> spp.
	other mosses	100	0.5	-
	green reindeer lichen	100	10	<i>Cladina mitis</i>
	cup and spike lichens	100	2	<i>Cladonia</i> spp.
	pelt lichens	100	1	<i>Peltigera</i> spp.
ground cover	woody debris	100	3	-
	leaf litter	100	3	-
	needle litter	100	< 1	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS20

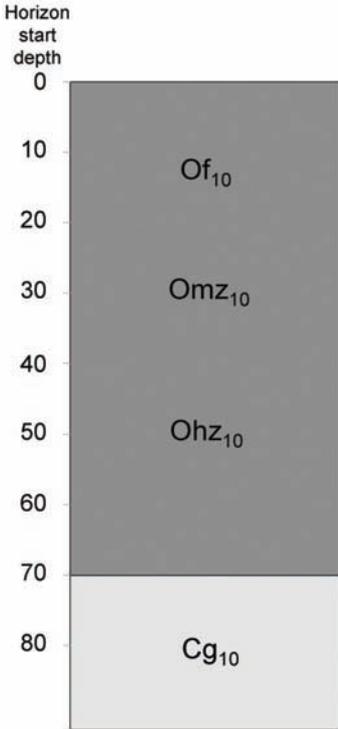
Boreal Plain

BP22

Prairie

NA

Soil Profile



Site Features

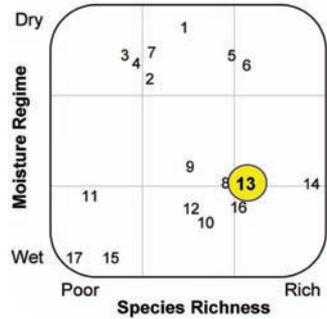
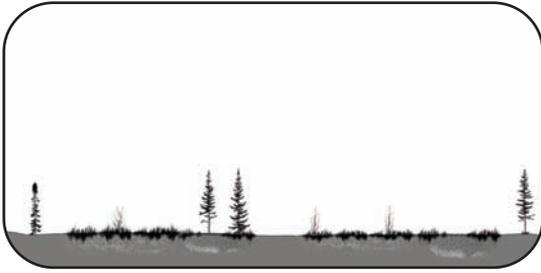
Soil Great Group - Order	Organic Cryosol ₁₀
Parent Material	Organic ₁₀
Moisture Regime	Moderately Wet ₁₀
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Mesic ₁₀

Forest Productivity

none

Ecological Interpretation

Open *Sphagnum* bogs are infrequently encountered (as indicated by the low sample size) in the Taiga Shield ecozone. They tend to be somewhat wetter than (at least temporarily) and resemble the surrounding ecosite, but lack the abundance of species and structure that is commonly associated with other bog ecosites. They usually occur within treed or shrubby bogs (TS9 & TS10 respectively) which is why they more closely resemble those ecosites rather than graminoid bogs (TS11). The organic soils associated with these sites tend to be Mesic, but the frequently encountered permafrost in the Taiga Shield would cause the soil to be classed as an Organic Cryosol. Where the permafrost has melted, these sites could become a collapse scar. Over time, these ecosites may become a shrubby or treed bog.



Ecosite Description (n = 1)

Tamarack is the predominant tree species on TS13 ecosites, although black spruce may also occur in lesser amounts. Many of the shrub and herb species encountered are more commonly associated with moister conditions. It is not uncommon for treed fens to have a water table at or near the surface unless it is frozen. Treed fen ecosites may occur on organic soils or they may have a mineral soil substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (4.0)	tamarack	100	10	<i>Larix laricina</i>
	black spruce	100	3	<i>Picea mariana</i>
	white birch	100	0.5	<i>Betula papyrifera</i>
shrub (11.0)	leatherleaf	100	38	<i>Chamaedaphne calyculata</i>
	bog willow	100	10	<i>Salix pedicellaris</i>
	small bog cranberry	100	5	<i>Vaccinium oxycoccos</i>
	dwarf birch	100	3	<i>Betula pumila</i>
	willows	100	3	<i>Salix</i> spp.
	black spruce	100	3	<i>Picea mariana</i>
	tamarack	100	1	<i>Larix laricina</i>
	northern bog-laurel	100	0.5	<i>Kalmia polifolia</i>
	sweet gale	100	0.5	<i>Myrica gale</i>
	Labrador tea	100	0.3	<i>Ledum groenlandicum</i>
dwarf bog-rosemary	100	0.3	<i>Andromeda polifolia</i>	
herb (5.0)	sedges	100	1	<i>Carex</i> spp.
	common horsetail	100	1	<i>Equisetum arvense</i>
	marsh reed grass	100	0.5	<i>Calamagrostis canadensis</i>
	marsh cinquefoil	100	0.3	<i>Comarum palustre</i>
moss & lichen (26.0)	swamp horsetail	100	0.1	<i>Equisetum fluviatile</i>
	<i>Sphagnum</i> moss	100	19	<i>Sphagnum</i> spp.
	other mosses	100	10	-
	Schreber's moss	100	0.5	<i>Pleurozium schreberi</i>
	<i>Dicranum</i> moss	100	0.5	<i>Dicranum</i> spp.

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (26.0)	other lichens	100	0.5	-
ground cover	leaf litter	100	29	-
	woody debris	100	5	-
	needle litter	100	0.3	-

Ecozonal Synonyms

Taiga Shield

-

Boreal Shield

BS21

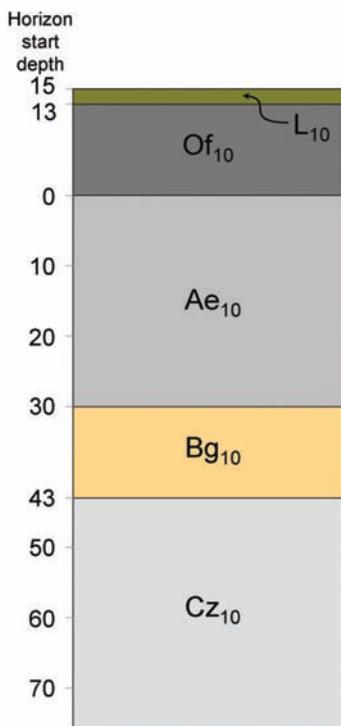
Boreal Plain

BP23

Prairie

NA

Soil Profile



Site Features

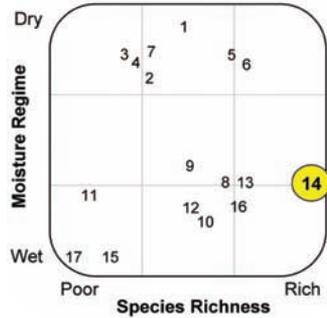
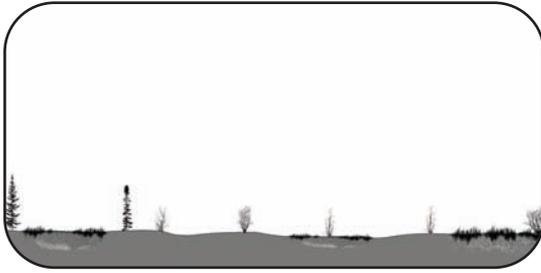
Soil Great Group - Order	Static Cryosol ₁₀
Parent Material	Lacustrine ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Silty clay ₁₀
Effective Texture	Organic Fibric ₁₀

Forest Productivity

	Tree Species
	tL
Site Index (m at 50 years)	7.2 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	1.3 ± x
Age (years)	66 ± 6
Height (m)	7.6 ± x
D.B.H. (cm)	12.9 ± x
Density (stems/ha)	100 ± x

Ecological Interpretation

Tamarack treed fens are not a common wetland (as indicated by the low sample size) in the Taiga Shield. They tend to occur in association with shrubby fens (TS 14) and resemble ribbons in the landscape along drainage ways. Following disturbance, these ecosites could be expected to become a shrubby fen. In the absence of disturbance these ecosites will likely remain in their current condition.



Ecosite Description (n = 1)

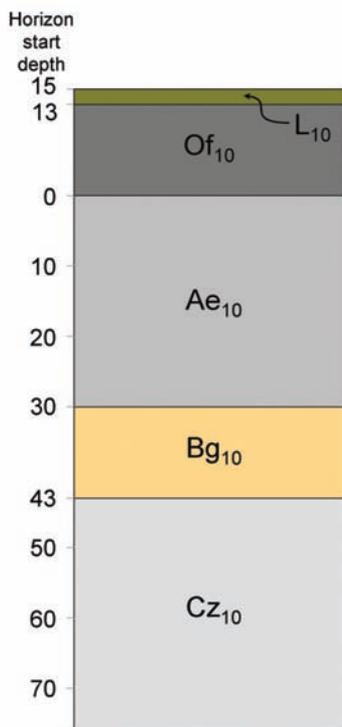
Labrador tea, willow, and leatherleaf are the dominant shrub species on this ecosite. Scattered tamarack or black spruce may also occur. Many of the shrub and herb species encountered are more commonly associated with moister conditions. It is not uncommon for shrubby fens to have a water table at or near the surface unless it is frozen. Shrubby fen ecosites may occur on organic soils or they may have a mineral soil substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	tamarack	100	3	<i>Larix laricina</i>
	black spruce	100	1	<i>Picea mariana</i>
shrub (9.0)	Labrador tea	100	44	<i>Ledum groenlandicum</i>
	willows	100	20	<i>Salix</i> spp.
	leatherleaf	100	19	<i>Chamaedaphne calyculata</i>
	black spruce	100	10	<i>Picea mariana</i>
	lingonberry	100	5	<i>Vaccinium vitis-idaea</i>
	small bog cranberry	100	5	<i>Vaccinium oxycoccos</i>
	river alder	100	2	<i>Alnus incana</i>
	northern bog-laurel	100	1	<i>Kalmia polifolia</i>
	tamarack	100	0.3	<i>Larix laricina</i>
herb (12.0)	sedges	100	19	<i>Carex</i> spp.
	common horsetail	100	1	<i>Equisetum arvense</i>
	round-leaved sundew	100	0.5	<i>Drosera rotundifolia</i>
	northern grass-of-Parnassus	100	0.5	<i>Parnassia palustris</i>
	hooded ladies'-tresses	100	0.1	<i>Spiranthes romanzoffiana</i>
	swamp lousewort	100	0.1	<i>Pedicularis parviflora</i>
moss & lichen (30.0)	<i>Sphagnum</i> moss	100	88	<i>Sphagnum</i> spp.
	<i>Dicranum</i> moss	100	3	<i>Dicranum</i> spp.
	Schreber's moss	100	0.5	<i>Pleurozium schreberi</i>
	other mosses	100	1	-
	grey reindeer lichen	100	1	<i>Cladina rangiferina</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (13.0)	cup and spike lichens	100	0.5	<i>Cladonia</i> spp.
	green reindeer lichen	100	0.5	<i>Cladina mitis</i>
	other lichens	100	0.5	-
ground cover	water	100	10	-
	leaf litter	100	6	-
	woody debris	100	2	-
	needle litter	100	2	-

Soil Profile



Site Features

Soil Great Group - Order	Gleysol ₁₀
Parent Material	Fluvial ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Imperfect ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Sand ₁₀
Effective Texture	Organic Fibric ₁₀

Forest Productivity

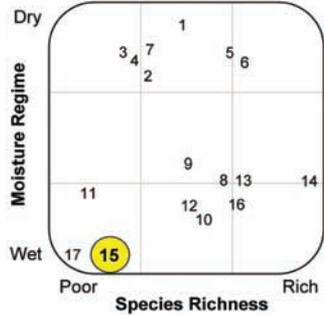
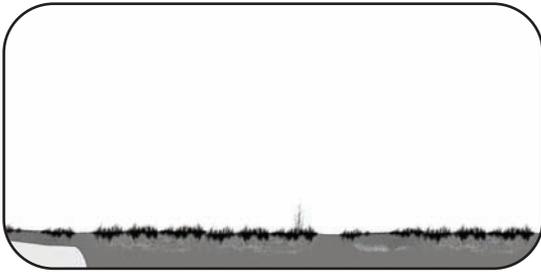
	Tree Species tL
Site Index (m at 50 years)	15.1 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	0.6 ± x
Age (years)	35 ± 83
Height (m)	7.7 ± x
D.B.H. (cm)	9.0 ± x
Density (stems/ha)	100 ± x

Ecozonal Synonyms

Taiga Shield	Boreal Shield
-	BS22
Boreal Plain	Prairie
BP24	NA

Ecological Interpretation

Shrubby fens are quite uncommon (as indicated by the low sample size) in the Taiga Shield. Where they do occur, it is usually in association with treed fens (TS 13). Depending on type of disturbance (*e.g.*, flooding or fire), these ecosites could return to TS14, provided the regenerative capacity of the shrub layer was maintained. If the shrub layer was lost or otherwise compromised, this site may more closely resemble TS16 or TS15.



Ecosite Description (n = 5)

Graminoid or sedge fens support various sedge species (e.g., beaked sedge) and sometimes marsh reed grasses. They generally lack trees and shrubs and *Sphagnum* moss is the most common moss. Graminoid fens usually have water at or near the surface and small surface pools which can support bladderwort. While graminoid fen ecosites are usually associated with organic soils, they may also occur with mineral substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.2)				
shrub (1.6)	leatherleaf	60	4	<i>Chamaedaphne calyculata</i>
	willows	40	0.3	<i>Salix</i> spp.
	sweet gale	40	0.3	<i>Myrica gale</i>
herb (4.4)	hairy-fruited sedge	60	20	<i>Carex lasiocarpa</i>
	beaked sedge	60	8	<i>Carex rostrata</i>
	water sedge	40	18	<i>Carex aquatilis</i>
	northern reed grass	40	6	<i>Calamagrostis inexpansa</i>
	marsh cinquefoil	40	1	<i>Comarum palustre</i>
	flat-leaved bladderwort	100	1	<i>Utricularia intermedia</i>
moss & lichen (5.4)	<i>Sphagnum</i> moss	60	58	<i>Sphagnum</i> spp.
	other mosses	60	10	-
ground cover	leaf litter	100	24	-
	water	80	23	-
	woody debris	40	0.8	-

Ecozonal Synonyms

Taiga Shield

Boreal Shield

Boreal Plain

Prairie

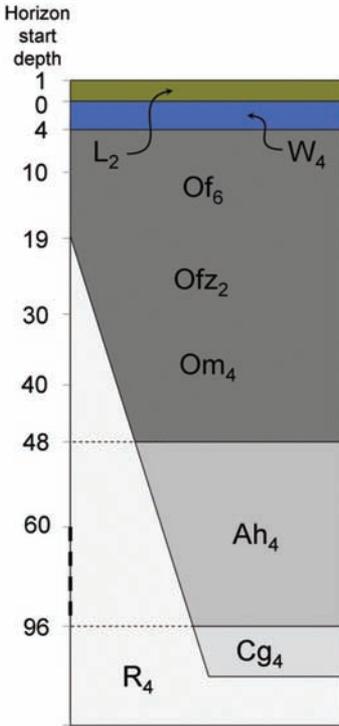
-

BS24

BP26

PR9

Soil Profile



Site Features

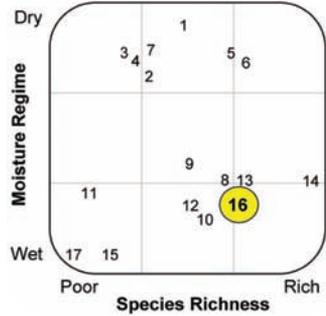
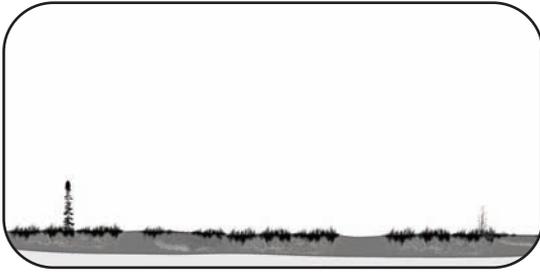
Soil Great Group - Order	Fibrisol Organic ₆ Mesisol Organic ₂ Nonsoil ₂
Parent Material	Organic ₈ Rock ₂
Moisture Regime	Very Wet ₁₀
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₆ Depression ₄
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₇ Organic Mescic ₃
Effective Texture	Organic Fibric ₆ Organic Mescic ₂ Clay Loam ₂

Forest Productivity

none

Ecological Interpretation

Graminoid fens are occasionally found across the Taiga Shield. They are often in close proximity to lake shorelines and can have an organic, soil, rocky, or floating organic substrate. The high water table on these sites can provide the proper conditions for submergent plants. The flat-leaved bladderwort that occurs on these sites is carnivorous. It has modified leaves which are used to capture and digest small invertebrates to meet its nitrogen needs in the nitrogen-poor environment of the fen. Following disturbance, such as ice-action, these ecosites could be expected to remain as graminoid fens.



Ecosite Description ($n = 1$)

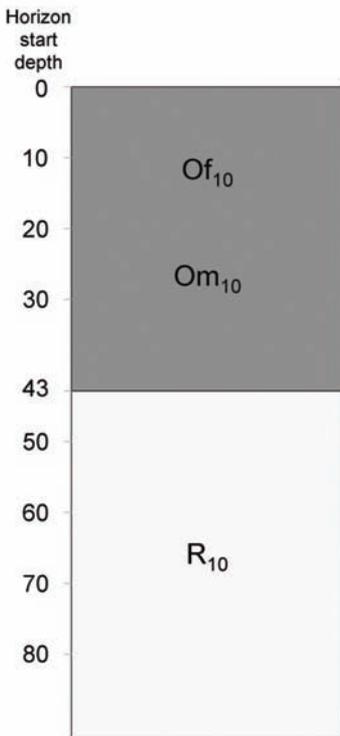
Open fens are characteristically dominated by mosses and support little else in the way of vegetative cover. It is not uncommon for open fens to support many of the plant species found in adjacent ecosites and, while the diversity of species may be relatively high, the cover values are low. In terms of soil, open fens are found on either mineral or organic substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name	
tree (2.0)	black spruce	100	0.5	<i>Picea mariana</i>	
shrub (9.0)	leatherleaf	100	2	<i>Chamaedaphne calyculata</i>	
	sweet gale	100	2	<i>Myrica gale</i>	
	lingonberry	100	1	<i>Vaccinium vitis-idaea</i>	
	white birch	100	1	<i>Betula papyrifera</i>	
	willows	100	0.5	<i>Salix</i> spp.	
	dwarf bog-rosemary	100	0.5	<i>Andromeda polifolia</i>	
	northern bog-laurel	100	0.5	<i>Kalmia polifolia</i>	
	bog bilberry	100	0.5	<i>Vaccinium uliginosum</i>	
	black spruce	100	0.5	<i>Picea mariana</i>	
	herb (8.0)	beaked sedge	100	10	<i>Carex rostrata</i>
sedges		100	5	<i>Carex</i> spp.	
cloudberry		100	5	<i>Rubus chamaemorus</i>	
flat-leaved bladderwort		100	1	<i>Utricularia intermedia</i>	
northern reed grass		100	0.3	<i>Calamagrostis inexpansa</i>	
water hemlock		100	0.3	<i>Cicuta maculata</i>	
common scouring rush		100	0.3	<i>Equisetum hyemale</i>	
marsh cinquefoil		100	0.1	<i>Comarum palustre</i>	
moss & lichen (38.0)		Schreber's moss	100	19	<i>Pleurozium schreberi</i>
		hair-cap moss	100	0.5	<i>Polytrichum</i> spp.
	<i>Sphagnum</i> moss	100	0.3	<i>Sphagnum</i> spp.	
	other mosses	100	33	-	

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (38.0)	green reindeer lichen	100	0.5	<i>Cladina mitis</i>
	grey reindeer lichen	100	0.5	<i>Cladina rangiferina</i>
	cup and spike lichens	100	0.5	<i>Cladonia</i> spp.
	other lichens	100	0.3	-
ground cover	water	100	31	-
	rock	100	19	-
	needle litter	100	10	-

Soil Profile



Site Features

Soil Great Group - Order	Fibrisol Organic ₁₀
Parent Material	Organic ₁₀
Moisture Regime	Moderately Wet ₁₀
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Mesic ₁₀

Forest Productivity

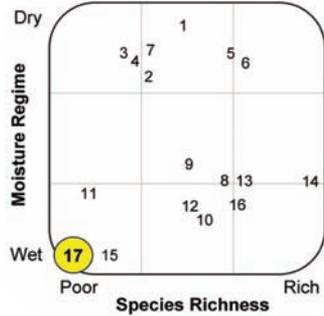
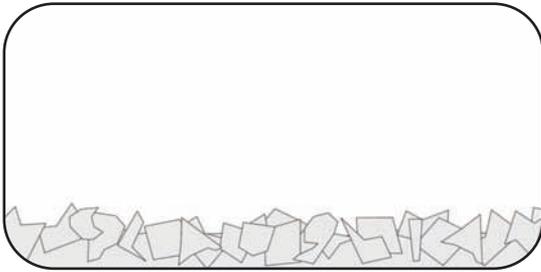
	Tree Species bS
Site Index (m at 50 years)	5.6 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	0.8 ± x
Age (years)	84 ± 172
Height (m)	6.8 ± x
D.B.H. (cm)	9.9 ± x
Density (stems/ha)	100 ± x

Ecozonal Synonyms

Taiga Shield	Boreal Shield
-	BS25
Boreal Plain	Prairie
BP27	NA

Ecological Interpretation

Open fens are more common than the low sample size would imply; they generally occur as small pockets nested within other fen ecosites. Rarely do open fens cover large expanses. Repeated disturbances could maintain an open fen area in this early successional state. In the absence of disturbance, it is likely that succession toward the surrounding fen condition, in which it is embedded, would occur.



Ecosite Description (n = 4)

Rocky shore ecosites are generally devoid of vascular plants. Ring lichen often covers much of the rock on these sites. Occasional patches of Labrador tea or scattered black spruce or white birch may also be found on these sites. While not identified in the species list, ferns may occasionally be found. The substrate of these sites is usually just rock and water.

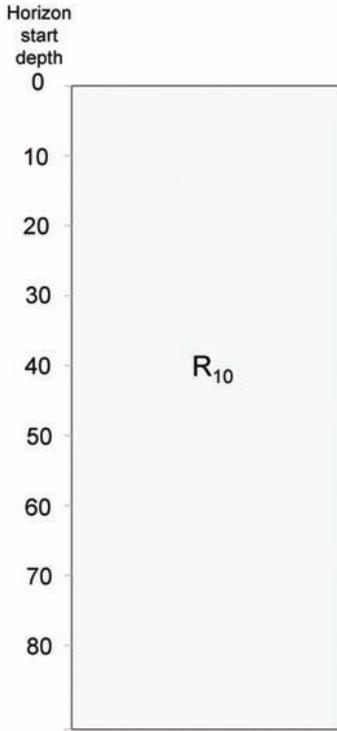
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.3)				
shrub (1.3)	lingonberry	50	0.8	<i>Vaccinium vitis-idaea</i>
	white birch	75	0.7	<i>Betula papyrifera</i>
	Labrador tea	75	0.4	<i>Ledum groenlandicum</i>
	black spruce	50	0.3	<i>Picea mariana</i>
herb (0.8)				
moss & lichen (24.3)	other mosses	100	0.6	-
	cup and spike lichens	100	2	<i>Cladonia</i> spp.
	northern reindeer lichen	75	2	<i>Cladina stellaris</i>
	green reindeer lichen	75	0.7	<i>Cladina mitis</i>
	grey reindeer lichen	50	0.4	<i>Cladina rangiferina</i>
	other lichens	100	65	-
ground cover	rock	100	84	-
	water	100	7	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
-	NA	NA	NA

Soil Profile



Site Features

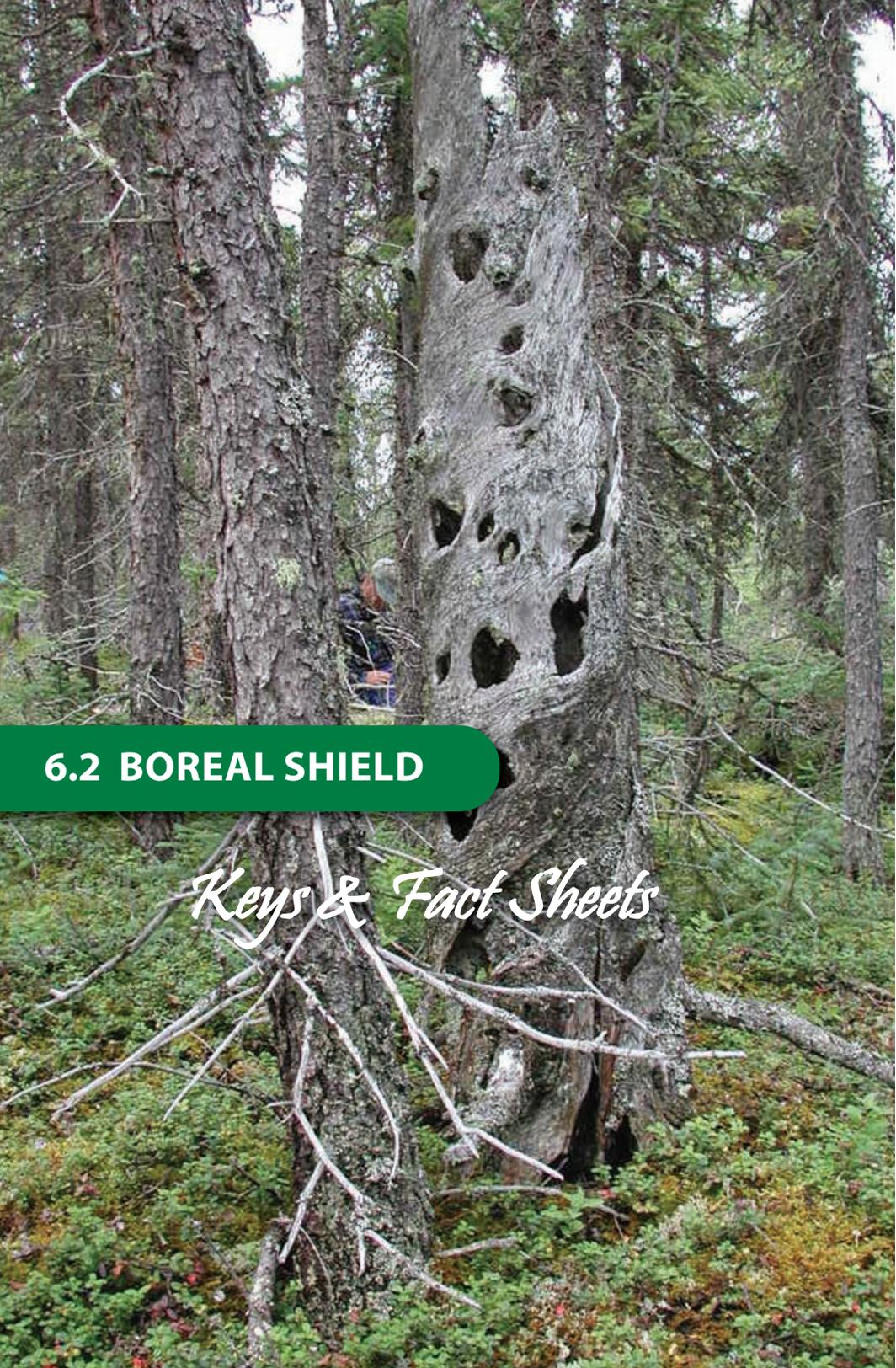
Soil Great Group - Order	Nonsoil ₁₀
Parent Material	Rock ₁₀
Moisture Regime	Very Wet ₁₀
Drainage	Very Poor ₁₀
Slope	(2-5) ₅ (0-0.5) ₂ (5-9) ₂
Topographic Position	Toe Slope ₈ Level ₂
Aspect	West ₅ East ₂ No Aspect ₂
Surface Texture	Rock ₁₀
Effective Texture	Rock ₁₀

Forest Productivity

none

Ecological Interpretation

Rocky shores can be relatively extensive in the Taiga Shield, almost always occurring as linear features along lakeshores. These ecosites are regularly disturbed by wave action during the summer and ice action during the winter which prevents most vegetation from taking root. Having no soil to speak of, classification of moisture regime is somewhat arbitrary. However, the dominant forms of vegetation supported on these sites are largely wetland to aquatic in nature and as a result, the moisture regime listed is very wet, and the drainage is listed as very poor.

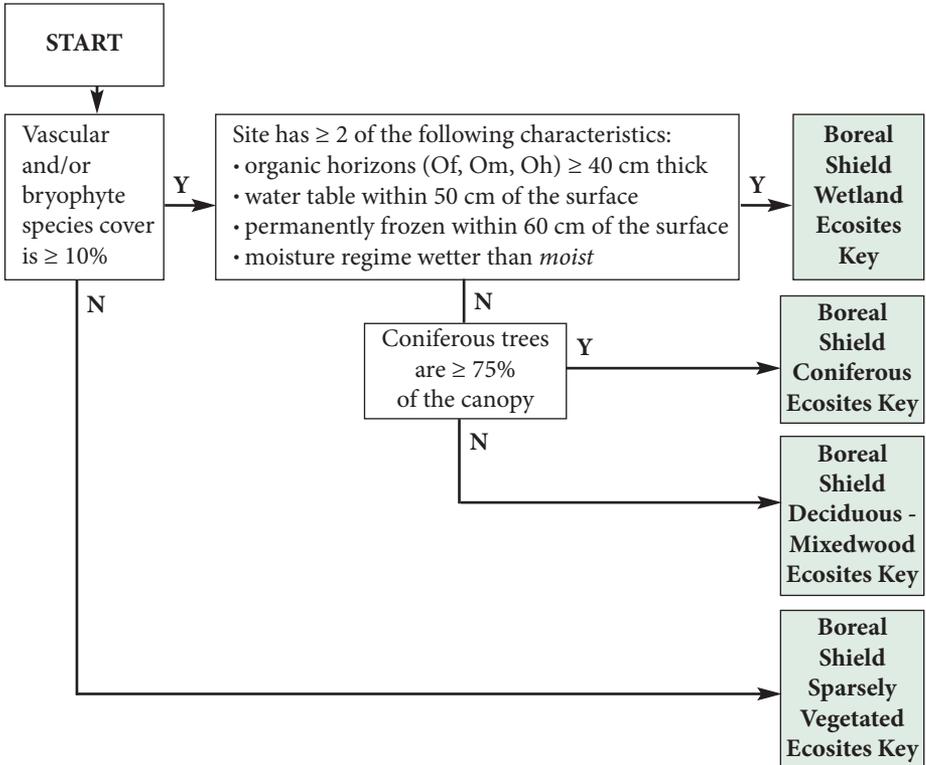


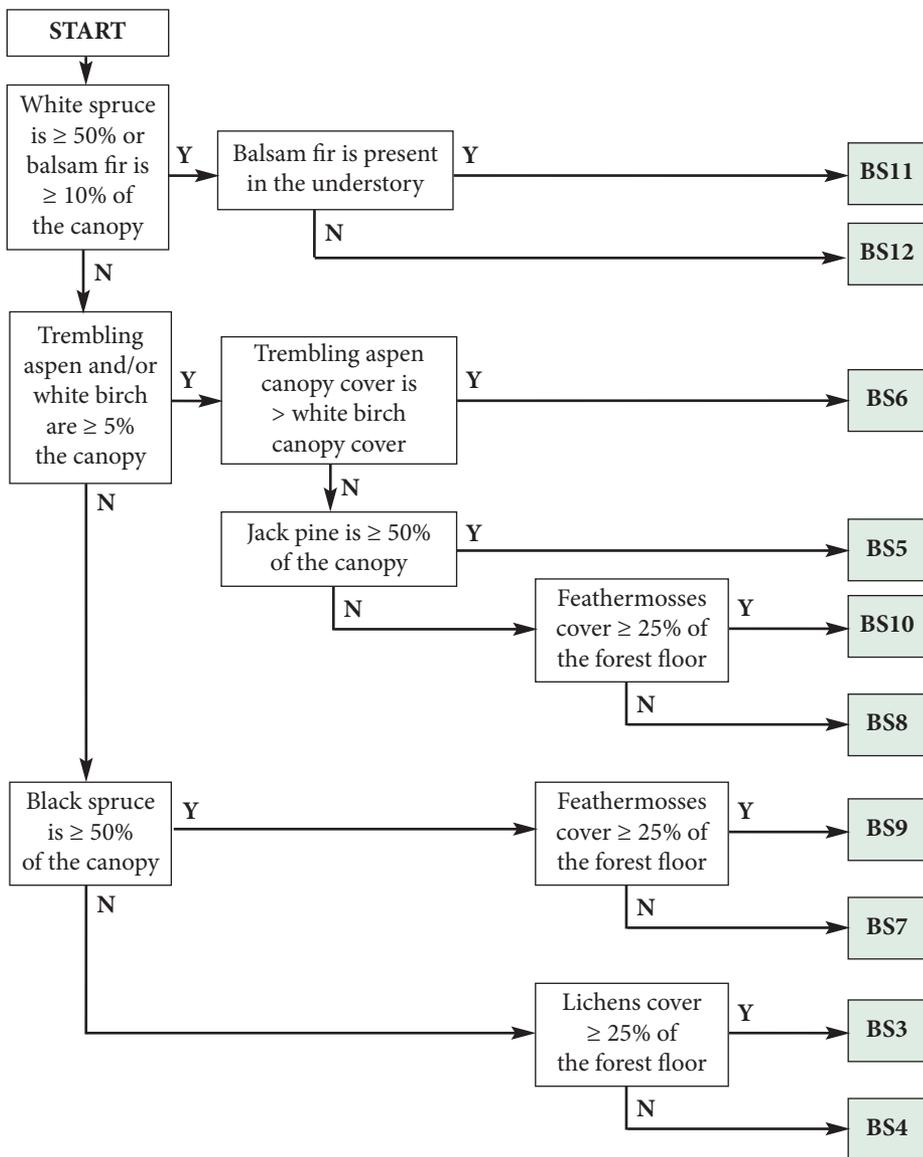
6.2 BOREAL SHIELD

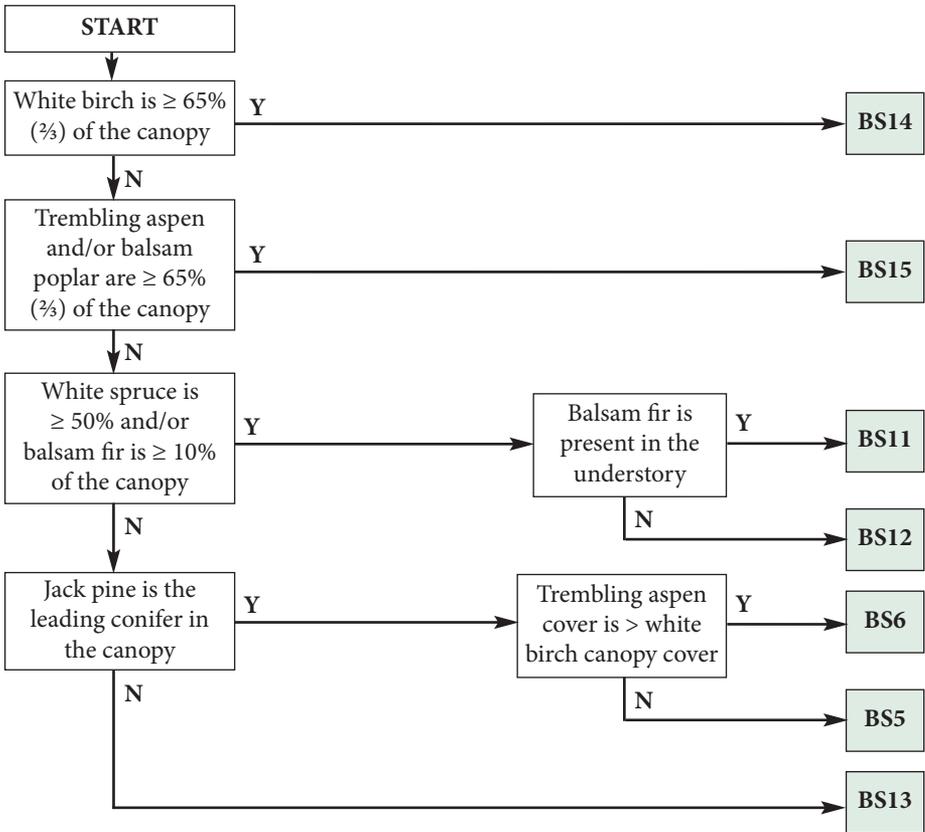
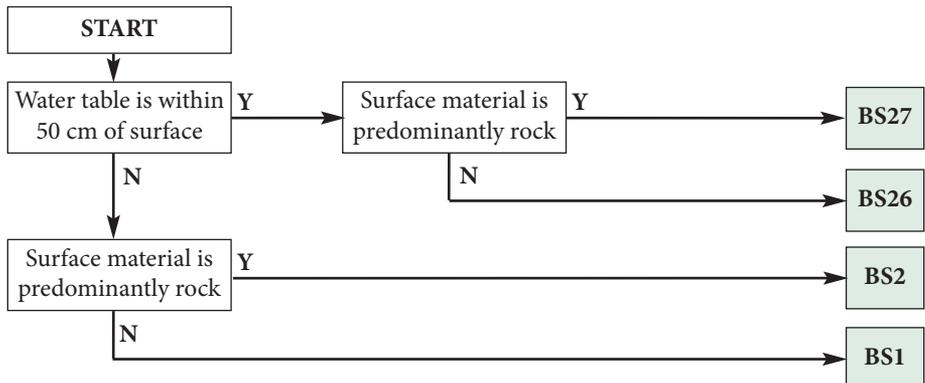
Keys & Fact Sheets

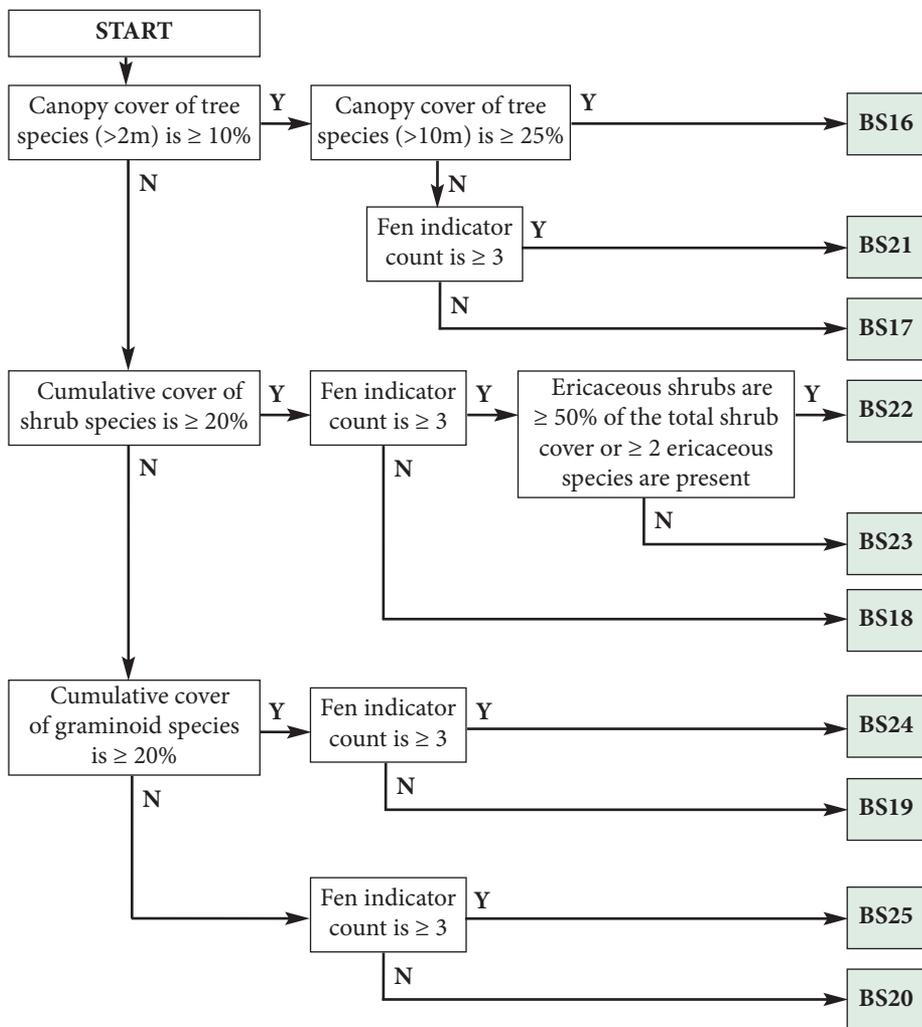
Ecosites of the Boreal Shield

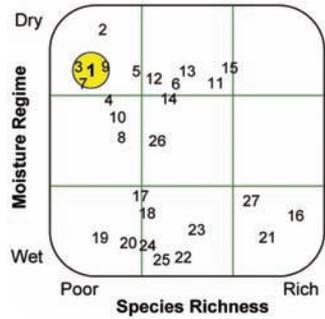
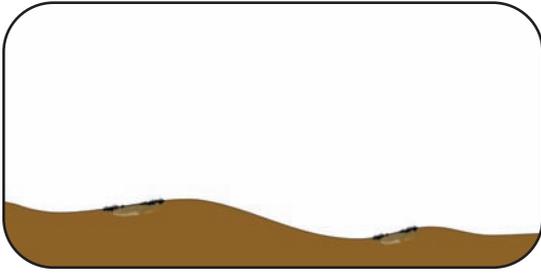
- BS1 - Sand heather - floccose tansy sand dune: Moderately fresh sand
- BS2 - Lichen / felsenmeer - bedrock: Dry nonsoil
- BS3 - Jack pine / blueberry / lichen: Moderately fresh sand
- BS4 - Jack pine - black spruce / feathermoss: Moderately dry sand
- BS5 - Jack pine - white birch / feathermoss: Moderately dry sand
- BS6 - Jack pine - trembling aspen / green alder: Moderately fresh loamy sand
- BS7 - Black spruce / blueberry / lichen: Moderately dry sand
- BS8 - Black spruce - white birch / lichen: Moderately dry sandy loam
- BS9 - Black spruce - jack pine / feathermoss: Moderately fresh sandy loam
- BS10 - Black spruce - white birch / feathermoss: Fresh sand
- BS11 - White spruce - balsam fir / feathermoss: Fresh sandy loam
- BS12 - White spruce / crowsberry / feathermoss: Moderately fresh sand
- BS13 - White birch - black spruce - trembling aspen: Moderately fresh sand
- BS14 - White birch / lingonberry - Labrador tea: Moderately dry sand
- BS15 - Trembling aspen - white birch / green alder: Moderately fresh loamy sand
- BS16 - Black spruce / balsam poplar / river alder swamp: Very moist mesic organic
- BS17 - Black spruce treed bog: Very moist mesic organic
- BS18 - Labrador tea shrubby bog: Moderately wet mesic organic
- BS19 - Graminoid bog: Very wet humic organic
- BS20 - Open bog: Moderately wet fibric organic
- BS21 - Tamarack treed fen: Wet fibric organic
- BS22 - Leatherleaf shrubby poor fen: Very wet fibric organic
- BS23 - Willow shrubby rich fen: Wet fibric organic
- BS24 - Graminoid fen: Very wet humic organic
- BS25 - Open fen: Wet mesic organic
- BS26 - Rush sandy shore: Very moist sand
- BS27 - Sedge rocky shore: Very moist sand

Boreal Shield Overview Key

Boreal Shield Coniferous Ecosites Key

Boreal Shield Deciduous - Mixedwood Ecosites Key*Boreal Shield Sparsely Vegetated Ecosites Key*

Boreal Shield Wetland Ecosites Key



Ecosite Description (n = 32)

BS1 ecosites generally lack vegetation as they are active sand dunes. Birch, jack pine, and black spruce can occasionally be found in both tree and shrub form but are widely scattered. Sand heather and crowberry are the dominant shrubs (but with low cover values) and red fescue and northern brome are the most frequently occurring herbs. Soils associated with BS1 are nearly always fine to medium sands. Due to the eolian and colluvial movement of the sand and silt deposits, it is not uncommon to find 'tiger stripe' soil profiles that exhibit dozens of layers of deposition and weathering. These ecosites are restricted to the dunes on the south side of Lake Athabasca.

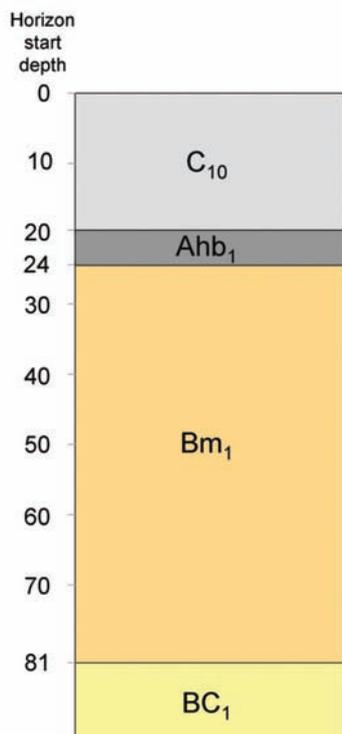
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.5)				
shrub (1.8)	sand-heather	50	4	<i>Hudsonia tomentosa</i>
	sand felt-leaf willow	19	0.7	<i>Salix silvicola</i>
	Tyrrell's willow	9	2	<i>Salix tyrrellii</i>
	Turnor's willow	6	3	<i>Salix turnorii</i>
	sand-dune	6	0.6	<i>Salix brachycarpa</i>
	small-fruited willow			
herb (4.1)	red fescue	53	1	<i>Festuca rubra</i>
	northern brome	50	0.5	<i>Bromus pumpellianus</i>
	floccose tansy	44	4	<i>Tanacetum huronense</i>
	plains wormwood	44	0.5	<i>Artemisia campestris</i>
	Mackenzie hairgrass	34	0.4	<i>Deschampsia mackenzieana</i>
	sand stitchwort	19	0.9	<i>Stellaria arenicola</i>
Athabasca thrift	6	0.4	<i>Armeria maritima</i>	
moss & lichen (3.3)				
ground cover	exposed soil	97	76	-
	leaf litter	59	2	-
	woody debris	53	1	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	-	NA	NA

Soil Profile



Site Features

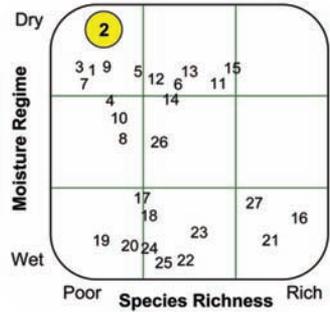
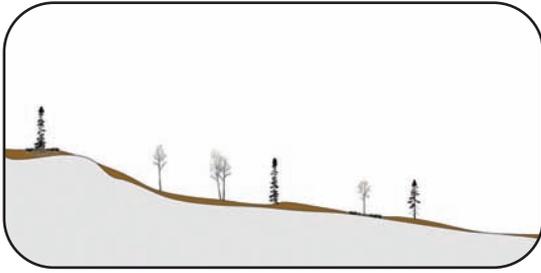
Soil Great Group - Order	Regosol ₉ Dystric Brunisol ₁
Parent Material	Eolian ₉ Colluvial ₁
Moisture Regime	Moderately Fresh ₆ Moderately Dry ₄
Drainage	Rapid ₈ Very Rapid ₁ Well ₁
Slope	(0-0.5) ₂ (2-5) ₂ (0.5-2) ₁ (5-9) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Mid-Slope ₄ Level ₂ Upper Slope ₁ Crest ₁
Aspect	No Aspect ₃ North ₂ East ₂ South ₂ West ₁
Surface Texture	Sand ₁₀
Effective Texture	Sand ₉

Forest Productivity

	Tree Species	
	jP	wB
Site Index (m at 50 years)	8.2 ± x	11.1 ± x
Volume (m ³ /ha)	-	-
MAI (m ³ /ha/yr)	-	-
Basal Area (m ² /ha)	0.5 ± x	0.8 ± x
Age (years)	34 ± 76	57 ± 32
Height (m)	4.2 ± x	4.6 ± x
D.B.H. (cm)	7.6 ± x	10 ± x
Density (stems/ha)	100 ± x	100 ± x

Ecological Interpretation

This ecosite represents the general sand heather sand dune condition although it is largely based on the vegetation and conditions found specifically within the Athabasca Sand Dune ecodistrict. The characteristic species table also includes many of the endemic species of the Athabasca dunes even though the constancy values were below 40%. Tyrell's willow, while not technically endemic to the Athabasca dunes, is included for completeness. Most of the endemic species are listed as species of special concern under the federal *Species at Risk Act*.



Ecosite Description (n = 3)

BS2 ecosites are largely unvegetated boulder fields or bedrock. Scattered shrubby white birch or black spruce may occasionally take root with sporadic occurrences of lingonberry, prickly rose, Labrador tea, Saskatoon, or pin cherry. These ecosites are relatively dry and lack any substantial quantities of herbaceous species. Crust and leaf lichens are common on the rocks which cover this ecosite.

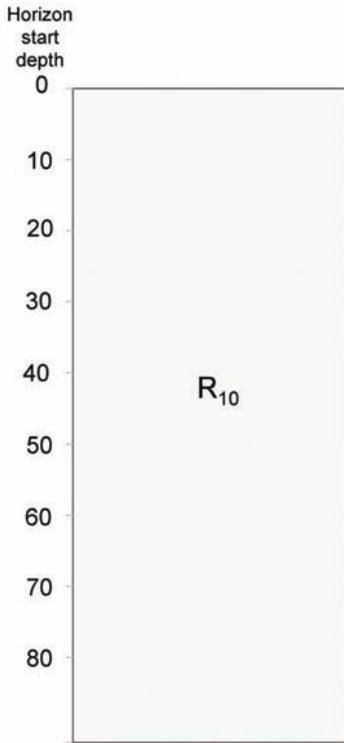
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.3)				
shrub (2.0)	white birch	67	2	<i>Betula papyrifera</i>
	black spruce	67	2	<i>Picea mariana</i>
herb (4.3)				
moss & lichen (25.3)	other mosses	67	2	-
	northern reindeer lichen	100	10	<i>Cladina stellaris</i>
	green reindeer lichen	100	4	<i>Cladina mitis</i>
	cup and spike lichens	100	3	<i>Cladonia</i> spp.
	grey reindeer lichen	100	1	<i>Cladina rangiferina</i>
	other lichens	100	0.5	-
ground cover	leaf litter	100	3	-
	woody debris	100	0.3	-
	rock	67	6	-
	needle litter	67	0.5	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	-	NA	NA

Soil Profile



Site Features

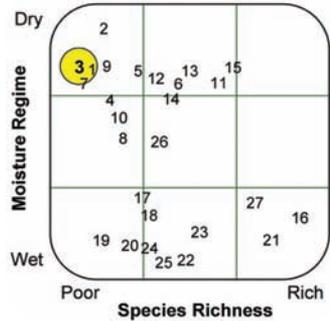
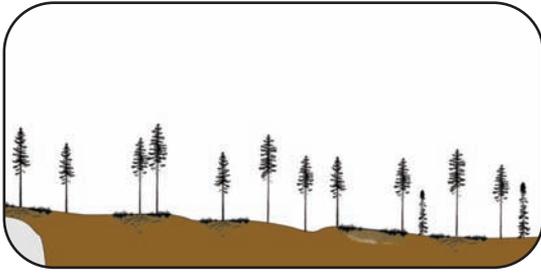
Soil Great Group - Order	Nonsoil ₁₀
Parent Material	Rock ₇ Morainals ₃
Moisture Regime	Dry ₁₀
Drainage	Very Rapid ₁₀
Slope	(5-9) ₃ (15-30) ₃ (>30) ₃
Topographic Position	Mid-Slope ₇ Upper Slope ₃
Aspect	East ₇ West ₃
Surface Texture	Rock ₁₀
Effective Texture	Rock ₁₀

Forest Productivity

	Tree Species bS
Site Index (m at 50 years)	4.9 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	0.6 ± x
Age (years)	142 ± 89
Height (m)	6.4 ± x
D.B.H. (cm)	8.4 ± x
Density (stems/ha)	100 ± x

Ecological Interpretation

Felsenmeer or 'rock sea' conditions are somewhat uncommon in the Boreal Shield although exposed bedrock is more common. When boulder fields occur, they usually do so as talus slopes, near the base of or on the boulder apron of eskers, or as boulder pavement. The sparse vegetation that exists on these sites occurs in the cracks between the rocks. Pink corydalis can sometimes be found on these sites which make them resemble the TS1 ecosite of the Taiga Shield.



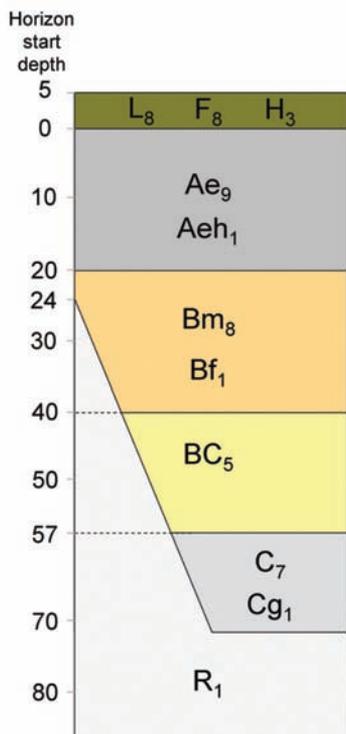
Ecosite Description ($n = 129$)

BS3 ecosites are dominated by jack pine in the overstory. Approximately 75% of BS3 ecosites are pure jack pine. The vascular plant understory of BS3 ecosites is relatively sparse but includes black spruce, blueberry and lingonberry. Herbs are virtually absent. The forest floor is characteristically covered with reindeer lichens although Schreber's moss may also occasionally be prominent and needle litter cover is significant. Lichen species diversity is high. Soils associated with this ecosite are deep sands.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	jack pine	99	27	<i>Pinus banksiana</i>
	black spruce	50	10	<i>Picea mariana</i>
shrub (3.0)	blueberry	89	9	<i>Vaccinium myrtilloides</i>
	lingonberry	86	4	<i>Vaccinium vitis-idaea</i>
	black spruce	52	5	<i>Picea mariana</i>
	jack pine	47	2	<i>Pinus banksiana</i>
herb (1.1)				
moss & lichen (24.3)	Schreber's moss	67	8	<i>Pleurozium schreberi</i>
	electric eels	50	0.6	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	43	1	<i>Dicranum</i> spp.
	other mosses	66	1	-
	green reindeer lichen	99	38	<i>Cladina mitis</i>
	cup and spike lichens	96	5	<i>Cladonia</i> spp.
	northern reindeer lichen	83	4	<i>Cladina stellaris</i>
	grey reindeer lichen	61	3	<i>Cladina rangiferina</i>
	other lichens	100	3	-
ground cover	woody debris	100	6	-
	needle litter	98	20	-
	leaf litter	65	3	-
	rock	43	6	-

Soil Profile



Ecozonal Synonyms

Taiga Shield TS2	Boreal Shield -
Boreal Plain BP2	Prairie NA

Site Features

Soil Great Group - Order	Dystric Brunisols ₈ Regosol ₁ Nonsoil
Parent Material	Morainal ₄ Fluvial ₃ Eolian ₁ Glacio-fluvial ₁
Moisture Regime	Moderately Fresh ₅ Moderately Dry ₃ Dry ₁ Fresh ₁
Drainage	Rapid ₆ Very Rapid ₂ Well ₁ Imperfect ₁
Slope	(0-0.5) ₂ (0.5-2) ₂ (2-5) ₂ (5-9) ₁ (9-15) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Upper Slope ₃ Mid-Slope ₂ Crest ₂ Toe Slope ₁ Lower Slope ₁ Level ₁
Aspect	No Aspect ₂ North ₂ South ₂ West ₂ East ₁
Surface Texture	Sand ₆ Loamy Sand ₂
Effective Texture	Sand ₆ Loamy Sand ₂ Sandy Loam ₁ Silty Sand ₁

Forest Productivity

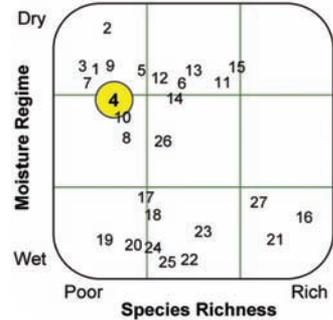
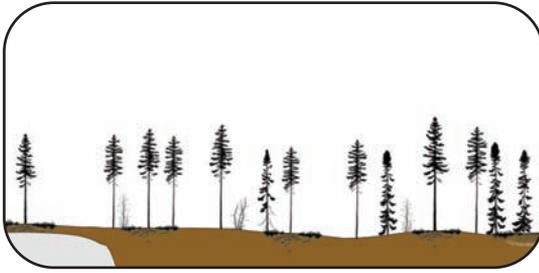
	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	10.6 ± 1.1	9.5 ± 0.5	10.7 ± x	6.6 ± x	8.3 ± 15.2
Volume (m ³ /ha)	5.6 ± 2.2	26.6 ± 4.8	-	1.6 ± 20.3	3.4 ± x
MAI (m ³ /ha/yr)	0.11 ± 0.04	0.36 ± 0.06	-	0.04 ± x	0.05 ± x
Basal Area (m ² /ha)	2.2 ± 0.5	9.6 ± 1.1	-	1.3 ± 10.6	1 ± x
Age (years)	80 ± 6	86 ± 4	65 ± 13	121 ± 375	88 ± 94
Height (m)	8.9 ± 0.7	8.6 ± 0.4	-	7.1 ± 2.5	9.6 ± x
D.B.H. (cm)	11.3 ± 1.1	12.6 ± 0.6	-	8.7 ± 9.1	11.2 ± x
Density (stems/ha)	231 ± 47	752 ± 77	-	300 ± x	100 ± x

Ecological Interpretation

These are the most commonly encountered ecosites on the Boreal Shield. They are relatively dry and occur in almost every topographic position and with every slope class. They are associated with the hills of eskers and drumlins as well as level plains. Following disturbance, these ecosites will usually return to being pine dominated, provided an adequate cone crop existed prior to disturbance. When compared to BS4 ecosites these ecosites tend to be drier, have less understory, and more open canopy. In the absence of disturbance, these ecosites may transition toward the BS7 ecosite condition.

BS4

Jack pine - black spruce/feathermoss: Moderately dry sand



Ecosite Description (n = 88)

BS4 ecosites are dominated by jack pine and black spruce in the overstory. However, about 60% of the sites encountered may be pure jack pine. The understory of BS4 ecosites consists primarily of ericaceous shrubs as well as green alder. The forest floor is predominantly a mixture of needle litter and Schreber's moss. The moisture regime of BS4 ecosites tends toward being relatively fresh and soils tend to be sandy loams and loamy sands.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	jack pine	100	40	<i>Pinus banksiana</i>
	black spruce	51	17	<i>Picea mariana</i>
shrub (3.7)	lingonberry	92	6	<i>Vaccinium vitis-idaea</i>
	blueberry	91	8	<i>Vaccinium myrtilloides</i>
	green alder	53	10	<i>Alnus viridis</i>
	black spruce	49	3	<i>Picea mariana</i>
	Labrador tea	47	6	<i>Ledum groenlandicum</i>
	bearberry	41	5	<i>Arctostaphylos uva-ursi</i>
herb (2.5)				
moss & lichen (19.7)	Schreber's moss	81	24	<i>Pleurozium schreberi</i>
	Dicranum moss	57	1	<i>Dicranum</i> spp.
	stair-step mosses	40	1	<i>Hylocomium splendens</i>
	other mosses	60	1	-
	green reindeer lichen	85	5	<i>Cladina mitis</i>
	cup and spike lichens	75	3	<i>Cladonia</i> spp.
	grey reindeer lichen	39	0.9	<i>Cladina rangiferina</i>
	other lichens	100	2	-
ground cover	woody debris	98	8	-
	needle litter	94	27	-
	leaf litter	77	7	-

Ecozonal Synonyms

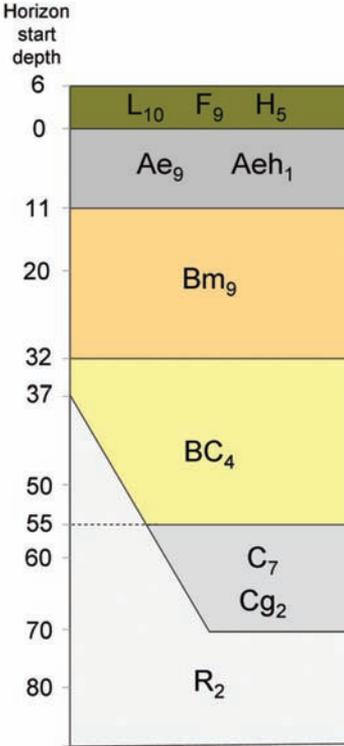
Taiga Shield
NA

Boreal Shield
-

Boreal Plain
BP3 + BP12

Prairie
NA

Soil Profile



Site Features

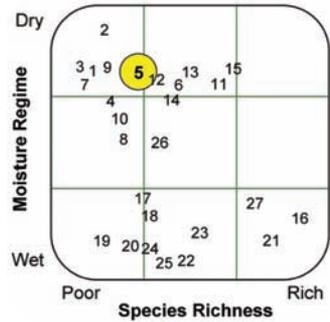
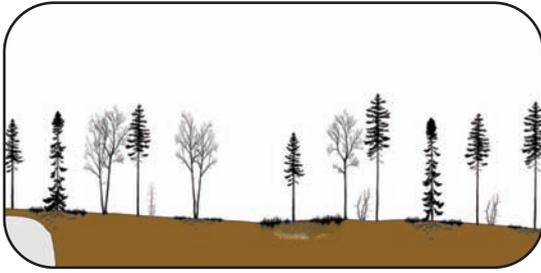
Soil Great Group - Order	Dystric Brunisol ₉
Parent Material	Morainals ₃ Fluvial ₂ Glacio-fluvial ₂ Glacio-lacustrine ₁
Moisture Regime	Moderately Dry ₃ Fresh ₂ Moderately Fresh ₂ Very Fresh ₂ Moderately Moist ₂ Very Moist ₂
Drainage	Rapid ₅ Well ₂ Very Rapid ₁ Moderately Well ₁ Imperfect ₁
Slope	(0-0.5) ₃ (2-5) ₂ (0.5-2) ₁ (5-9) ₁ (9-15) ₁ (15-30) ₁
Topographic Position	Upper Slope ₂ Level ₂ Mid-Slope ₂ Crest ₁ Lower Slope ₁ Toe Slope ₁
Aspect	No Aspects ₃ East ₃ West ₂ North ₁ South ₁
Surface Texture	Sands ₅ Loamy Sand ₂ Sandy Loam ₁
Effective Texture	Sand ₃ Sandy Loam ₃ Loamy Sand ₂

Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	11.1 ± 1.1	10.4 ± 1.6	13 ± 1.4	7.5 ± 3.8	-
Volume (m ³ /ha)	12.8 ± 5.3	58.6 ± 9.9	3.3 ± 42.2	1.6 ± 4.3	5.5 ± x
MAI (m ³ /ha/yr)	0.22 ± 0.08	0.84 ± 0.14	0.08 ± x	0.13 ± x	0.06 ± x
Basal Area (m ² /ha)	4.4 ± 1.3	15 ± 1.6	1.1 ± 7	0.9 ± 0.8	1.1 ± x
Age (years)	70 ± 6	75 ± 4	69 ± 17	77 ± 20	92 ± x
Height (m)	9.2 ± 0.5	10.2 ± 0.4	8.4 ± 24.1	8.5 ± 1.3	12.9 ± x
D.B.H. (cm)	10.7 ± 0.8	11.7 ± 0.5	11.7 ± 38.1	10.5 ± 4.3	11.9 ± x
Density (stems/ha)	475 ± 130	1386 ± 147	100 ± x	100 ± x	100 ± x

Ecological Interpretation

These ecosites are commonly encountered in the Boreal Shield. While similar in overstory to BS3, they are moister, have a greater proportion of black spruce, are associated with a greater diversity of vascular plants, and have more of a closed canopy. Following fire, these sites will usually return to being pine and pine/spruce dominated. In the absence of disturbance these sites may transition toward the BS9 ecosite condition.



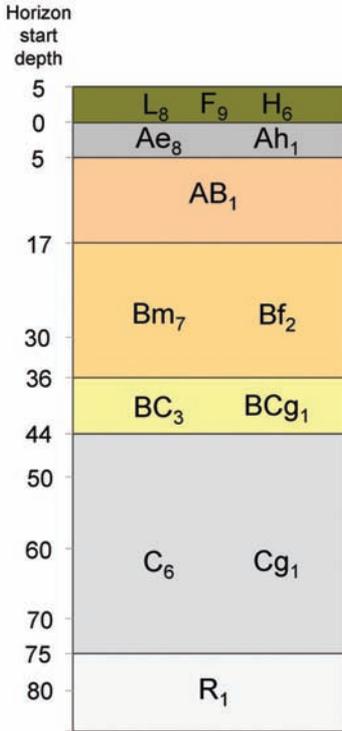
Ecosite Description (n = 36)

BS5 ecosites are predominantly jack pine but may have substantial proportions of white birch and/or black spruce. The shrub layer of these sites is mostly ericaceous shrubs and green alder. Willow and trembling aspen may also be found occasionally in the understory. Small amounts of twinflower and bunchberry may also be found amongst the Schreber's moss. The extensive leaf litter found on the forest floor is characteristic of this ecosite.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	jack pine	100	25	<i>Pinus banksiana</i>
	white birch	100	11	<i>Betula papyrifera</i>
	black spruce	69	7	<i>Picea mariana</i>
shrub (4.1)	lingonberry	94	7	<i>Vaccinium vitis-idaea</i>
	blueberry	92	6	<i>Vaccinium myrtilloides</i>
	Labrador tea	64	7	<i>Ledum groenlandicum</i>
	green alder	56	10	<i>Alnus viridis</i>
	black spruce	56	3	<i>Picea mariana</i>
herb (3.4)				
moss & lichen (22.9)	Schreber's moss	100	20	<i>Pleurozium schreberi</i>
	electric eels	81	0.7	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	69	2	<i>Dicranum</i> spp.
	stair-step moss	64	1	<i>Hylocomium splendens</i>
	other mosses	67	0.9	-
	green reindeer lichen	92	6	<i>Cladina mitis</i>
	cup and spike lichens	89	2	<i>Cladonia</i> spp.
	northern reindeer lichen	56	0.9	<i>Cladina stellaris</i>
	grey reindeer lichen	73	2	<i>Cladina rangiferina</i>
	other lichens	100	3	-
ground cover	woody debris	97	9	-
	leaf litter	92	25	-
	needle litter	89	11	-
	rock	50	3	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	-
Boreal Plain	Prairie
BP3 + BP12	NA

Site Features

Soil Great Group - Order	Dystric Brunisol ₈ Regosol ₁
Parent Material	Morainale ₆ Eolian ₁ Fluvial ₁ Glacio-fluvial ₁ Glacio-lacustrine ₁
Moisture Regime	Moderately Dry ₅ Moderately Fresh ₃ Fresh ₂
Drainage	Rapid ₅ Very Rapid ₂ Well ₂ Imperfect ₁
Slope	(0-0.5) ₂ (0.5-2) ₂ (2-5) ₂ (5-9) ₁ (9-15) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Upper Slope ₂ Lower Slope ₂ Crest ₂ Mid-Slope ₂ Level ₁
Aspect	North ₃ East ₃ No Aspect ₂ South ₂ West ₁
Surface Texture	Sand ₆ Loamy Sand ₂ Silty Sand ₁ Sandy Loam ₁
Effective Texture	Sand ₅ Loamy Sand ₃ Sandy Loam ₁ Sandy Clay Loam ₁

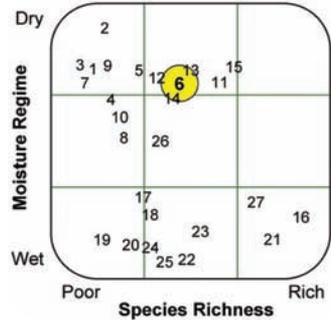
Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	11.6 ± 1.7	11 ± 0.9	13.7 ± 49.6	10.6 ± 1.7	9.2 ± 16.8
Volume (m ³ /ha)	9.7 ± 3.4	62.8 ± 21.9	4.8 ± 8.1	8 ± 5.1	20.1 ± 225.3
MAI (m ³ /ha/yr)	0.15 ± 0.05	0.97 ± 0.43	0.09 ± 0.16	0.19 ± 0.12	0.19 ± 1.93
Basal Area (m ² /ha)	3 ± 0.7	13.6 ± 3.6	1.2 ± 1.7	2.3 ± 1	3.1 ± 30.3
Age (years)	78 ± 10	72 ± 7	49 ± 26	71 ± 7	96 ± 36
Height (m)	9.8 ± 0.9	11 ± 0.8	10.1 ± 1.6	9.2 ± 0.8	14.3 ± 62.9
D.B.H. (cm)	11.6 ± 1	13.8 ± 1.1	11.4 ± 8	10.4 ± 0.9	18 ± 107
Density (stems/ha)	286 ± 62	965 ± 231	100 ± x	252 ± 85	100 ± x

Ecological Interpretation

These ecosites may occur in either a coniferous or a mixedwood condition. Following disturbance, these sites would likely return to a BS5 condition. However, in the absence of fire, the site may transition towards BS8, BS9, BS10, or BS13 due to the diversity of species in the overstory.





Ecosite Description (n = 29)

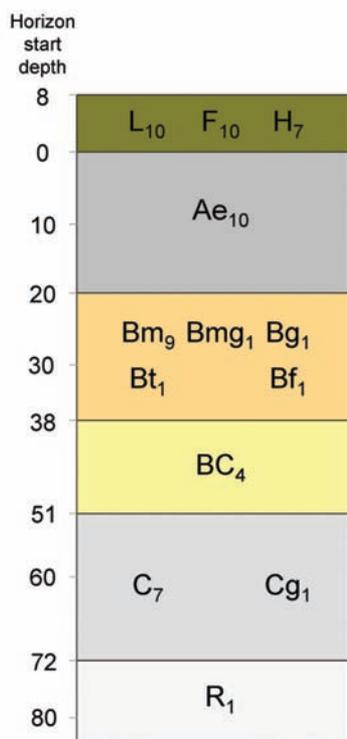
BS6 ecosites are characterized by having a variable composition of trembling aspen in combination with jack pine. Black spruce and/or white birch are also commonly found in both the overstory and understory. In addition ericaceous shrubs, green alder, and willow can also be found on these ecosites. As expected (from the aspen cover), the leaf litter found on the forest floor is relatively high on this ecosite.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.5)	trembling aspen	100	20	<i>Populus tremuloides</i>
	jack pine	93	29	<i>Pinus banksiana</i>
	black spruce	66	19	<i>Picea mariana</i>
	white birch	52	9	<i>Betula papyrifera</i>
shrub (4.9)	blueberry	97	4	<i>Vaccinium myrtilloides</i>
	lingonberry	93	7	<i>Vaccinium vitis-idaea</i>
	green alder	79	13	<i>Alnus viridis</i>
	trembling aspen	62	0.8	<i>Populus tremuloides</i>
	Labrador tea	48	6	<i>Ledum groenlandicum</i>
	willows	48	2	<i>Salix</i> spp.
herb (6.2)	twinflower	69	0.7	<i>Linnaea borealis</i>
	bunchberry	55	2	<i>Cornus canadensis</i>
	wild lily-of-the-valley	55	0.6	<i>Maianthemum canadense</i>
	fireweed	52	0.4	<i>Chamerion angustifolium</i>
moss & lichen (18.3)	Schreber's moss	93	23	<i>Pleurozium schreberi</i>
	stair-step moss	76	2	<i>Hylocomium splendens</i>
	<i>Dicranum</i> moss	76	1	<i>Dicranum</i> spp.
	knight's plume	41	1	<i>Ptilium crista-castrensis</i>
	other mosses	76	0.7	-
	cup and spike lichens	79	0.6	<i>Cladonia</i> spp.
	green reindeer lichen	66	5	<i>Cladina mitis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (18.3)	grey reindeer lichen	41	1	<i>Cladina rangiferina</i>
	other lichens	100	0.4	-
ground cover	woody debris	100	12	-
	leaf litter	97	37	-
	needle litter	90	16	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	-
Boreal Plain	Prairie
BP4	NA

Site Features

Soil Great Group - Order	Dystric Brunisol ₉ Gleysol ₁
Parent Material	Morainals Glacio-fluvial ₃ Fluvial ₁ Lacustrine ₁
Moisture Regime	Moderately Dry ₃ Moderately Fresh ₃ Fresh ₂ Very Moist ₁
Drainage	Rapid ₅ Well ₂ Very Rapid ₁ Imperfect ₁ Poor ₁
Slope	(0.5-2) ₂ (2-5) ₂ (5-9) ₂ (9-15) ₂ (15-30) ₁ (0-0.5) ₁
Topographic Position	Upper Slope ₃ Mid-Slope ₃ Level ₂ Crest ₂
Aspect	West ₄ South ₃ No Aspect ₂ North ₁ East ₁
Surface Texture	Sand ₄ Loamy Sand ₄ Sandy Loam ₁ Silty Clay Loam ₁

Site Features

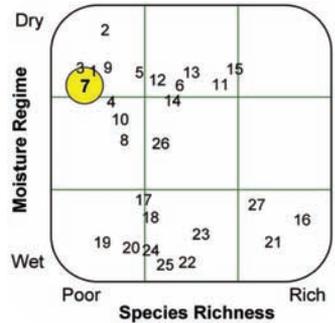
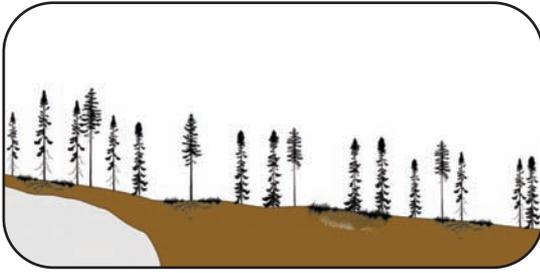
Effective Texture	Loamy Sand ₄ Sand ₂ Sandy Loam ₁ Loam ₁ Silty Sand ₁ Silty Loam ₁ Sandy Clay Loam ₁
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Forest Productivity

	Tree Species			
	bS	jP	tA	wB
Site Index (m at 50 years)	12.6 ± 8	12.6 ± 1.5	12.7 ± 1.2	12 ± 4
Volume (m ³ /ha)	49.6 ± 53	76.6 ± 19.8	13.3 ± 5.8	7.2 ± 6.5
MAI (m ³ /ha/yr)	0.3 ± 2.18	1.25 ± 0.31	0.29 ± 0.16	0.11 ± 0.13
Basal Area (m ² /ha)	9.4 ± 6.4	14.6 ± 2.7	3.4 ± 1.1	2.1 ± 1.2
Age (years)	61 ± 7	64 ± 7	59 ± 7	62 ± 10
Height (m)	10.5 ± 1.8	13 ± 1.1	10.4 ± 0.9	9.9 ± 1.1
D.B.H. (cm)	12 ± 2	15.2 ± 1.7	10.4 ± 1	10.9 ± 1.9
Density (stems/ha)	654 ± 287	922 ± 251	385 ± 113	200 ± 89

Ecological Interpretation

BS6 ecosites are relatively rich in terms of vascular plant species diversity despite being moderately dry to moderately fresh. Like BS5, these ecosites may occur in either a conifer or a mixed-wood condition. Following disturbance and in the absence of silvicultural treatments, these sites may transition toward the BS15 condition and/or return to the BS6 condition depending on their former species composition. In the absence of disturbance, these sites may transition toward the BS4 or BS9 condition.



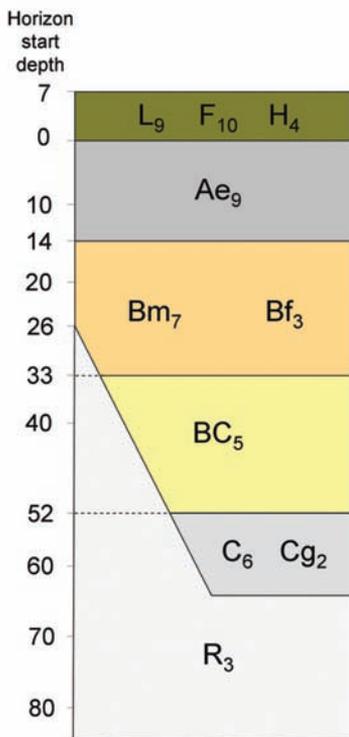
Ecosite Description ($n = 28$)

BS7 ecosites are usually black spruce dominated and may be mixed with subdominant or codominant jack pine. A cover of ericaceous shrubs can be found beneath the tree canopy along with black spruce advanced growth and the occasional willow or green alder. Herbs are sporadically distributed and the dominant ground cover is the reindeer lichens. These sandy sites are usually associated with upper and mid-slope topography.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	black spruce	100	30	<i>Picea mariana</i>
	jack pine	79	14	<i>Pinus banksiana</i>
shrub (3.5)	lingonberry	93	2	<i>Vaccinium vitis-idaea</i>
	blueberry	89	8	<i>Vaccinium myrtilloides</i>
	black spruce	82	6	<i>Picea mariana</i>
	Labrador tea	82	5	<i>Ledum groenlandicum</i>
herb (0.5)				
moss & lichen (24.3)	Schreber's moss	89	7	<i>Pleurozium schreberi</i>
	electric eels	64	1	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	57	4	<i>Dicranum</i> spp.
	other mosses	86	3	-
	cup and spike lichens	100	6	<i>Cladonia</i> spp.
	green reindeer lichen	93	24	<i>Cladina mitis</i>
	northern reindeer lichen	82	9	<i>Cladina stellaris</i>
	grey reindeer lichen	82	5	<i>Cladina rangiferina</i>
other lichens	100	2	-	
ground cover	woody debris	100	11	-
	needle litter	100	10	-
	leaf litter	89	3	-
	rock	75	2	-

Soil Profile



Ecozonal Synonyms

Taiga Shield TS ₂	Boreal Shield -
Boreal Plain NA	Prairie NA

Site Features

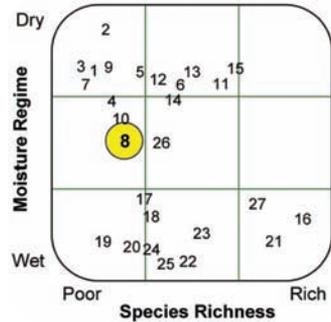
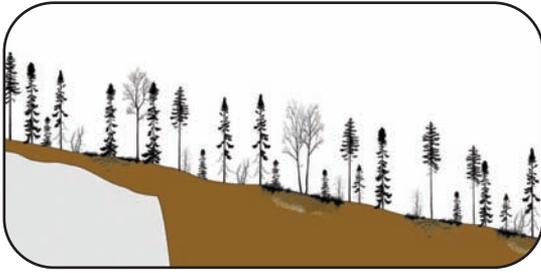
Soil Great Group - Order	Dystric Brunisol ₉ Nonsoil ₁
Parent Material	Morainal ₇ Glacio-fluvial ₁ Glacio-lacustrine ₁ Fluvial ₁ Rock ₁
Moisture Regime	Moderately Dry ₄ Moderately Fresh ₃ Dry ₁ Fresh ₁ Moderately Moist ₁
Drainage	Rapid ₄ Very Rapid ₃ Well ₁ Imperfect ₁
Slope	(2-5) ₄ (5-9) ₂ (9-15) ₂ (0-0.5) ₁ (0.5-2) ₁
Topographic Position	Upper Slope ₄ Mid-Slope ₃ Lower Slope ₂ Level ₁
Aspect	West ₃ North ₂ East ₂ No Aspect ₁ South ₁
Surface Texture	Sand ₆ Loamy Sand ₁ Sandy Loam ₁
Effective Texture	Sand ₄ Loamy Sand ₂ Sandy Loam ₁ Silty Sand ₁ Silty Loam ₁ Rock ₁

Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	9.6 ± 1.4	9.1 ± 1	10.6 ± 3.3	10.6 ± x	-
Volume (m ³ /ha)	15.9 ± 6.5	6.6 ± 3.4	1.9 ± x	-	103.1 ± x
MAI (m ³ /ha/yr)	0.22 ± 0.12	0.13 ± 0.06	0.03 ± x	-	-
Basal Area (m ² /ha)	7.3 ± 1.6	3.5 ± 1.1	1.2 ± x	-	16.9 ± x
Age (years)	88 ± 8	80 ± 9	70 ± 6	90 ± 133	-
Height (m)	8.6 ± 0.4	8.3 ± 0.9	8.6 ± x	-	16.5 ± x
D.B.H. (cm)	10.5 ± 0.6	12.1 ± 2	8.7 ± x	-	30.5 ± x
Density (stems/ha)	833 ± 163	368 ± 157	200 ± x	-	200 ± x

Ecological Interpretation

BS7 ecosites are relatively poor in terms of vascular plant species diversity. They closely resemble the BS3 ecosite but are spruce dominated and tend to have greater canopy closure and stem density. Given the dry conditions and lack of species, these ecosites may return to their former condition following disturbance. Those ecosites with sufficient pine composition might succeed toward the BS3 condition. BS7 can be considered to be in a climax forest condition. The low ground cover, relatively open canopy, and presence of black spruce in the understory are features that would tend to perpetuate the ecosite in the absence of disturbance.



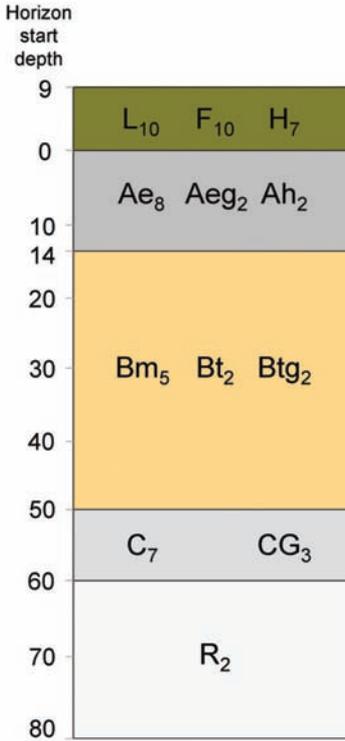
Ecosite Description (n = 6)

BS8 ecosites typically are black spruce dominated, often with locally abundant jack pine, in combination with white birch in the canopy. The understory is composed of ericaceous shrubs, green alder and willow. Black spruce advanced growth can also be considerable. In addition to the lack of herbaceous layer, this ecosite typically has a moss and lichen layer which has low cover but very high species diversity. The forest floor usually shows an abundant layer of leaf litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	black spruce	100	31	<i>Picea mariana</i>
	white birch	100	16	<i>Betula papyrifera</i>
	jack pine	83	14	<i>Pinus banksiana</i>
shrub (4.5)	black spruce	100	23	<i>Picea mariana</i>
	blueberry	100	6	<i>Vaccinium myrtilloides</i>
	lingonberry	100	5	<i>Vaccinium vitis-idaea</i>
	Labrador tea	83	8	<i>Ledum groenlandicum</i>
	green alder	67	19	<i>Alnus viridis</i>
	willows	67	1	<i>Salix</i> spp.
	white birch	50	0.5	<i>Betula papyrifera</i>
herb (1.7)				
moss & lichen (32.3)	Schreber's moss	83	7	<i>Pleurozium schreberi</i>
	electric eels	83	0.5	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	67	0.6	<i>Dicranum</i> spp.
	stair-step moss	50	0.8	<i>Hylocomium splendens</i>
	other mosses	100	2	-
	cup and spike lichens	100	1	<i>Cladonia</i> spp.
	green reindeer lichen	83	12	<i>Cladina mitis</i>
	other lichens	100	3	-
ground cover	leaf litter	100	49	-
	needle litter	100	8	-
	woody debris	83	22	-
	rock	50	5	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	-
Boreal Plain	Prairie
NA	NA

Site Features

Soil Great Group - Order	Dystric Brunisol ₇ Sombric Brunisol ₂ Gray Luvisol ₂
Parent Material	Morainal ₁₀
Moisture Regime	Moderately Dry ₅ Moderately Fresh ₂ Fresh ₂ Moist ₂ Very Moist ₂
Drainage	Very Rapid ₃ Imperfect ₃ Rapid ₂ Well ₂
Slope	(2-5) ₃ (9-15) ₃ (0-0.5) ₂ (0.5-2) ₂
Topographic Position	Mid-Slope ₃ Level ₂ Lower Slope ₂ Toe Slope ₂ Upper Slope ₂
Aspect	West ₃ East ₂ No Aspect ₂ North ₂ South ₂
Surface Texture	Sand ₄ Sandy Loam ₄ Loamy Sand ₂ Clay Loam ₂
Effective Texture	Sand ₃ Sandy Loam ₃ Loamy Sand ₂ Clay Loam ₂

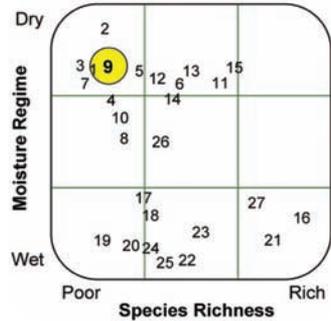
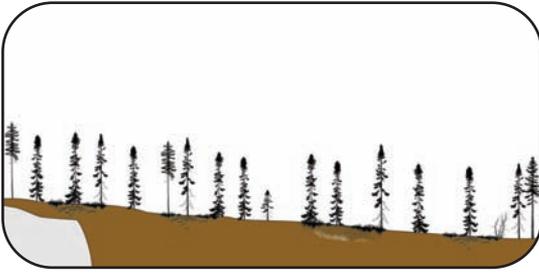
Forest Productivity

	Tree Species			
	bS	jP	tA	wB
Site Index (m at 50 years)	9.3 ± 1.6	8.7 ± 3	12.9 ± x	10 ± x
Volume (m ³ /ha)	12.8 ± 13.1	28.4 ± 37.1	70.1 ± x	1.6 ± 6.9
MAI (m ³ /ha/yr)	0.19 ± 0.18	0.46 ± 0.47	0.63 ± x	0.1 ± x
Basal Area (m ² /ha)	5.8 ± 4.3	7.6 ± 6.2	12.4 ± x	2.3 ± 3.8
Age (years)	84 ± 14	72 ± 17	117 ± 32	51 ± 13
Height (m)	8.6 ± 1.5	9.4 ± 3.3	13.7 ± x	8.3 ± 2.3
D.B.H. (cm)	9.8 ± 1.2	12.3 ± 4	22.1 ± x	10.1 ± 7.1
Density (stems/ha)	767 ± 607	580 ± 406	300 ± x	267 ± 517

Ecological Interpretation

These ecosites are relatively uncommon in the Boreal Shield ecozone. Their lack of herbaceous growth and low cover of mosses and lichens are relatively unusual characteristics of Boreal Shield ecosites. However, this ecosite also has the highest lichen and moss diversity in the ecozone. Following disturbance, these ecosites may transition toward the BS14 or BS13 ecosites. In the absence of disturbance, these ecosites may be expected to transition toward the BS10 ecosite condition.





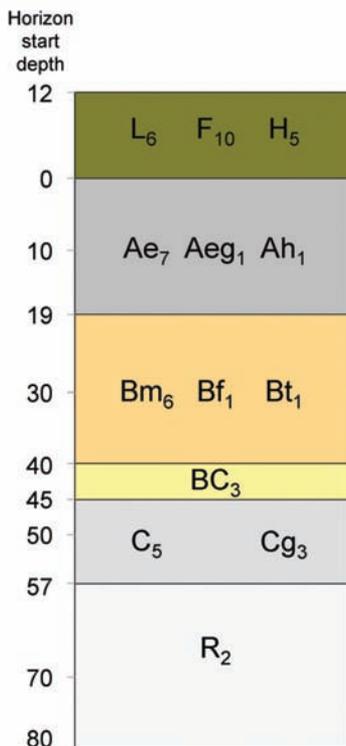
Ecosite Description (n = 81)

BS9 ecosite canopies are predominantly either pure black spruce or black spruce dominated. These ecosites tend to have high stem density and closed canopy conditions. Ericaceous shrubs and green alder are present on the site but herbaceous cover is low. One of the distinguishing features of this ecosite is the nearly continuous carpet of Schreber's moss.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	black spruce	100	41	<i>Picea mariana</i>
	jack pine	77	15	<i>Pinus banksiana</i>
shrub (4.0)	lingonberry	96	4	<i>Vaccinium vitis-idaea</i>
	Labrador tea	93	11	<i>Ledum groenlandicum</i>
	blueberry	81	4	<i>Vaccinium myrtilloides</i>
	black spruce	80	6	<i>Picea mariana</i>
	green alder	44	5	<i>Alnus viridis</i>
herb (1.6)				
moss & lichen (23.8)	Schreber's moss	100	60	<i>Pleurozium schreberi</i>
	stair-step moss	84	2	<i>Hylocomium splendens</i>
	electric eels	84	0.7	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	77	1	<i>Dicranum</i> spp.
	knight's plume	56	2	<i>Ptilium crista-castrensis</i>
	other mosses	75	1	-
	cup and spike lichens	93	2	<i>Cladonia</i> spp.
	green reindeer lichen	90	6	<i>Cladina mitis</i>
	grey reindeer lichen	62	1	<i>Cladina rangiferina</i>
	northern reindeer lichen	47	3	<i>Cladina stellaris</i>
	other lichens	100	1	-
ground cover	woody debris	99	10	-
	leaf litter	88	7	-
	needle litter	84	4	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS ₄	-
Boreal Plain	Prairie
BP ₁₂ + BP ₁₄	NA

Site Features

Soil Great Group - Order	Dystric Brunisol ₆ Regosol ₁ Gray Luvisol ₁ Gleysol ₁
Parent Material	Morainals Fluvial ₁ Glacio-fluvial ₁ Glacio-lacustrine ₁ Lacustrine ₁
Moisture Regime	Fresh ₂ Moderately Fresh ₂ Moderately Dry ₂ Moist ₁
Drainage	Very Rapid ₄ Imperfect ₃ Well ₂ Moderately Well ₁ Very Rapid ₁
Slope	(0-0.5) ₂ (0.5-2) ₂ (5-9) ₂ (2-5) ₁ (9-15) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Mid-Slope ₃ Upper Slope ₂ Lower Slope ₁ Level ₁ Toe Slope ₁ Crest ₁
Aspect	West ₂ East ₂ No Aspect ₂ North ₂ South ₂
Surface Texture	Loamy Sand ₂ Sandy Loam ₂ Sand ₁ Sandy Clay Loam ₁ Silty Loam ₁

Site Features

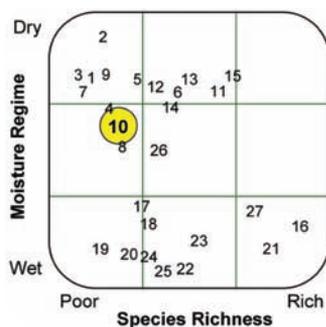
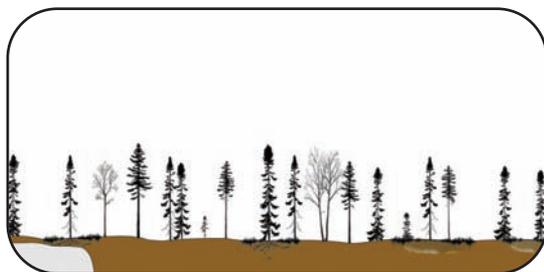
Effective Texture	Sand ₂
	Sandy Loam ₂
	Loamy Sand ₂
	Silty Loam ₁
	Sandy Clay Loam ₁
	Silty Clay ₁

Forest Productivity

	Tree Species					
	bP	bS	jP	tA	tL	wB
Site Index (m at 50 years)	7.6 ± x	9.2 ± 0.6	9.9 ± 0.6	9.7 ± 1.6	9.4 ± 11.1	9.2 ± 2.4
Volume (m ³ /ha)	3.1 ± x	39.5 ± 8.7	16 ± 6.2	2.6 ± 5.1	4.7 ± 27.7	2.8 ± 2.4
MAI (m ³ /ha/yr)	0.04 ± x	0.52 ± 0.12	0.27 ± 0.11	0.08 ± 0.4	0.07 ± 0.41	0.08 ± 0.06
Basal Area (m ² /ha)	1.1 ± x	12.3 ± 1.17	4.8 ± 1.1	0.9 ± 0.5	1.8 ± 8.6	1.8 ± 1.2
Age (years)	108 ± 102	87 ± 5	73 ± 5	70 ± 14	64 ± 27	70 ± 14
Height (m)	9.6 ± x	9.4 ± 0.4	9.3 ± 0.6	9.7 ± 4.8	10.1 ± 2.4	7.8 ± 1
D.B.H. (cm)	11.6 ± x	10.8 ± 0.5	11.6 ± 0.9	10.2 ± 3.1	9.3 ± 11.6	9.8 ± 0.8
Density (stems/ha)	100 ± x	1251 ± 160	484 ± 112	120 ± 56	250 ± 635	225 ± 146

Ecological Interpretation

Although there is no herbaceous layer indicated for this ecosite, herbaceous diversity is relatively high. This is because the ecosite provides a range of microsite conditions that give refuge to a variety of herbaceous species that are not common enough to have a constancy value of > 40%. The lack of hardwood species and the occurrence of black spruce in the understory will likely lead to the perpetuation of this ecosite following fire or other disturbance.



Ecosite Description (n = 15)

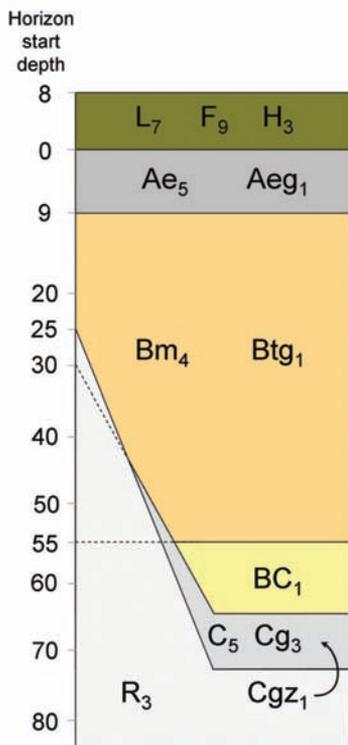
BS10 ecosites are dominated by black spruce. Jack pine and/or white birch may also be found in the overstory and the understory is composed of scattered ericaceous shrubs and the occasional willow. Schreber's moss is common as an extensive forest floor covering.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name	
tree (2.8)	black spruce	100	32	<i>Picea mariana</i>	
	white birch	93	11	<i>Betula papyrifera</i>	
	jack pine	60	11	<i>Pinus banksiana</i>	
shrub (3.8)	lingonberry	100	7	<i>Vaccinium vitis-idaea</i>	
	black spruce	93	8	<i>Picea mariana</i>	
	Labrador tea	80	11	<i>Ledum groenlandicum</i>	
	white birch	80	2	<i>Betula papyrifera</i>	
	blueberry	67	4	<i>Vaccinium myrtilloides</i>	
	willows	53	3	<i>Salix</i> spp.	
herb (2.1)					
	moss & lichen (28.1)	Schreber's moss	100	41	<i>Pleurozium schreberi</i>
		electric eels	93	0.5	<i>Dicranum polysetum</i>
		stair-step moss	80	5	<i>Hylocomium splendens</i>
		<i>Dicranum</i> moss	67	2	<i>Dicranum</i> spp.
		knight's plume	47	0.5	<i>Ptilium crista-castrensis</i>
		other mosses	87	2	-
		cup and spike lichens	100	2	<i>Cladonia</i> spp.
		green reindeer lichen	87	6	<i>Cladina mitis</i>
		northern reindeer lichen	40	2	<i>Cladina stellaris</i>
		grey reindeer lichen	40	0.5	<i>Cladina rangiferina</i>
other lichens		100	4	-	
ground cover	leaf litter	100	11	-	
	woody debris	100	9	-	

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	needle litter	93	2	-
	rock	67	3	-

Soil Profile



Ecozonal Synonyms

Taiga Shield TS4	Boreal Shield -
Boreal Plain BP14	Prairie NA

Site Features

Soil Great Group - Order	Dystric Brunisols ₅ Folisol Organic ₂ Regosol ₁ Luvic Gleysol ₁ Gleysol ₁ Static Cryosol ₁
Parent Material	Morainals ₅ Eolian ₁ Fluvial ₁ Glacio-fluvial ₁ Lacustrine ₁ Organic ₁ Rock ₁
Moisture Regime	Moderately Dry ₃ Very Moist ₃ Fresh ₃ Moderately Fresh ₁ Dry ₁
Drainage	Well ₃ Rapid ₃ Very Rapid ₂ Imperfect ₁ Poor ₁
Slope	(0-0.5) ₄ (5-9) ₂ (2-5) ₁ (9-15) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Mid-Slope ₃ Levels ₃ Upper Slope ₂ Crest ₁ Depression ₁
Aspect	No Aspect ₄ West ₃ North ₂ East ₁

Site Features

Surface Texture	Sand ₄
	Loamy Sand ₃
	Silty Sand ₁
	Sandy Loam ₁
	Silty Loam ₁
	Sandy Clay ₁

Effective Texture	Sand ₃
	Sandy Loam ₂
	Loamy Sand ₁
	Silty Loam ₁
	Loam ₁
	Sandy Clay ₁
Rock ₁	

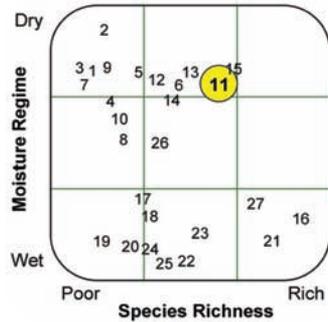
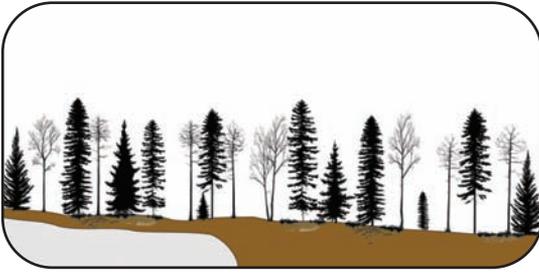
Forest Productivity

	Tree Species			
	bS	jP	wB	wS
Site Index (m at 50 years)	11.6 ± 1.7	9.3 ± 1.2	10.7 ± 3.1	10.7 ± x
Volume (m ³ /ha)	36.9 ± 16.5	28.1 ± 39.1	5 ± 4.5	28.5 ± x
MAI (m ³ /ha/yr)	0.5 ± 0.18	0.42 ± 0.62	0.13 ± 0.06	0.32 ± x
Basal Area (m ² /ha)	11.7 ± 3.4	7.4 ± 8.1	2.6 ± 1.8	4.7 ± x
Age (years)	78 ± 9	66 ± 11	79 ± 20	100 ± 32
Height (m)	9.2 ± 0.8	9.6 ± 1.9	8.1 ± 1.3	17.1 ± x
D.B.H. (cm)	11.4 ± 1.3	10.9 ± 2.3	11.7 ± 2.2	24.5 ± x
Density (stems/ha)	1100 ± 334	767 ± 933	211 ± 118	100 ± x

Ecological Interpretation

These ecosites are associated with a wide range of soil orders including Dystric Brunisols, Folisol Organics, and Static Cryosols. Local site diversity creates a range of microhabitats that support a variety of herbaceous species, few of which have high constancy.

While ecologically similar to BS9, these ecosites are differentiated by the presence of white birch and a patchier occurrence of Schreber's moss. Depending on the abundance of jack pine, these ecosites may transition toward BS14 or BS5 following disturbance. In the absence of disturbance, these ecosites may transition toward BS9 as black spruce and feathermoss cover increases.



Ecosite Description (n = 18)

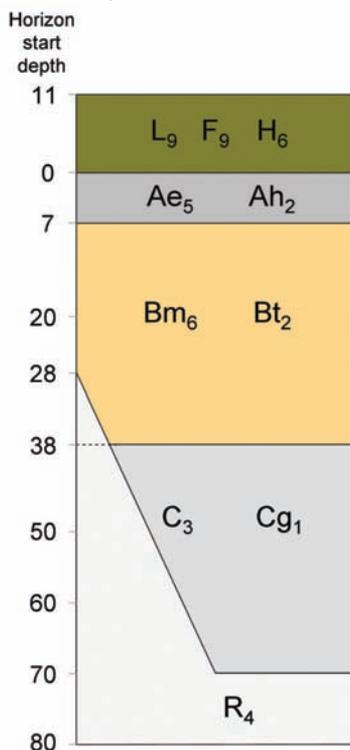
BS11 ecosites have a white spruce and/or a balsam fir dominated canopy. Trembling aspen and/or white birch may also occur as ancillary canopy species. Low bush-cranberry and prickly rose are common shrubs on this ecosite; red raspberry, northern gooseberry, and common juniper are also common. The herb layer is relatively rich and Schreber's moss occurs as large discontinuous patches or with continuous cover.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.9)	white spruce	100	20	<i>Picea glauca</i>
	balsam fir	94	20	<i>Abies balsamea</i>
	trembling aspen	56	19	<i>Populus tremuloides</i>
	white birch	39	15	<i>Betula papyrifera</i>
shrub (4.4)	balsam fir	83	5	<i>Abies balsamea</i>
	white spruce	72	6	<i>Picea glauca</i>
	prickly rose	67	1	<i>Rosa acicularis</i>
	white birch	61	0.6	<i>Betula papyrifera</i>
	low bush-cranberry	50	0.3	<i>Viburnum edule</i>
	bearberry	44	3	<i>Arctostaphylos uva-ursi</i>
herb (9.8)	trembling aspen	44	0.6	<i>Populus tremuloides</i>
	twinflower	78	3	<i>Linnaea borealis</i>
	wild sarsaparilla	61	3	<i>Aralia nudicaulis</i>
	starflower	61	0.6	<i>Trientalis borealis</i>
	bunchberry	56	3	<i>Cornus canadensis</i>
	wild lily-of-the-valley	56	1	<i>Maianthemum canadense</i>
	northern bastard	56	1	<i>Geocalaon lividum</i>
	toadflax			
	one-sided wintergreen	50	0.5	<i>Orthilia secunda</i>
grasses	44	0.8	Graminoid spp.	
moss & lichen (19.3)	Schreber's moss	100	21	<i>Pleurozium schreberi</i>
	stair-step moss	83	2	<i>Hylocomium splendens</i>
	knight's plume	72	0.4	<i>Ptilium crista-castrensis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (19.3)	Dicranum moss	67	0.5	Dicranum spp.
	other mosses	100	3	-
	cup and spike lichens	100	2	Cladonia spp.
	green reindeer lichen	56	7	Cladina mitis
	other lichens	100	0.5	-
ground cover	woody debris	100	31	-
	needle litter	100	14	-
	leaf litter	100	14	-

Soil Profile



Ecozonal Synonyms

Taiga Shield NA	Boreal Shield -
Boreal Plain BP13	Prairie PR7

Site Features

Soil Great Group - Order	Dystric Brunisol ₆ Folisol Organic ₂ Gray Luvisol ₂ Nonsoil ₁
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Parent Material	Morainals ₅ Organic ₂ Fluvial ₁ Lacustrine ₁ Rock ₁
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Moisture Regime	Fresh ₄ Dry ₂ Moderately Dry ₂ Moderately Fresh ₁ Very Fresh ₁
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Drainage	Well ₃ Very Rapid ₃ Rapid ₂
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Slope	(0-0.5) ₃ (0.5-2) ₃ (2-5) ₃ (5-9) ₂
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Topographic Position	Upper Slope ₆ Crest ₃ Mid-Slope ₁ Level ₁
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Aspect	East ₅ West ₃ North ₁ South ₁
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Site Features

Surface Texture	Loamy Sand ₅
	Silty Clay Loam ₂
	Silty Sand ₁
	Silty Loam ₁
	Clay Loam ₁

Effective Texture	Sandy Loam ₂
	Silty Clay ₂
	Silty Clay Loam ₂
	Rock ₂
	Sand ₁
	Loamy Sand ₁
	Silt ₁
Clay Loam ₁	

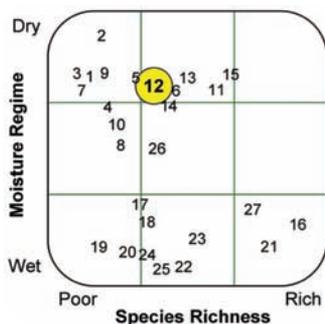
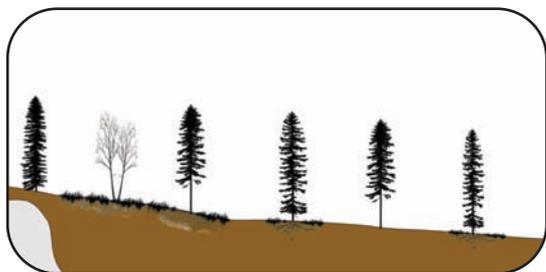
Forest Productivity

	Tree Species					
	bF	bS	jP	tA	wB	wS
Site Index (m at 50 years)	15.1 ± 2.5	13.5 ± 4	6.4 ± x	13.7 ± 8.9	9.4 ± 8	8.6 ± 1.5
Volume (m ³ /ha)	5.3 ± 5.8	50.6 ± 36.7	6.5 ± x	6 ± 11.1	30 ± 18.5	85 ± 37.2
MAI (m ³ /ha/yr)	0.07 ± 0.09	0.4 ± 0.25	0.08 ± x	0.05 ± 0.11	0.25 ± 0.27	0.79 ± 0.28
Basal Area (m ² /ha)	1.8 ± 1.2	7.9 ± 4.4	2.6 ± x	1.6 ± 2.6	6.2 ± 3.8	15.1 ± 4.9
Age (years)	45 ± 6	107 ± 22	79 ± 6	53 ± 16	121 ± 48	120 ± 13
Height (m)	8.6 ± 1	13.9 ± 2.5	7.9 ± x	11 ± 5.3	12.8 ± 2	12.5 ± 2
D.B.H. (cm)	10.1 ± 1.5	16 ± 4.1	18.3 ± x	8.5 ± 1.7	18.4 ± 11.6	16.8 ± 2.3
Density (stems/ha)	200 ± 95	350 ± 159	100 ± x	267 ± 287	275 ± 272	569 ± 184

Ecological Interpretation

These ecosites are relatively uncommon on the Boreal Shield ecozone. They are almost exclusively restricted to the region in and around Amisk Lake on the east side of the province. These ecosites are commonly located on sites such as islands that tend not to be exposed to frequent forest fires resulting in stand ages that are older than other ecosites. In the absence of disturbance, these sites can self-perpetuate as the balsam fir and white spruce may follow regeneration mechanisms associated with gap dynamics. However, transition toward the BS12 condition is also possible. Following disturbance these ecosites may lose the fir and spruce components and tend to more closely resemble the BS15 condition. Fires will remove balsam fir from the ecosite because this conifer sheds its cones each year and consequently has no seed bank in the crown.





Ecosite Description (n = 10)

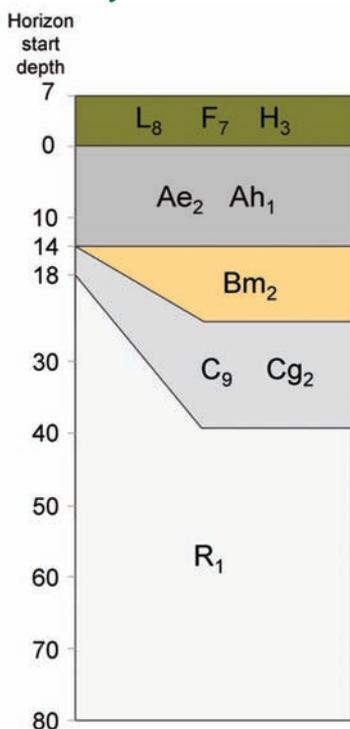
BS12 ecosites often occur as pure or nearly pure white spruce canopied stands. However, it is not uncommon to also find jack pine, white birch, trembling aspen or black spruce in the canopy. Unlike BS11, the understory of this white spruce ecosite is comprised of predominantly ericaceous shrubs and herbaceous species which are more closely associated with drier conditions. The dominant mosses associated with this ecosite are Schreber’s and stair-step. Lichens and mosses are common and their diversity is relatively high.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.6)	white spruce	100	19	<i>Picea glauca</i>
	white birch	60	3	<i>Betula papyrifera</i>
shrub (4.0)	lingonberry	100	14	<i>Vaccinium vitis-idaea</i>
	crowberry	70	26	<i>Empetrum nigrum</i>
	white spruce	70	1	<i>Picea glauca</i>
	white birch	60	0.9	<i>Betula papyrifera</i>
	bearberry	40	7	<i>Arctostaphylos uva-ursi</i>
	blueberry	40	2	<i>Vaccinium myrtilloides</i>
herb (5.2)	northern bastard	100	2	<i>Geocaldon lividum</i>
	toadflax			
	stemless lady’s-slipper	60	0.3	<i>Cypripedium acaule</i>
	twinflower	50	2	<i>Linnaea borealis</i>
	lesser rattlesnake-plantain	50	0.4	<i>Goodyera repens</i>
	fireweed	40	0.6	<i>Chamerion angustifolium</i>
moss & lichen (30.4)	Schreber’s moss	90	12	<i>Pleurozium schreberi</i>
	electric eels	80	0.6	<i>Dicranum polysetum</i>
	stair-step moss	70	19	<i>Hylocomium splendens</i>
	<i>Dicranum</i> moss	40	1	<i>Dicranum</i> spp.
	other mosses	100	1	-
	cup and spike lichens	90	0.8	<i>Cladonia</i> spp.
	green reindeer lichen	70	13	<i>Cladina mitis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (30.4)	northern reindeer lichen	50	0.5	<i>Cladina stellaris</i>
	grey reindeer lichen	40	0.6	<i>Cladina rangiferina</i>
	other lichens	100	1	-
ground cover	leaf litter	100	15	-
	woody debris	100	9	-
	needle litter	100	5	-

Soil Profile



Site Features

Soil Great Group - Order	Regosols ₈ Dystric Brunisol ₁ Sombric Brunisol ₁
Parent Material	Eolian ₇ Morainal ₂ Fluvial ₁
Moisture Regime	Moderately Fresh ₆ Moderately Dry ₂ Dry ₁ Moderately Moist ₁
Drainage	Rapid ₈ Very Rapid ₁ Imperfect ₁
Slope	(2-5) ₃ (9-15) ₂ (15-30) ₂ (0-0.5) ₁ (5-9) ₁
Topographic Position	Mid-Slope ₅ Upper Slope ₂ Crest ₂ Lower Slope ₁
Aspect	North ₄ South ₃ West ₂ No Aspect ₁
Surface Texture	Sand ₁₀
Effective Texture	Sand ₈ Loamy Sand ₁ Silty Sand ₁

Ecozonal Synonyms

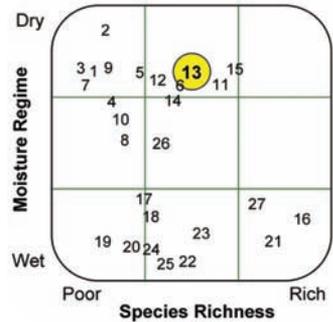
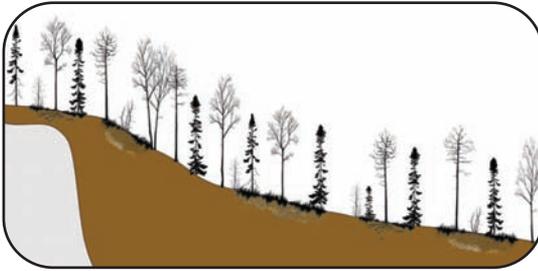
Taiga Shield	Boreal Shield
TS6 + TS7	-
Boreal Plain	Prairie
NA	NA

Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	14.9 ± 51.1	15.1 ± 8.6	20.1 ± x	8.4 ± 24.5	8 ± 2
Volume (m ³ /ha)	-	-	27.7 ± x	2.2 ± 27.8	69.1 ± 56
MAI (m ³ /ha/yr)	-	-	0.2 ± x	0.04 ± x	0.6 ± 0.43
Basal Area (m ² /ha)	0.5 ± x	0.7 ± x	4.4 ± x	1.8 ± 14.8	15.8 ± 10.5
Age (years)	108 ± 45	54 ± 25	131 ± 184	83 ± 39	111 ± 16
Height (m)	8.7 ± x	7.7 ± x	14.1 ± x	7.4 ± 3.2	10.2 ± 2.1
D.B.H. (cm)	7.8 ± x	9.2 ± x	15.6 ± x	11.2 ± 31.4	18 ± 7.7
Density (stems/ha)	100 ± x	100 ± x	200 ± x	150 ± 635	678 ± 543

Ecological Interpretation

These ecosites are not particularly common across the Boreal Shield ecozone, in part because of their age which is likely older than the normal fire-return interval and contributes to the dominance of white spruce in the overstory, and in part because white spruce is not as common in the ecozone. When these sites are encountered, they tend to be older, which may suggest that their previous successional stage was a BS15 or, more likely, a BS11 ecosite. Following disturbance by fire, these ecosites may transition toward the BS13 or BS14 conditions. In the absence of disturbance, these ecosites may remain in their current state but with an increased proportion of taller shrubs such as pin cherry, green alder, low bush-cranberry, and willow.



Ecosite Description (n = 25)

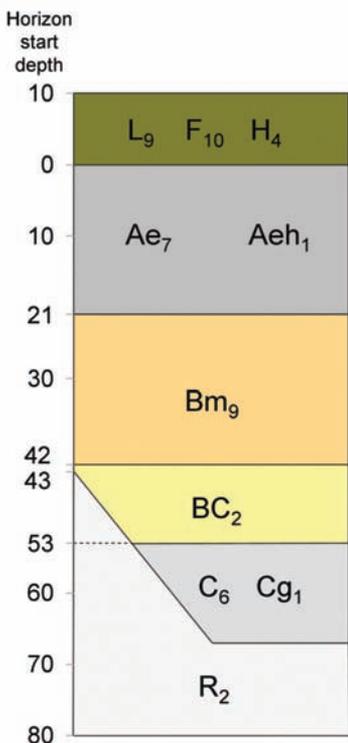
White birch and black spruce occur in the overstory approximately 70 percent of the time on this ecosite. However, birch and trembling aspen or black spruce and trembling aspen canopy combinations are also possible. Ericaceous shrubs, green alder, low bush-cranberry, and willow are characteristic understory species. The herb layer associated with BS13 is relatively abundant with species like wild sarsaparilla; mosses also occur but with patchy cover.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.3)	white birch	92	32	<i>Betula papyrifera</i>
	black spruce	80	27	<i>Picea mariana</i>
	trembling aspen	72	20	<i>Populus tremuloides</i>
shrub (5.0)	lingonberry	92	11	<i>Vaccinium vitis-idaea</i>
	black spruce	64	7	<i>Picea mariana</i>
	white birch	64	2	<i>Betula papyrifera</i>
	green alder	60	10	<i>Alnus viridis</i>
	blueberry	56	7	<i>Vaccinium myrtilloides</i>
	Labrador tea	48	11	<i>Ledum groenlandicum</i>
	low bush-cranberry	44	3	<i>Viburnum edule</i>
herb (6.2)	trembling aspen	44	2	<i>Populus tremuloides</i>
	twinflower	64	0.8	<i>Linnaea borealis</i>
	bunchberry	56	3	<i>Cornus canadensis</i>
	fireweed	48	1	<i>Chamerion angustifolium</i>
	one-sided wintergreen	44	0.9	<i>Orthilia secunda</i>
moss & lichen (26.9)	wild sarsaparilla	40	3	<i>Aralia nudicaulis</i>
	Schreber's moss	84	7	<i>Pleurozium schreberi</i>
	stair-step moss	76	4	<i>Hylocomium splendens</i>
	electric eels	72	0.7	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	52	2	<i>Dicranum</i> spp.
	other mosses	96	2	-
	cup and spike lichens	96	0.8	<i>Cladonia</i> spp.
	green reindeer lichen	76	4	<i>Cladina mitis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (26.9)	grey reindeer lichen	40	2	<i>Cladina rangiferina</i>
	other lichens	100	1	-
ground cover	leaf litter	100	52	-
	woody debris	96	10	-
	needle litter	68	5	-
	rock	48	3	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS6 + TS7	-
Boreal Plain	Prairie
NA	NA

Site Features

Soil Great Group - Order	Dystric Brunisols ₈ Gray Luvisol ₁ Gleysol ₁
Parent Material	Morainals ₆ Glacio-fluvial ₂ Eolian ₁
Moisture Regime	Moderately Dry ₃ Moderately Fresh ₃ Fresh ₂ Dry ₁ Very Moist ₁
Drainage	Very Rapid ₄ Rapid ₃ Well ₂
Slope	(>30) ₃ (2-5) ₂ (5-9) ₂ (0-0.5) ₁ (0.5-2) ₁ (15-30) ₁
Topographic Position	Upper Slope ₄ Mid-Slope ₃ Lower Slope ₂ Toe Slope ₁
Aspect	South ₄ East ₃ West ₂ No Aspect ₁
Surface Texture	Sand ₄ Loamy Sand ₂

Site Features

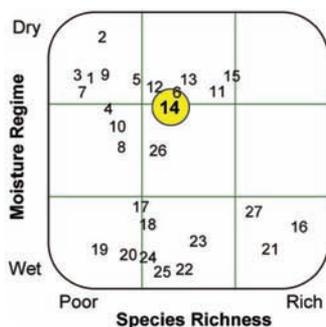
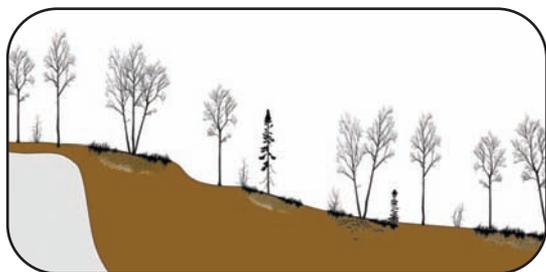
Effective Texture	Sand ₃
	Loamy Sand ₂
	Sandy Loam ₂
	Silty Loam ₂

Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	11.8 ± 1.2	10.5 ± 2.6	12.4 ± 1.9	10.9 ± 1.7	8.2 ± 3.3
Volume (m ³ /ha)	20.1 ± 10.1	24 ± 16.8	39.2 ± 16.8	22.2 ± 11.5	94.6 ± 159.4
MAI (m ³ /ha/yr)	0.32 ± 0.15	0.32 ± 0.24	0.6 ± 0.29	0.37 ± 0.2	1.09 ± 1.88
Basal Area (m ² /ha)	6.2 ± 2.2	5.6 ± 3.2	8.2 ± 2.9	6.2 ± 2.6	14.8 ± 18.2
Age (years)	70 ± 7	72 ± 17	66 ± 14	73 ± 7	94 ± 20
Height (m)	9.6 ± 0.9	11.1 ± 1.3	11.8 ± 1.7	10 ± 0.9	12.4 ± 5
D.B.H. (cm)	12.2 ± 1.8	16.9 ± 4.5	14.5 ± 2.8	11.2 ± 1.3	21.5 ± 10.9
Density (stems/ha)	533 ± 210	329 ± 305	550 ± 220	541 ± 136	340 ± 242

Ecological Interpretation

BS13 ecosites are relatively rich in terms of understory species diversity. This in part is attributable to the range of canopy species and the understory conditions that they produce (light, litterfall). These sites exist as mixedwoods approximately 60 percent of the time and as hardwoods approximately one-third of the time. In the absence of disturbance these ecosites may transition towards the BS8 or BS10 ecosite conditions. Following disturbance by fire, these sites may maintain the characteristics of BS13 or they may migrate toward a BS15 ecosite condition.



Ecosite Description (n = 32)

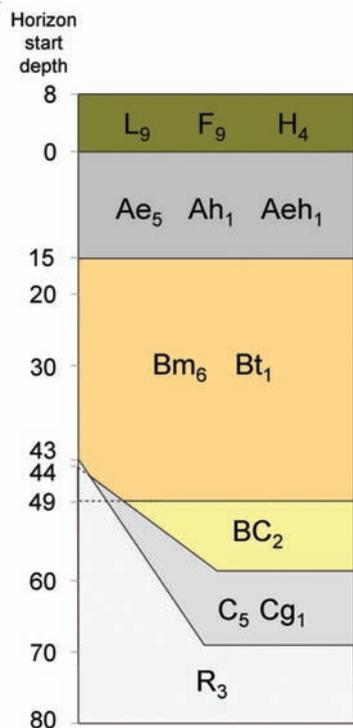
BS14 ecosites are readily recognized by the pure or nearly pure white birch canopy. This ecosite may also contain black spruce, white spruce, jack pine, or trembling aspen in the canopy but always with white birch as the leading and dominant species. The understory of BS14 ecosites is mostly ericaceous shrubs and scattered green alder and sometimes willow, rose, or pin cherry. A moderate herbaceous layer can usually be observed in combination with patches of Schreber's moss and scattered lichens. The abundance of birch contributes considerably to the high leaf litter cover on the ground.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.8)	white birch	100	46	<i>Betula papyrifera</i>
	black spruce	47	5	<i>Picea mariana</i>
shrub (4.3)	lingonberry	78	11	<i>Vaccinium vitis-idaea</i>
	white birch	66	2	<i>Betula papyrifera</i>
	Labrador tea	63	13	<i>Ledum groenlandicum</i>
	black spruce	59	3	<i>Picea mariana</i>
	blueberry	56	4	<i>Vaccinium myrtilloides</i>
	green alder	44	8	<i>Alnus viridis</i>
herb (7.0)	bunchberry	71	6	<i>Cornus canadensis</i>
	twinflower	53	0.7	<i>Linnaea borealis</i>
	wild sarsaparilla	47	2	<i>Aralia nudicaulis</i>
	fireweed	47	0.5	<i>Chamerion angustifolium</i>
	northern bastard toadflax	41	1	<i>Geocaldon lividum</i>
moss & lichen (24.2)	Schreber's moss	78	7	<i>Pleurozium schreberi</i>
	electric eels	78	0.5	<i>Dicranum polysetum</i>
	stair-step moss	69	1	<i>Hylocomium splendens</i>
	<i>Dicranum</i> moss	53	2	<i>Dicranum</i> spp.
	knight's plume	41	0.5	<i>Ptilium crista-castrensis</i>
	other mosses	78	2	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (24.2)	cup and spike lichens	84	2	<i>Cladonia</i> spp.
	green reindeer lichen	72	3	<i>Cladina mitis</i>
	other lichens	100	2	-
ground cover	leaf litter	100	49	-
	woody debris	97	8	-
	needle litter	47	3	-
	rock	41	6	-

Soil Profile



Ecozonal Synonyms

Taiga Shield Boreal Shield
TS3 -

Boreal Plain Prairie
NA NA

Site Features

Soil Great Group - Order
Dystric Brunisol₆
Regosol₂
Sombric Brunisol₁
Folisol Organic₁
Gray Luvisol₁

Parent Material
Morainals₃
Eolian₂
Glacio-fluvial₂
Organic₂
Fluvial₁

Moisture Regime
Moderately Dry₄
Fresh₂
Moderately Fresh₂
Very Fresh₁
Very Moist₁

Drainage
Very Rapid₄
Rapid₃
Well₁
Moderately Well₁

Slope
(0-0.5)₂
(9-15)₂
(15-30)₂
(0.5-2)₁
(2-5)₁
(5-9)₁
(>30)₁

Topographic Position
Lower Slope₂
Mid-Slope₂
Upper Slope₂
Level₂
Depression₁
Crest₁

Site Features

Aspect	No Aspect ₂ North ₂ East ₂ South ₂ West ₂
Surface Texture	Sand ₆ Silty Loam ₁
Effective Texture	Sand ₅ Sandy Loam ₂ Sandy Clay Loam ₁ Silty Loam ₁ Silty Clay ₁ Rock ₁

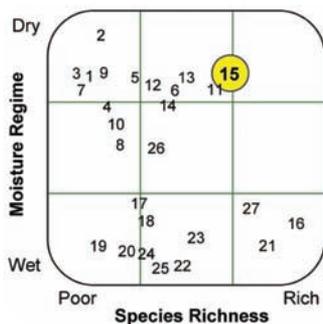
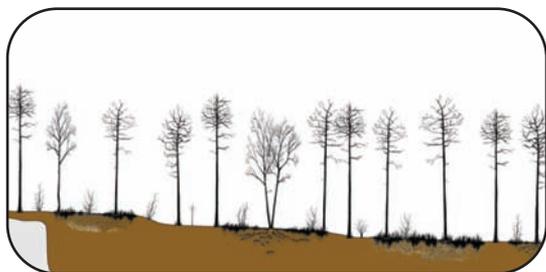
Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	11.5 ± 1.1	11.2 ± 1.4	9.1 ± 21.6	10.2 ± 1.1	8.9 ± 2.9
Volume (m ³ /ha)	8.4 ± 6.8	18.1 ± 15.4	13.9 ± 11.8	41.2 ± 23.3	89.5 ± 174.3
MAI (m ³ /ha/yr)	0.19 ± 0.15	0.28 ± 0.33	0.26 ± 0.27	0.63 ± 0.38	0.81 ± 1.43
Basal Area (m ² /ha)	2.7 ± 1.5	4.2 ± 2.5	3.7 ± 2.6	10.8 ± 3.6	15 ± 26.4
Age (years)	67 ± 4	67 ± 6	90 ± 19	77 ± 8	107 ± 24
Height (m)	9.4 ± 1.5	11.8 ± 2.8	10.9 ± 1.8	9.7 ± 1	11.9 ± 5.2
D.B.H. (cm)	11.6 ± 2.8	14.5 ± 2.9	12.2 ± 3.1	10.8 ± 0.9	21.3 ± 15.4
Density (stems/ha)	215 ± 88	283 ± 277	300 ± 232	1021 ± 234	200 ± 133

Ecological Interpretation

These ecosites usually consist of a closed canopy of white birch on rapidly drained soils. In the absence of disturbance this ecosite may transition towards the BS10 ecosite condition. Following disturbance this ecosite may return to its former composition.





Ecosite Description (n = 38)

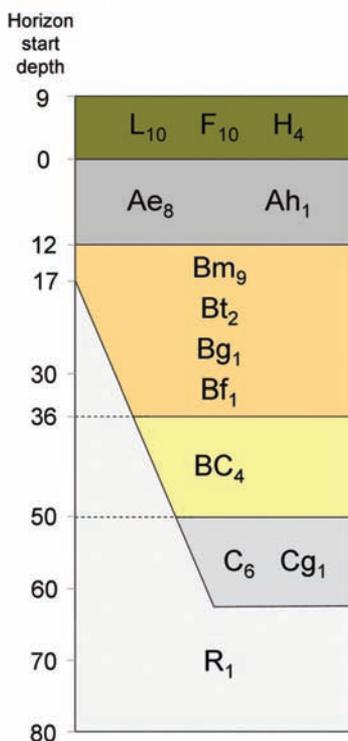
BS15 ecosites are readily recognized by the pure or nearly pure trembling aspen canopy. White birch can often accompany the aspen but in relatively small quantities. Approximately 10% of BS15 ecosites may include black and/or white spruce, jack pine, or balsam poplar in the over-story. The understory of BS15 ecosites is relatively rich with a variety of both shrub and herb species. Moss and lichen cover is low.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.0)	trembling aspen	100	47	<i>Populus tremuloides</i>
	white birch	74	12	<i>Betula papyrifera</i>
shrub (5.6)	lingonberry	76	8	<i>Vaccinium vitis-idaea</i>
	blueberry	71	8	<i>Vaccinium myrtilloides</i>
	green alder	68	17	<i>Alnus viridis</i>
	trembling aspen	61	2	<i>Populus tremuloides</i>
	prickly rose	53	2	<i>Rosa acicularis</i>
	low bush-cranberry	53	2	<i>Viburnum edule</i>
	willows	47	3	<i>Salix</i> spp.
	bearberry	42	5	<i>Arctostaphylos uva-ursi</i>
herb (10.1)	twinflower	89	2	<i>Linnaea borealis</i>
	bunchberry	74	3	<i>Cornus canadensis</i>
	wild lily-of-the-valley	66	0.7	<i>Maianthemum canadense</i>
	wild sarsaparilla	63	6	<i>Aralia nudicaulis</i>
	fireweed	63	0.9	<i>Chamerion angustifolium</i>
	one-sided wintergreen	47	0.6	<i>Orthilia secunda</i>
	stiff club-moss	45	3	<i>Lycopodium annotinum</i>
	starflower	42	4	<i>Trientalis borealis</i>
moss & lichen (23.9)	Schreber's moss	89	6	<i>Pleurozium schreberi</i>
	stair-step moss	87	3	<i>Hylocomium splendens</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (23.9)	electric eels	84	0.6	<i>Dicranum polysetum</i>
	<i>Dicranum</i> moss	75	1	<i>Dicranum</i> spp.
	other mosses	84	2	-
	cup and spike lichens	89	1	<i>Cladonia</i> spp.
	green reindeer lichen	61	2	<i>Cladina mitis</i>
	other lichens	100	1	-
ground cover	leaf litter	100	54	-
	woody debris	100	12	-
	needle litter	53	2	-

Soil Profile



Ecozonal Synonyms

Taiga Shield TS5	Boreal Shield -
Boreal Plain BP6 + BP7	Prairie NA

Site Features

Soil Great Group - Order	Dystric Brunisol ₉ Gleysol ₁ Gray Luvisol ₁
Parent Material	Morainal ₆ Fluvial ₁ Glacio-fluvial ₁ Glacio-lacustrine ₁ Lacustrine ₁
Moisture Regime	Moderately Dry ₄ Moderately Fresh ₄ Fresh ₂
Drainage	Rapid ₄ Very Rapid ₃ Well ₂ Moderately Well ₁
Slope	(2-5) ₃ (0-0.5) ₂ (9-15) ₂ (0.5-2) ₁ (5-9) ₁ (15-30) ₁ (>30) ₁
Topographic Position	Mid-Slope ₃ Upper Slope ₃ Level ₂ Lower Slope ₁ Crest ₁
Aspect	West ₃ East ₂ No Aspect ₂

Site Features

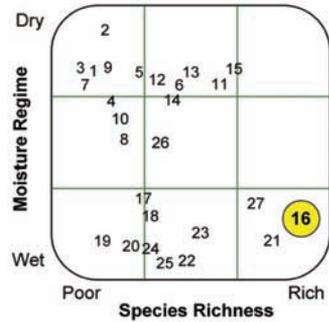
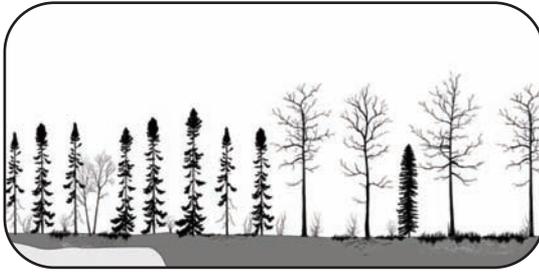
Aspect	South ₂ North ₁
Surface Texture	Sand ₄ Loamy Sand ₄ Sandy Loam ₂ Clay Loam ₁
Effective Texture	Sand ₂ Loamy Sand ₂ Sandy Loam ₂ Silty Loam ₁ Silty Clay Loam ₁ Silty Clay ₁ Rock ₁

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	-	9.9 ± 49.2	13.2 ± 3	12.6 ± 2	12.3 ± 1.6	11.7 ± 2.3	11.2 ± 3.6
Volume (m ³ /ha)	-	225.9 ± 556.1	17.5 ± 11.6	29.8 ± 15.3	99.1 ± 34.4	11.2 ± 7.4	42.3 ± 59.3
MAI (m ³ /ha/yr)	-	2.5 ± 6.98	0.24 ± 0.18	0.45 ± 0.22	1.48 ± 0.59	0.16 ± 0.09	0.59 ± 0.89
Basal Area (m ² /ha)	0.8 ± x	29.6 ± 71.1	4.6 ± 2.5	6.1 ± 2.7	17.9 ± 4.4	2.9 ± 1.1	6.9 ± 6.9
Age (years)	49 ± 260	93 ± 132	77 ± 18	71 ± 14	75 ± 8	82 ± 11	77 ± 17
Height (m)	7 ± x	15.9 ± 14.3	10.4 ± 1.6	11.6 ± 2.7	12.6 ± 1	11 ± 2.9	12 ± 4.5
D.B.H. (cm)	10.2 ± x	19.2 ± 19.3	15.6 ± 5.1	17.4 ± 3.7	12.7 ± 1	12.2 ± 2.6	16.5 ± 6.3
Density (stems/ha)	100 ± x	450 ± 718	243 ± 140	270 ± 147	1329 ± 266	275 ± 133	233 ± 86

Ecological Interpretation

The BS15 ecosite is among the richest of ecosites in the Boreal Shield ecozone. The relatively thick canopy of trembling aspen maintains light and moisture levels which support numerous shrubs and herbs. It is not uncommon to find either or both black and white spruce in the understory. In the absence of fire these ecosites may transition toward the BS11 and BS12 ecosite conditions. Following disturbance this ecosite is likely to return to its former composition due to rapid suckering of the trembling aspen.



Ecosite Description (n = 4)

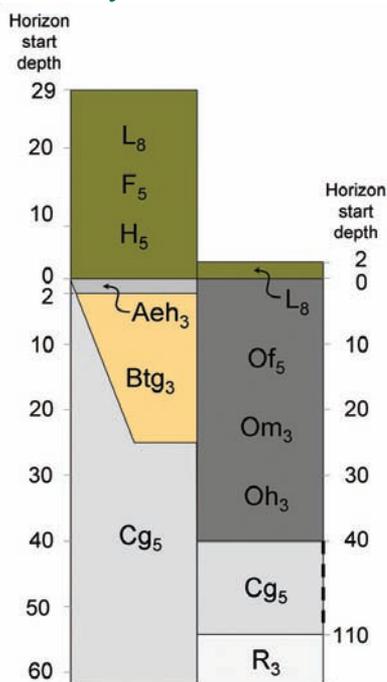
BS16 ecosites can occur with nearly pure black spruce or pure balsam poplar overstories, both of which may have scattered white birch present. River alder, willows and low bush-cranberry are common in the understory as are sedges and a variety of moisture loving or moisture tolerant herbaceous species. While *Sphagnum* will be the dominant moss, feathermoss is also frequently encountered.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.8)	white birch	75	17	<i>Betula papyrifera</i>
	black spruce	50	61	<i>Picea mariana</i>
	balsam poplar	50	54	<i>Populus balsamifera</i>
	white spruce	50	5	<i>Picea glauca</i>
shrub (7.0)	river alder	100	17	<i>Alnus incana</i>
	willows	100	9	<i>Salix</i> spp.
	low bush-cranberry	75	5	<i>Viburnum edule</i>
	Labrador tea	75	4	<i>Ledum groenlandicum</i>
	red currant	75	2	<i>Ribes triste</i>
	white birch	50	6	<i>Betula papyrifera</i>
	lingonberry	50	2	<i>Vaccinium vitis-idaea</i>
	white spruce	50	0.6	<i>Picea glauca</i>
herb (14.3)	sedges	75	10	<i>Carex</i> spp.
	bunchberry	75	7	<i>Cornus canadensis</i>
	bluejoint grass	75	5	<i>Calamagrostis canadensis</i>
	dewberry	75	3	<i>Rubus pubescens</i>
	woodland horsetail	75	3	<i>Equisetum sylvaticum</i>
	twinflower	75	0.3	<i>Linnaea borealis</i>
	common horsetail	50	4	<i>Equisetum arvense</i>
	bishop's cap	50	3	<i>Mitella nuda</i>
	palmate-leaved coltsfoot	50	2	<i>Petasites palmatus</i>
	starflower	50	2	<i>Trientalis borealis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (14.3)	fireweed	50	2	<i>Chamerion angustifolium</i>
	tall lungwort	50	1	<i>Mertensia paniculata</i>
	kidney-leaved violet	50	1	<i>Viola renifolia</i>
	dwarf scouring-rush	50	0.4	<i>Equisetum scirpoides</i>
	Lapland buttercup	50	0.3	<i>Ranunculus lapponicus</i>
moss & lichen (23.0)	Schreber's moss	100	13	<i>Pleurozium schreberi</i>
	stair-step moss	100	6	<i>Hylocomium splendens</i>
	<i>Dicranum</i> mosses	75	0.7	<i>Dicranum</i> spp.
	<i>Sphagnum</i> mosses	50	25	<i>Sphagnum</i> spp.
	other mosses	100	4	-
	cup and spike lichens	75	0.3	<i>Cladonia</i> spp.
	other lichens	100	2	-
ground cover	leaf litter	100	21	-
	woody debris	100	8	-
	needle litter	75	0.3	-

Soil Profile



Site Features

Soil Great Group - Order	Gleysols ₅ Luvic Gleysol ₂ Mesisol Organic ₂
Parent Material	Lacustrine ₅ Glacio-lacustrine ₂ Organic ₂
Moisture Regime	Very Moist ₈ Very Wet ₂
Drainage	Very Poor ₈ Poor ₂
Slope	(0-0.5) ₈ (0.5-2) ₂
Topographic Position	Level ₅ Depression ₂ Upper Slope ₂
Aspect	No Aspects ₈ East ₂
Surface Texture	Organic Fibric ₂ Clay Loam ₂ Silt ₂ Clay ₂
Effective Texture	Organic Humic ₃ Organic Mesic ₃

Ecozonal Synonyms

Taiga Shield TS8	Boreal Shield -
Boreal Plain BP18	Prairie NA

Site Features

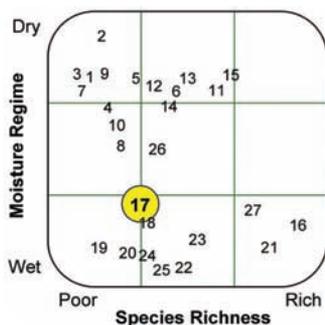
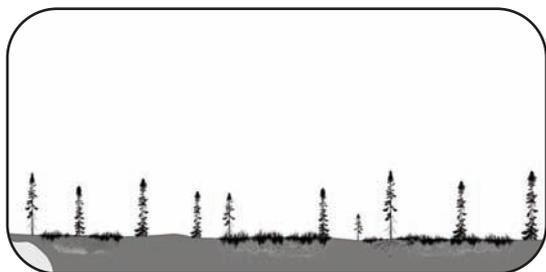
Effective Texture	Silt ₃ Silty Clay ₃
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Forest Productivity

	Tree Species				
	bF	bP	bS	tL	wB
Site Index (m at 50 years)	6.5 ± x	16.1 ± 46.4	11.2 ± 48	12.9 ± x	18.9 ± x
Volume (m ³ /ha)	14.5 ± x	152.1 ± 80.7	137.4 ± 695.8	14.8 ± x	5.4 ± 68
MAI (m ³ /ha/yr)	0.12 ± x	2.08 ± 12.23	1.45 ± 2.47	0.22 ± x	0.09 ± x
Basal Area (m ² /ha)	2.8 ± x	24.8 ± 23.9	26 ± 17.3	2.8 ± x	2.5 ± 9.4
Age (years)	94 ± 6	91 ± 72	98 ± 77	67 ± 165	38 ± 32
Height (m)	13.3 ± x	17.9 ± 16.9	13.4 ± 43.6	13.3 ± x	8.7 ± 5.7
D.B.H. (cm)	12.5 ± x	24 ± 90	15.2 ± 63	10.9 ± x	14.4 ± 74.1
Density (stems/ha)	200 ± x	700 ± 5082	1850 ± 13342	300 ± x	200 ± 1271

Ecological Interpretation

These ecosites are uncommon in the Boreal Shield ecozone. They are associated with transition positions on the landscape between wetlands and uplands. It is common for these sites to have abundant and often flowing water. Due to their landscape position and adequate drainage, they are among the richest of the ecosites in the Boreal Shield ecozone as they support both upland and wetland species. They are usually associated with gleysolic soils. These ecosites are relatively stable on the landscape and may return to their former composition following disturbance or stay in that condition in the absence of disturbance although with an increasing shrub cover as openings increase in the canopy.



Ecosite Description (n = 44)

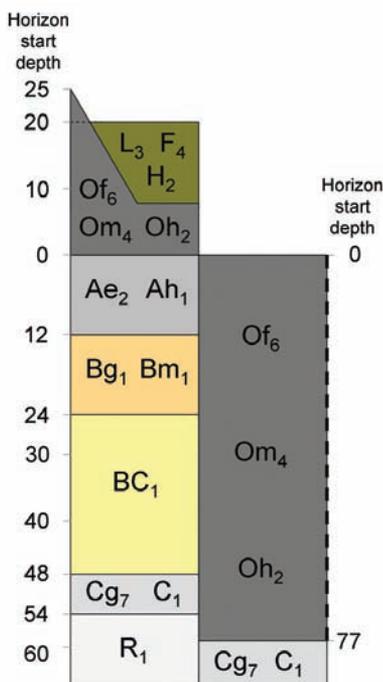
BS17 ecosites consistently have a somewhat open canopy of all-aged black spruce. Tamarack may also occur on about 20% of the sites but with relatively little cover. The understory is largely ericaceous shrubs (mostly Labrador tea) and the ground cover is represented by an even distribution of *Sphagnum* and Schreber's moss.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.7)	black spruce	100	30	<i>Picea mariana</i>
shrub (5.9)	Labrador tea	100	30	<i>Ledum groenlandicum</i>
	black spruce	98	7	<i>Picea mariana</i>
	lingonberry	95	5	<i>Vaccinium vitis-idaea</i>
	small bog cranberry	82	1	<i>Vaccinium oxycoccus</i>
	northern bog-laurel	68	0.9	<i>Kalmia polifolia</i>
	leatherleaf	61	7	<i>Chamaedaphne calyculata</i>
	blueberry	41	5	<i>Vaccinium myrtilloides</i>
herb (3.5)	willows	41	2	<i>Salix</i> spp.
	cloudberry	82	6	<i>Rubus chamaemorus</i>
moss & lichen (26.0)	woodland horsetail	45	3	<i>Equisetum sylvaticum</i>
	three-leaved false Solomon's-seal	41	2	<i>Similacina trifolia</i>
	Schreber's moss	95	26	<i>Pleurozium schreberi</i>
	<i>Sphagnum</i> mosses	91	29	<i>Sphagnum</i> spp.
	<i>Dicranum</i> moss	61	1	<i>Dicranum</i> spp.
	stair-step moss	41	1	<i>Hylocomium splendens</i>
	other mosses	68	3	-
	green reindeer lichen	91	9	<i>Cladina mitis</i>
	cup and spike lichens	84	3	<i>Cladonia</i> spp.
	grey reindeer lichen	66	4	<i>Cladina rangiferina</i>
northern reindeer lichen	48	4	<i>Cladina stellaris</i>	
other lichens	100	1	-	

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	woody debris	95	6	-
	leaf litter	93	4	-
	needle litter	82	2	-

Soil Profile



Ecozonal Synonyms

Taiga Shield TS9	Boreal Shield -
Boreal Plain BP19	Prairie NA

Site Features

Soil Great Group - Order	Gleysol ₄ Mesisol Organic ₂ Fibrisol Organic ₁ Dystric Brunisol ₁
Parent Material	Organic ₄ Lacustrine ₂ Morainal ₂ Fluvial ₁
Moisture Regime	Very Moist ₅ Moderately Wet ₂ Wet ₂
Drainage	Very Poor ₅ Poor ₂ Imperfect ₂
Slope	(0-0.5) ₇ (0.5-2) ₂
Topographic Position	Level ₆ Toe Slope ₂ Depression ₁
Aspect	No Aspect ₇ North ₁ East ₁ West ₁
Surface Texture	Organic Fibric ₄ Sand ₃ Loamy Sand ₁
Effective Texture	Organic Mesic ₃ Organic Fibric ₂ Organic Humic ₂ Sand ₁

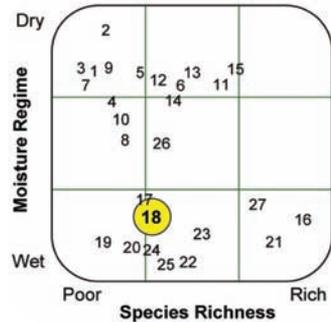
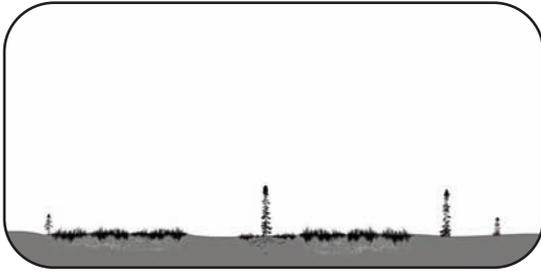
Forest Productivity

	Tree Species				
	bP	bS	jP	tL	wB
Site Index (m at 50 years)	-	6.5 ± 0.8	9.4 ± 2.6	8.5 ± 2.7	9.2 ± x
Volume (m ³ /ha)	3.3 ± x	10.6 ± 4.8	2 ± 4.5	-	3.9 ± 16.9
MAI (m ³ /ha/yr)	0.06 ± x	0.17 ± 0.06	0.04 ± x	-	0.17 ± x
Basal Area (m ² /ha)	1.3 ± x	6.3 ± 1.6	2.1 ± 1.8	0.7 ± 0.4	2.1 ± 4.1
Age (years)	-	107 ± 8	56 ± 7	64 ± 14	49 ± 13
Height (m)	8.2 ± x	7.7 ± 0.4	7.4 ± 1.4	7.8 ± 1.2	7.2 ± 4.7
D.B.H. (cm)	12.9 ± x	9.7 ± 0.4	9.7 ± 2.9	9.2 ± 2.9	10 ± 4.1
Density (stems/ha)	100 ± x	803 ± 198	350 ± 305	100 ± x	267 ± 297

Ecological Interpretation

Treed bogs are relatively common on the Boreal Shield. The black spruce on these sites usually represents all ages as the *Sphagnum* moss on the site encourages vegetative reproduction by branch layering. *Sphagnum* is also a suitable seed bed for spruce germination provided that the moss isn't Girgensohn's or another fast-growing peat moss which can outcompete and smother black spruce germinants. Despite the wet conditions, black spruce can remain free from rot for long periods. In the absence of disturbance these sites will likely remain as a treed bog. Following disturbance these sites may more closely resemble BS18 or BS20.





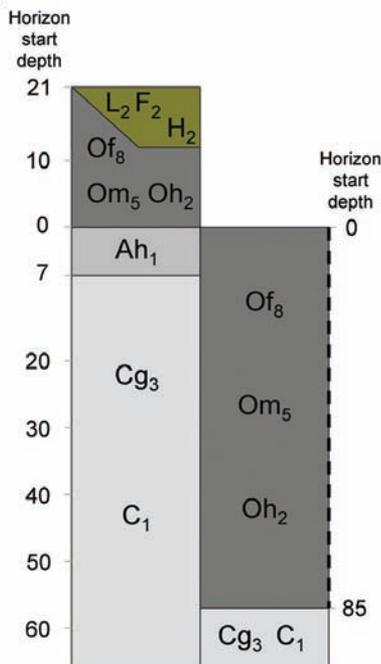
Ecosite Description (n = 33)

BS18 ecosites are dominated by a variety of ericaceous shrubs, notably leatherleaf and Labrador tea. Occasionally black spruce and tamarack, or even the odd jack pine, may occur in tree form (*i.e.* >2 m), but the cover is usually low (*i.e.*, <10%). Aside from the expected absence of trees, shrubby bogs tend to have a greater proportion of *Sphagnum* moss than would be found on treed bogs (BS17).

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	black spruce	82	5	<i>Picea mariana</i>
shrub (5.6)	leatherleaf	88	15	<i>Chamaedaphne calyculata</i>
	black spruce	88	10	<i>Picea mariana</i>
	northern bog-laurel	88	3	<i>Kalmia polifolia</i>
	small bog cranberry	88	1	<i>Vaccinium oxycoccos</i>
	Labrador tea	82	24	<i>Ledum groenlandicum</i>
	lingonberry	73	1	<i>Vaccinium vitis-idaea</i>
	northern Labrador tea	33	5	<i>Ledum palustre</i>
herb (4.1)	cloudberry	70	3	<i>Rubus chamaemorus</i>
	three-leaved false	48	3	<i>Maianthemum trifolium</i>
	Solomon's-seal			
	round-leaved sundew	42	0.5	<i>Drosera rotundifolia</i>
moss & lichen (19.4)	<i>Sphagnum</i> mosses	85	59	<i>Sphagnum</i> spp.
	Schreber's moss	45	3	<i>Pleurozium schreberi</i>
	other mosses	67	8	-
	cup and spike lichens	79	0.7	<i>Cladonia</i> spp.
	green reindeer lichen	76	8	<i>Cladina mitis</i>
	other lichens	100	0.3	-
ground cover	leaf litter	91	6	-
	woody debris	88	3	-
	needle litter	67	2	-

Soil Profile



Ecozonal Synonyms

Taiga Shield Boreal Shield
TS10 -

Boreal Plain Prairie
BP20 NA

Forest Productivity

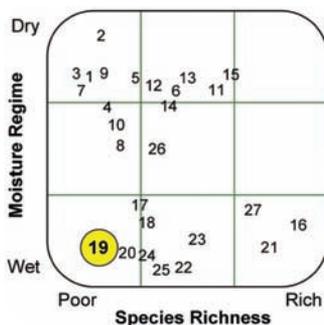
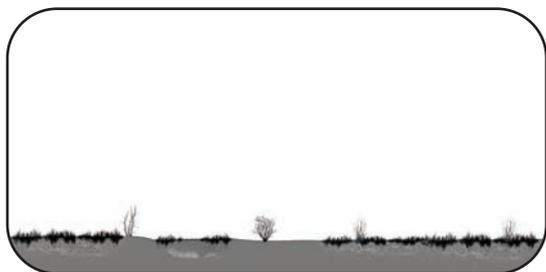
	Tree Species	
	bS	jP
Site Index (m at 50 years)	7.7 ± 2	10 ± 4.7
Volume (m ³ /ha)	1.1 ± 1.9	-
MAI (m ³ /ha/yr)	0.07 ± 0.28	-
Basal Area (m ² /ha)	2.4 ± 5.8	2.4 ± 5.8
Age (years)	79 ± 13	39 ± 12
Height (m)	7.4 ± 1.4	6.8 ± 1.7
D.B.H. (cm)	8.3 ± 1.6	8.3 ± 1.6
Density (stems/ha)	163 ± 99	200 ± x

Site Features

Soil Great Group - Order	Fibrisol Organic ₄ Mesisol Organic ₃ Regosol ₁ Gleysol ₁
Parent Material	Organic ₈ Eolian ₁ Glacio-fluvial ₁ Lacustrine ₁
Moisture Regime	Moderately Wet ₃ Wet ₂ Very Wet ₂ Very Moist ₂
Drainage	Very Poor ₈ Imperfect ₁
Slope	(0-0.5) ₁₀
Topographic Position	Level ₅ Depression ₄
Aspect	No Aspect ₁₀
Surface Texture	Organic Fabric ₇ Sand ₁
Effective Texture	Organic Mesic ₅ Organic Fabric ₃ Organic Humic ₁ Sand ₁

Ecological Interpretation

Shrubby bogs are commonly encountered in the Boreal Shield ecozone. Being wetter than treed bogs, they tend to be associated with Fibrisol and Mesisol organic soils. Like the other forms of bogs, most of the moisture they receive is the result of precipitation. Shrubby bogs, unlike treed bogs, are more likely to be found on level sites. Since the water table associated with shrubby bogs is usually below the site surface, they are still susceptible to disturbance from fire. Fires with a long enough duration or intensity may kill shrub species and the bog may transition into an open (BS20) or graminoid dominated (BS19) condition.



Ecosite Description (n = 2)

BS19 ecosites are dominated by sedges and other graminoids in association with *Sphagnum* moss. They typically lack any substantial tree or shrub cover and can occur on mineral or organic substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.5)				
shrub (4.0)	leatherleaf	100	3	<i>Chamaedaphne calyculata</i>
	small bog cranberry	100	0.5	<i>Vaccinium oxycoccus</i>
	northern bog-laurel	50	3	<i>Kalmia polifolia</i>
	dwarf bog-rosemary	50	3	<i>Andromeda polifolia</i>
	northern Labrador tea	50	2	<i>Ledum palustre</i>
	black spruce	50	0.5	<i>Picea mariana</i>
	willows	50	0.3	<i>Salix</i> spp.
herb (3.0)	sedges	50	63	<i>Carex</i> spp.
	round-leaved sundew	50	0.3	<i>Drosera rotundifolia</i>
	pitcher-plant	50	0.1	<i>Sarracenia purpurea</i>
	marsh speedwell	50	0.1	<i>Veronica scutellata</i>
moss & lichen (1.5)	<i>Sphagnum</i> mosses	100	54	<i>Sphagnum</i> spp.
ground cover	leaf litter	100	19	-
	exposed soil	50	1	-

Ecozonal Synonyms

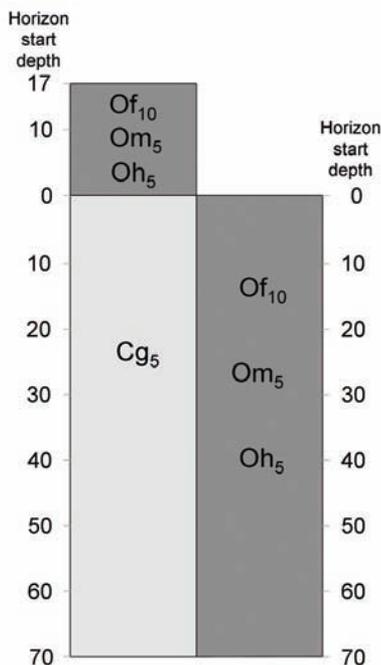
Taiga Shield
TS11

Boreal Shield
-

Boreal Plain
BP21

Prairie
NA

Soil Profile



Site Features

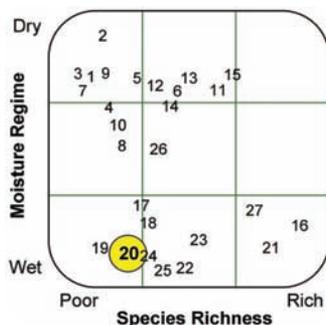
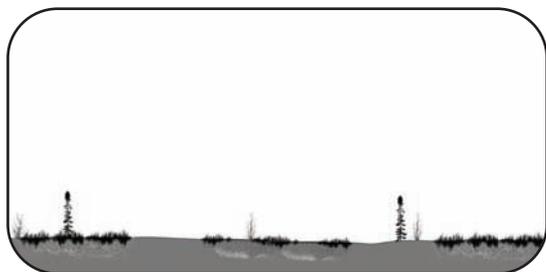
Soil Great Group - Order	Mesisol Organic ₅ Gleysol ₅
Parent Material	Organic ₅ Lacustrine ₅
Moisture Regime	Very Moist ₅ Very Wet ₅
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₅ Loamy Sand ₅
Effective Texture	Organic Mesic ₅ Organic Humic ₅

Forest Productivity

none

Ecological Interpretation

Graminoid bogs are infrequently encountered (as indicated by the low sample size). While similar to sedge fens they lack fen species and standing water is not readily seen. Following disturbance by either fire or prolonged flooding, these sites will typically return to their former condition. However, they may revert to an open bog condition until the grasses become re-established.



Ecosite Description (n = 7)

BS20 ecosites are dominated by *Sphagnum* moss (and a low cover of scattered Schreber's moss) and have low cover values of trees, shrubs and herbs. They are typically associated with organic soils.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.1)	black spruce	86	6	<i>Picea mariana</i>
shrub (5.6)	black spruce	100	3	<i>Picea mariana</i>
	small bog cranberry	100	2	<i>Vaccinium oxycoccos</i>
	northern bog-laurel	100	1	<i>Kalmia polifolia</i>
	leatherleaf	86	7	<i>Chamaedaphne calyculata</i>
	Labrador tea	86	3	<i>Ledum groenlandicum</i>
	dwarf bog-rosemary	86	0.8	<i>Andromeda polifolia</i>
	northern Labrador tea	57	1	<i>Ledum palustre</i>
	lingonberry	43	0.8	<i>Vaccinium vitis-idaea</i>
herb (3.3)	cloudberry	100	2	<i>Rubus chamaemorus</i>
	round-leaved sundew	86	0.5	<i>Drosera rotundifolia</i>
	sedges	71	2	<i>Carex</i> spp.
moss & lichen (21.7)	<i>Sphagnum</i> mosses	86	72	<i>Sphagnum</i> spp.
	Schreber's moss	57	12	<i>Pleurozium schreberi</i>
	wavy dicranum	43	0.4	<i>Dicranum undulatum</i>
	other mosses	100	0.5	-
	cup and spike lichens	100	3	<i>Cladonia</i> spp.
	green reindeer lichen	86	2	<i>Cladina mitis</i>
	grey reindeer lichen	71	1	<i>Cladina rangiferina</i>
	northern reindeer lichen	57	0.4	<i>Cladina stellaris</i>
	other lichens	100	2	-
ground cover	leaf litter	100	4	-
	woody debris	100	1	-
	needle litter	86	0.4	-

Ecozonal Synonyms

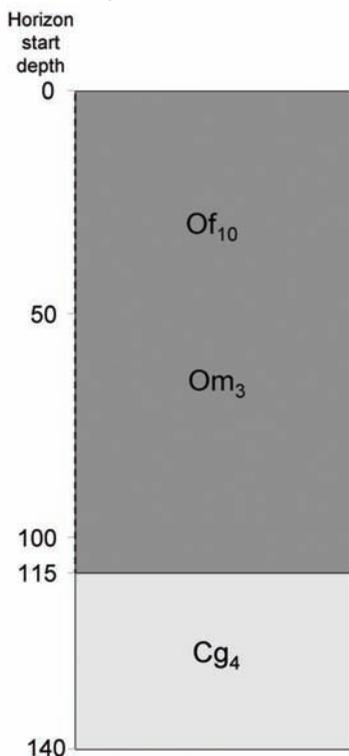
Taiga Shield
TS12

Boreal Shield
-

Boreal Plain
BP22

Prairie
NA

Soil Profile



Site Features

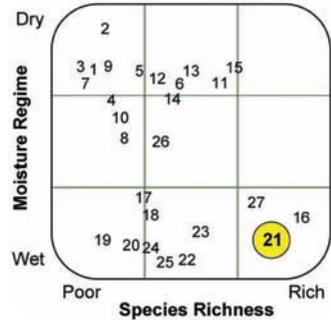
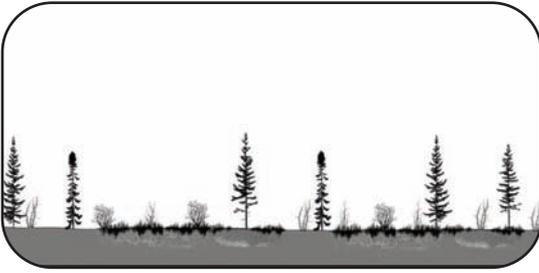
Soil Great Group - Order	Fibrisol Organic _{C10}
Parent Material	Organic _{C10}
Moisture Regime	Moderately Wet ₆ Very Wet ₃ Wet ₁
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₇ Depression ₃
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric _{C10}
Effective Texture	Organic Fibric _{C10}

Forest Productivity

	Tree Species
	bS
Site Index (m at 50 years)	4.1 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	1.1 ± x
Age (years)	96 ± 13
Height (m)	6.1 ± x
D.B.H. (cm)	8.4 ± x
Density (stems/ha)	200 ± x

Ecological Interpretation

Open *Sphagnum* bogs are infrequently encountered (as indicated by the low sample size) in the Boreal Shield ecozone. They tend to occur within treed or shrubby bogs (BS17 and BS18 respectively) which is why they more closely resemble those ecosites rather than graminoid bogs (BS19). Open bogs also tend to be wetter than their surrounding conditions. Over time, these ecosites could be expected to become a shrubby or treed bog.



Ecosite Description (n = 2)

Tamarack is the predominant tree species on BS21 ecosites, although black spruce and occasionally white birch may occur in lesser amounts. Many of the shrub and herb species encountered in fens are more commonly associated with moister conditions than that which would be found in bogs. It is not uncommon for treed fens to have a water table at or near the surface. Treed fens are usually associated with an organic substrate but mineral soil substrates may also be encountered.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.5)	tamarack	100	21	<i>Larix laricina</i>
	black spruce	100	11	<i>Picea mariana</i>
	white birch	50	10	<i>Betula papyrifera</i>
shrub (7.5)	willows	100	13	<i>Salix</i> spp.
	river alder	50	28	<i>Alnus incana</i>
	Labrador tea	50	10	<i>Ledum groenlandicum</i>
	leatherleaf	50	10	<i>Chamaedaphne calyculata</i>
	dwarf birch	50	7	<i>Betula pumila</i>
	black spruce	50	3	<i>Picea mariana</i>
	alder-leaved buckthorn	50	2	<i>Rhamnus alnifolia</i>
	fly honeysuckle	50	0.5	<i>Lonicera villosa</i>
	currant species	50	0.5	<i>Ribes</i> spp.
	small bog cranberry	50	0.5	<i>Vaccinium oxycoccos</i>
	crowberry	50	0.5	<i>Empetrum nigrum</i>
	lingonberry	50	0.3	<i>Vaccinium vitis-idaea</i>
	northern bog-laurel	50	0.3	<i>Kalmia polifolia</i>
	sweet gale	50	0.3	<i>Myrica gale</i>
prickly rose	50	0.1	<i>Rosa acicularis</i>	
herb (12.5)	three-leaved false Solomon's-seal	100	3	<i>Maianthemum trifolium</i>
	grasses	100	2	Graminoid spp.
	one-sided wintergreen	100	0.4	<i>Orthilia secunda</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (12.5)	water sedge	50	24	<i>Carex aquatilis</i>
	rough cinquefoil	50	10	<i>Potentilla norvegica</i>
	fowl manna grass	50	10	<i>Glyceria striata</i>
	bluejoint grass	50	6	<i>Calamagrostis canadensis</i>
	yellow	50	5	<i>Caltha palustris</i>
	marsh-marigold			
	marsh cinquefoil	50	5	<i>Comarum palustre</i>
	bog violet	50	3	<i>Viola nephrophylla</i>
	bunchberry	50	1	<i>Cornus canadensis</i>
	fireweed	50	1	<i>Chamerion angustifolium</i>
	common horsetail	50	1	<i>Equisetum arvense</i>
	pink wintergreen	50	1	<i>Pyrola asarifolia</i>
	cloudberry	50	1	<i>Rubus chamaemorus</i>
	bog sedge	50	1	<i>Carex magellanica</i>
	wild sarsaparilla	50	0.5	<i>Aralia nudicaulis</i>
	sedges	50	0.5	<i>Carex</i> spp.
	twinflower	50	0.5	<i>Linnaea borealis</i>
	starflower	50	0.5	<i>Trientalis borealis</i>
Indian-pipe	50	0.3	<i>Monotropa uniflora</i>	
fringed aster	50	0.1	<i>Symphotrichum ciliolatus</i>	
moss & lichen (8.5)	<i>Sphagnum</i> mosses	50	41	<i>Sphagnum</i> spp.
	Schreber's moss	50	2	<i>Pleurozium schreberi</i>
	other mosses	100	4	-
	cup and spike lichens	50	0.3	<i>Cladonia</i> spp.
ground cover	leaf litter	100	21	-
	woody debris	100	3	-
	needle litter	50	3	-

Ecozonal Synonyms

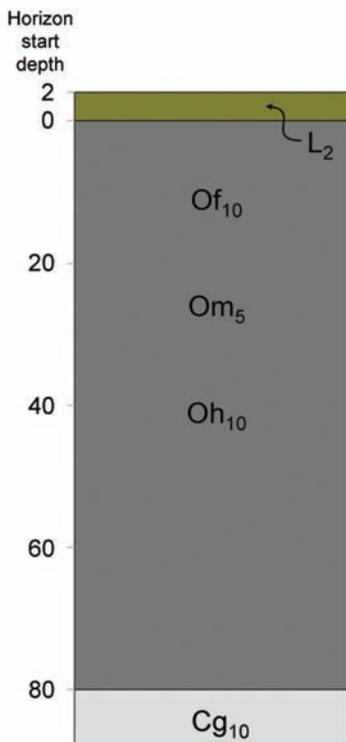
Taiga Shield
TS13

Boreal Shield
-

Boreal Plain
BP23

Prairie
NA

Soil Profile



Site Features

Soil Great Group - Order	Mesisol Organic ₅ Fibrisol Organic ₅
Parent Material	Organic ₁₀
Moisture Regime	Moderately Wet ₅ Wet ₅
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Fibric ₅ Organic Humic ₅

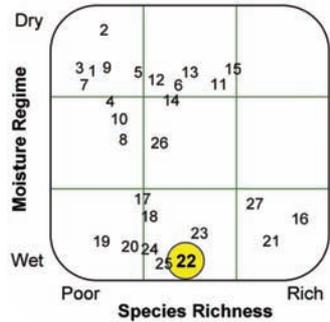
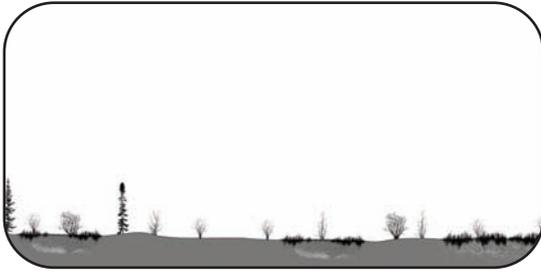
Forest Productivity

	Tree Species		
	bS	tL	wB
Site Index (m at 50 years)	6.8 ± 14.9	9.1 ± x	-
Volume (m ³ /ha)	4.1 ± 52.5	27.9 ± x	-
MAI (m ³ /ha/yr)	0.09 ± x	0.29 ± x	-
Basal Area (m ² /ha)	1.2 ± 9.3	6.1 ± x	0.6 ± x
Age (years)	125 ± 56	79 ± 44	-
Height (m)	8.8 ± 34.9	12 ± x	7.5 ± x
D.B.H. (cm)	11.9 ± 50.2	16 ± x	8.7 ± x
Density (stems/ha)	1001 ± x	300 ± x	100 ± x

Ecological Interpretation

Tamarack treed fens are not a common wetland (as indicated by the low sample size) in the Boreal Shield ecozone. They tend to occur in association with shrubby fens (BS22 and BS23) and resemble ribbons in the landscape along drainage ways. Following disturbance, these ecosites could be expected to become a shrubby fen (BS22). In the absence of disturbance these ecosites will likely remain in their current condition.





Ecosite Description (n = 21)

Leatherleaf, willow, and dwarf birch are the dominant shrub species on this ecosite; however, scattered tamarack or black spruce may also occur. Sedges are the dominant species in the herbaceous layer and *Sphagnum* mosses are abundant. Shrubby poor fens frequently have a water table that is at or near the surface. The substrate for these ecosites is usually organic although a mineral substrate is also possible.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	tamarack	52	3	<i>Larix laricina</i>
	black spruce	52	1	<i>Picea mariana</i>
shrub (5.9)	leatherleaf	86	16	<i>Chamaedaphne calyculata</i>
	small bog cranberry	81	2	<i>Vaccinium oxycoccos</i>
	willows	76	12	<i>Salix</i> spp.
	black spruce	71	2	<i>Picea mariana</i>
	northern bog-laurel	67	2	<i>Kalmia polifolia</i>
	Labrador tea	62	3	<i>Ledum groenlandicum</i>
	dwarf birch	48	12	<i>Betula pumila</i>
	tamarack	48	5	<i>Larix laricina</i>
herb (7.0)	three-leaved false	81	5	<i>Maianthemum trifolium</i>
	Solomon's-seal			
	sedges	76	15	<i>Carex</i> spp.
	marsh cinquefoil	52	2	<i>Comarum palustre</i>
moss & lichen (14.1)	<i>Sphagnum</i> mosses	90	61	<i>Sphagnum</i> spp.
	other mosses	71	9	-
	other lichens	100	1	-
ground cover	leaf litter	90	8	-
	woody debris	76	1	-
	water	52	8	-

Ecozonal Synonyms

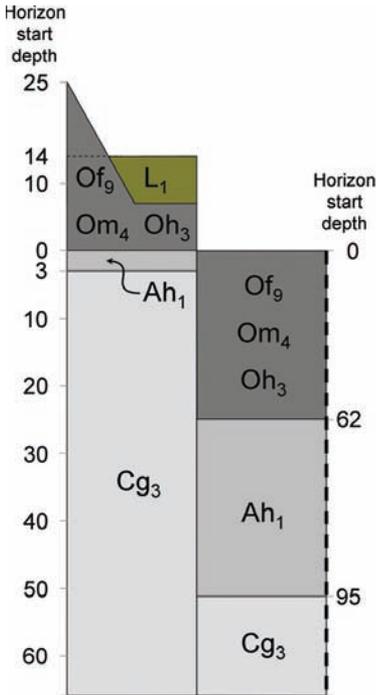
Taiga Shield
TS14

Boreal Shield
-

Boreal Plain
BP24

Prairie
NA

Soil Profile



Site Features

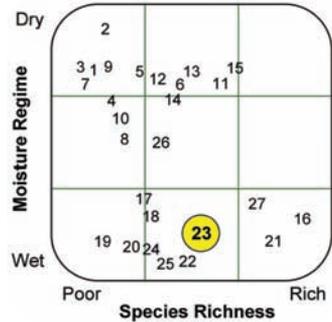
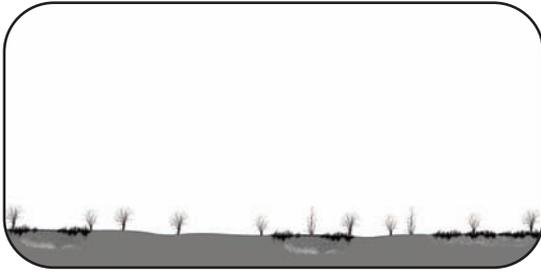
Soil Great Group - Order	Fibrisol Organic ₆ Mesisol Organic ₁ Humisol Organic ₁ Gleysol ₁
Parent Material	Organic ₉
Moisture Regime	Very Wet ₆ Wet ₂ Moderately Wet ₁ Very Moist ₁
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₆ Depression ₄
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₉ Organic Humic ₁ Sand ₁ Loam ₁
Effective Texture	Organic Fibric ₆ Organic Humic ₂ Organic Mesic ₁

Forest Productivity

	Tree Species	
	bS	tL
Site Index (m at 50 years)	9.2 ± x	7.2 ± 21.9
Volume (m ³ /ha)	-	1.4 ± 18.3
MAI (m ³ /ha/yr)	-	0.03 ± x
Basal Area (m ² /ha)	0.6 ± x	2.6 ± 23.8
Age (years)	82 ± 114	79 ± 50
Height (m)	7.3 ± x	7.1 ± 2.2
D.B.H. (cm)	8.8 ± x	9.8 ± 1.3
Density (stems/ha)	100 ± x	350 ± 3177

Ecological Interpretation

Shrubby fens tend to be more common on the Boreal Shield than the Taiga Shield. Shrubby poor fens are sometimes associated with Tamarack treed fens (BS21). While the characteristic species table for the shrubby poor fen (BS22) appears to be larger (richer) than the willow shrubby rich fen (BS23), the species richness values are greater for BS23 particularly in the herbaceous layer.



Ecosite Description (n = 11)

BS23 ecosites have characteristically high cover values of willow. The typical willows associated with this site are usually pussy willow and flat-leaved willow. Other shrubs that may be found on the site include river alder, skunk and wild red current, dwarf birch, red-osier dogwood, and sweet gale. Grasses tend to be more common on the BS23 ecosite than sedges. Shrubby rich fens also tend to have more open water at the surface than shrubby poor fens (BS22). Shrubby rich fens are more commonly associated with a mineral soil substrate but will also occur on an organic substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.5)				
shrub (3.5)	willows	73	28	<i>Salix</i> spp.
	river alder	45	48	<i>Alnus incana</i>
herb (11.0)	bluejoint grass	73	17	<i>Calamagrostis canadensis</i>
	marsh cinquefoil	73	2	<i>Comarum palustre</i>
	sedges	64	13	<i>Carex</i> spp.
	marsh violet	45	1	<i>Viola palustris</i>
	small bedstraw	45	0.4	<i>Galium trifidum</i>
moss & lichen (14.5)	<i>Sphagnum</i> mosses	64	13	<i>Sphagnum</i> spp.
	other mosses	82	16	-
	other lichens	100	2	-
ground cover	leaf litter	100	30	-
	woody debris	64	6	-
	water	45	32	-

Ecozonal Synonyms

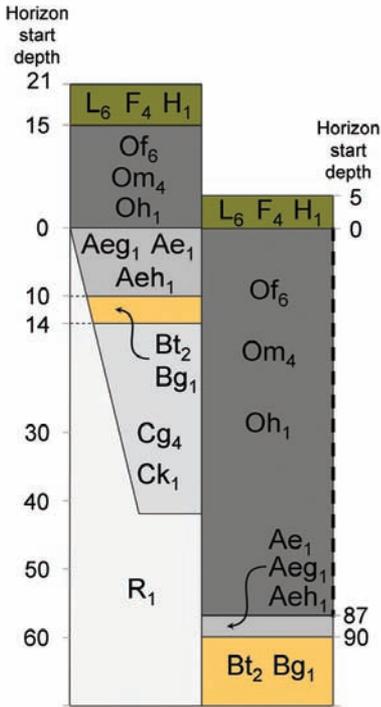
Taiga Shield
NA

Boreal Shield
-

Boreal Plain
BP25

Prairie
NA

Soil Profile



Site Features

Soil Great Group - Order	Gleysol ₃ Fibrisol Organic ₂ Mesisol Organic ₂ Gray Luvisol ₂ Humisol Organic ₁ Non-soil ₁
Parent Material	Organic ₅ Fluvial ₃ Glacio-lacustrine ₁ Lacustrine ₁ Morainal ₁
Moisture Regime	Wet ₃ Very Moist ₃ Moderately Moist ₂ Very Wet ₂ Fresh ₁
Drainage	Very Poor ₆ Poor ₁ Imperfect ₁ Moderately Well ₁ Very Rapid ₁
Slope	(0-0.5) ₈ (0.5-2) ₁ (5-9) ₁
Topographic Position	Level ₃ Toe Slope ₁ Upper Slope ₁
Aspect	No Aspects ₃ North ₂
Surface Texture	Organic Fibric ₃ Clay Loam ₃ Silty Sand ₁ Silty Loam ₁ Silty Clay Loam ₁ Rock ₁
Effective Texture	Organic Fibric ₄ Organic Mesic ₃ Organic Humic ₁ Clay ₁ Silty Clay Loam ₁ Silty Sand ₁

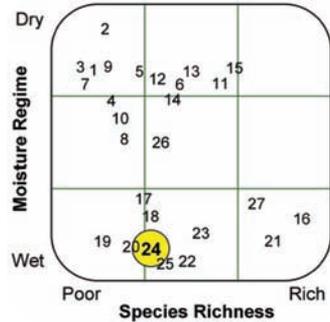
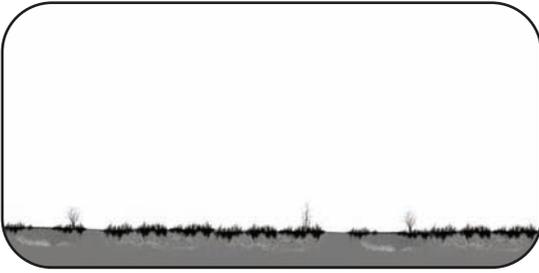
Forest Productivity

	Tree Species		
	bP	tL	wB
Site Index (m at 50 years)	-	19.2 ± x	11.5 ± 1.6
Volume (m ³ /ha)	-	-	2.5 ± 32.1
MAI (m ³ /ha/yr)	-	-	0.09 ± x
Basal Area (m ² /ha)	0.8 ± x	0.5 ± x	2.6 ± 1.4
Age (years)	105 ± x	20 ± 32	60 ± 8
Height (m)	8.4 ± x	4.9 ± x	6.6 ± 6
D.B.H. (cm)	9.9 ± x	8.3 ± x	15.3 ± 30.2
Density (stems/ha)	100 ± x	100 ± x	150 ± 635

Ecological Interpretation

Willow shrubby rich fens differ considerably from leatherleaf shrubby poor fens (BS22). Rich fen ecosites often occur adjacent to streams and lakes. They may also occur as part of a swale or draw. In the absence of disturbance these ecosites are self-sustaining. Following disturbance they will likely return to their former composition or may more closely resemble an open fen (BS25) condition.





Ecosite Description (n = 10)

Graminoid or sedge fens often have various sedge species (e.g., mud sedge and water sedge) and sometimes marsh reed grasses. They generally lack trees and shrubs. *Sphagnum* moss is the most common moss found in association with these sites. Graminoid fens usually have water at or near the surface, which accounts for the presence of bladderwort, a carnivorous aquatic plant. While graminoid fen ecosites are usually associated with organic soils, they may also occur with mineral substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.8)				
shrub (3.1)	willows	60	8	<i>Salix</i> spp.
	leatherleaf	50	1	<i>Chamaedaphne calyculata</i>
herb (7.6)	small bog cranberry	50	0.6	<i>Vaccinium oxycoccos</i>
	sedges	60	23	<i>Carex</i> spp.
moss & lichen (8.2)	marsh cinquefoil	50	5	<i>Comarum palustre</i>
	<i>Sphagnum</i> mosses	70	24	<i>Sphagnum</i> spp.
ground cover	other mosses	60	15	-
	leaf litter	80	30	-
	open water	40	24	-

Ecozonal Synonyms

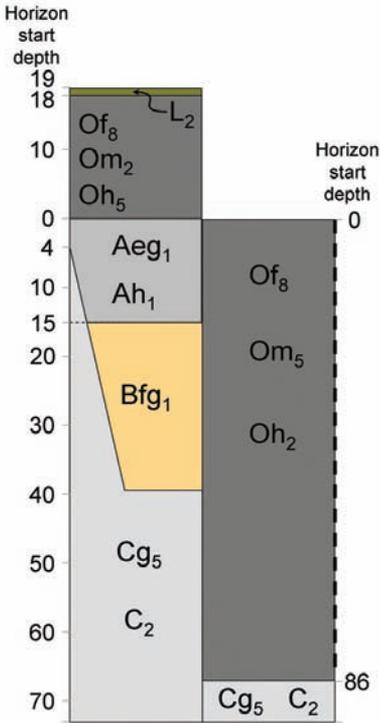
Taiga Shield
TS15

Boreal Shield
-

Boreal Plain
BP26

Prairie
PR9

Soil Profile



Forest Productivity

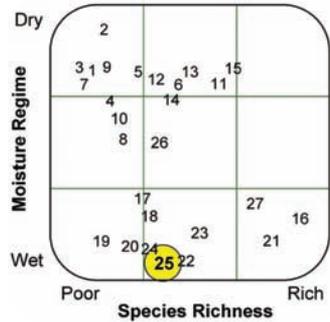
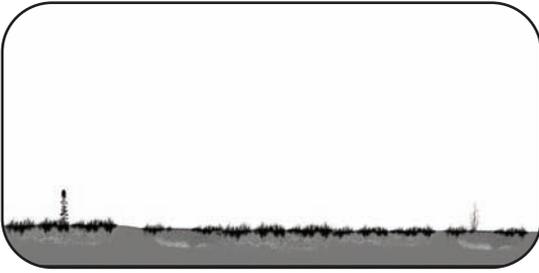
none

Site Features

Soil Great Group - Order	Gleysol ₄ Fibrisol Organic ₃ Humisol Organic ₂ Mesisol Organic ₁
Parent Material	Organic ₆ Eolian ₂ Fluvial ₁ Glacio-fluvial ₁
Moisture Regime	Very Wet ₆ Very Moist ₃ Moderately Wet ₁
Drainage	Very Poor ₈ Poor ₁ Imperfect ₁
Slope	(0-0.5) ₁₀
Topographic Position	Level ₈ Depression ₁ Crest ₁
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₆ Sand ₄
Effective Texture	Organic Humic ₅ Organic Fibric ₄ Sand ₁

Ecological Interpretation

Graminoid fens are occasionally found across the Boreal Shield. They are often in close proximity to lake shorelines. The high water table on these sites can provide the proper conditions for submergent plants such as the flat-leaved bladderwort. Following disturbance, such as ice-action, these ecosites could be expected to return to graminoid fens.



Ecosite Description (n = 5)

Open fens are conspicuous by the lack of any dominant form of vegetation with the exception of mosses. It is not uncommon for open fens to exhibit many of the vegetation species found in adjacent ecosites. While the diversity of species may be relatively high, their cover values are low. In terms of substrate, open fens can either have a mineral or organic substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.2)				
shrub (5.0)	dwarf bog-rosemary	100	3	<i>Andromeda polifolia</i>
	leatherleaf	100	2	<i>Chamaedaphne calyculata</i>
	small bog cranberry	100	0.9	<i>Vaccinium oxycoccos</i>
	northern bog-laurel	80	0.3	<i>Kalmia polifolia</i>
	black spruce	60	3	<i>Picea mariana</i>
	tamarack	40	0.4	<i>Larix laricina</i>
herb (6.6)	sedges	80	5	<i>Carex</i> spp.
	<i>Scheuchzeria</i>	80	4	<i>Scheuchzeria palustris</i>
	buck-bean	80	2	<i>Menyanthes trifoliata</i>
	round-leaved sundew	80	0.4	<i>Drosera rotundifolia</i>
	cloudberry	40	1	<i>Rubus chamaemorus</i>
	three-leaved false Solomon's-seal	40	0.9	<i>Maianthemum trifolium</i>
moss & lichen (8.2)	<i>Sphagnum</i> mosses	100	35	<i>Sphagnum</i> spp.
	other mosses	40	0.5	-
ground cover	leaf litter	100	13	-
	open water	60	60	-
	woody debris	60	0.8	-
	needle litter	40	1	-

Ecozonal Synonyms

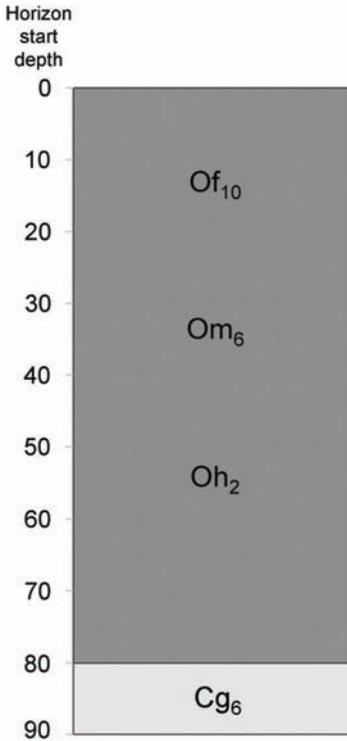
Taiga Shield
TS16

Boreal Shield
-

Boreal Plain
BP27

Prairie
NA

Soil Profile



Site Features

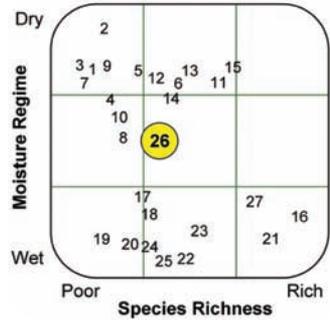
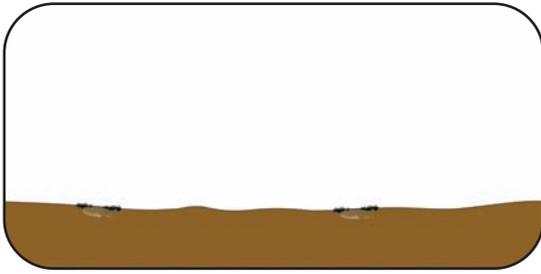
Soil Great Group - Order	Mesisol Organic ₆ Humisol Organic ₂ Fibrisol Organic ₂
Parent Material	Organic ₁₀
Moisture Regime	Wet ₄ Very Wet ₄ Moderately Wet ₂
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Mesic ₆ Organic Humic ₂ Organic Fibric ₂

Forest Productivity

	Tree Species	
	bS	tL
Site Index (m at 50 years)	5.3 ± x	4.4 ± x
Volume (m ³ /ha)	2.8 ± x	4.8 ± x
MAI (m ³ /ha/yr)	0.02 ± x	0.03 ± x
Basal Area (m ² /ha)	2.3 ± x	1.5 ± x
Age (years)	149 ± 32	187 ± 19
Height (m)	7.5 ± x	8.9 ± x
D.B.H. (cm)	9.9 ± x	13.8 ± x
Density (stems/ha)	300 ± x	100 ± x

Ecological Interpretation

While open fens appear uncommon across the Boreal Shield ecozone (as indicated by low sample size numbers) it is more a function of their existence as small pockets nested within other fen ecosites. Rarely do open fens exist as large expanses. Following disturbance these ecosites could be expected to return to open fens, but over time it is likely that they would become part of the adjacent fen ecosite.



Ecosite Description (n = 8)

BS26 ecosites are characterized by having a relatively low cover of rushes, grasses, and sedges and little else. The ground cover is mostly exposed soil; usually just sand.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.5)				
shrub (1.6)	willows	50	0.1	<i>Salix</i> spp.
herb (10.4)	wire rush	100	5	<i>Juncus arcticus</i>
	Mackenzie hair grass	63	2	<i>Deschampsia mackenzieana</i>
	alpine rush	50	3	<i>Juncus alpinus</i>
	narrow reed grass	50	0.9	<i>Calamagrostis stricta</i>
	water sedge	50	0.7	<i>Carex aquatilis</i>
	red fescue	50	0.4	<i>Festuca rubra</i>
	northern brome	50	0.3	<i>Bromus pumpellianus</i>
	striate knotweed	50	0.3	<i>Polygonum achoreum</i>
moss & lichen (2.4)				
ground cover	soil	62	74	-
	leaf litter	50	16	-

Ecozonal Synonyms

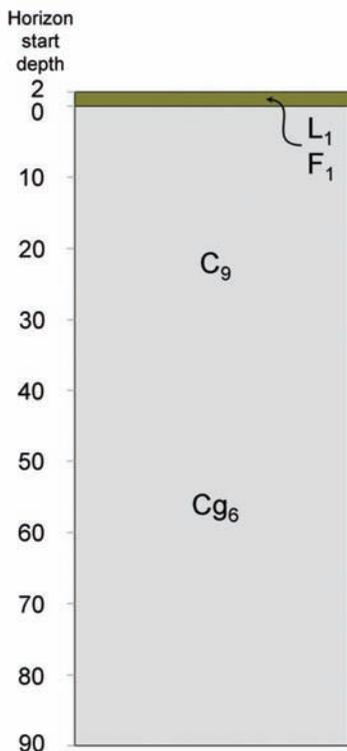
Taiga Shield
NA

Boreal Shield
-

Boreal Plain
NA

Prairie
NA

Soil Profile



Site Features

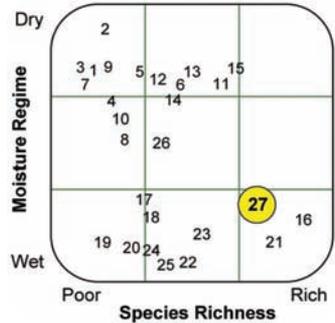
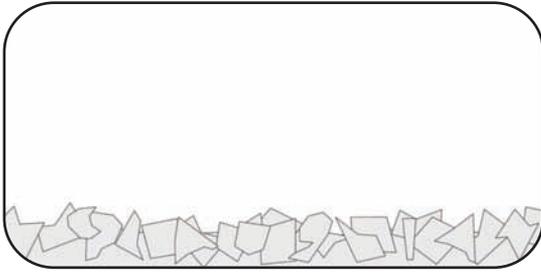
Soil Great Group - Order	Gleysols ₅ Regosols ₅
Parent Material	Eolian ₈ Fluvial ₁ Glacio-fluvial ₁
Moisture Regime	Very Moist ₅ Moderately Fresh ₅
Drainage	Rapid ₅ Very Poor ₄ Poor ₁
Slope	(0-0.5) ₆ (0.5-2) ₂ (2-5) ₁
Topographic Position	Level ₉ Toe Slope ₁
Aspect	No Aspect ₆ North ₄
Surface Texture	Sand ₁₀
Effective Texture	Sand ₁₀

Forest Productivity

none

Ecological Interpretation

Rush sandy shores are almost always narrow linear features adjacent to lakes or ponds. This particular ecosite was defined based on data almost exclusively from the Athabasca Dunes ecodistrict.



Ecosite Description (n = 1)

BS27 ecosites are sparsely vegetated sites that may have a variety of water tolerant species (e.g., willows, sweet gale, river alder, and sedges) present but in very low quantities. They are often predominantly rock on the surface and the water table is near the surface and usually visible.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.0)				
shrub (3.0)	white birch	100	1	<i>Betula papyrifera</i>
	willows	100	1	<i>Salix</i> spp.
	sweet gale	100	1	<i>Myrica gale</i>
	river alder	100	1	<i>Alnus incana</i>
	trembling aspen	100	0.3	<i>Populus tremuloides</i>
	white spruce	100	0.1	<i>Picea glauca</i>
herb (15.0)	sedges	100	3	<i>Carex</i> spp.
	rough cinquefoil	100	1	<i>Potentilla norvegica</i>
	rough hair grass	100	0.5	<i>Agrostis scabra</i>
	marsh yellow cress	100	0.5	<i>Rorippa islandica</i>
	bristly buttercup	100	0.5	<i>Ranunculus pensylvanicus</i>
	slough grass	100	0.5	<i>Beckmannia syzigachne</i>
	fireweed	100	0.3	<i>Chamerion angustifolium</i>
	rushes	100	0.3	<i>Juncus</i> spp.
	small bedstraw	100	0.3	<i>Galium trifidum</i>
	hemlock	100	0.3	<i>Cicuta</i> spp.
	creeping spearwort	100	0.3	<i>Ranunculus flammula</i>
	tufted hair grass	100	0.1	<i>Deschampsia caespitosa</i>
	short-awned foxtail	100	0.1	<i>Alopecurus aequalis</i>
	moss & lichen (9.0)	other mosses	100	1
ground cover	rock	100	75	-
	open water	100	10	-
	leaf litter	100	0.3	-

Ecozonal Synonyms

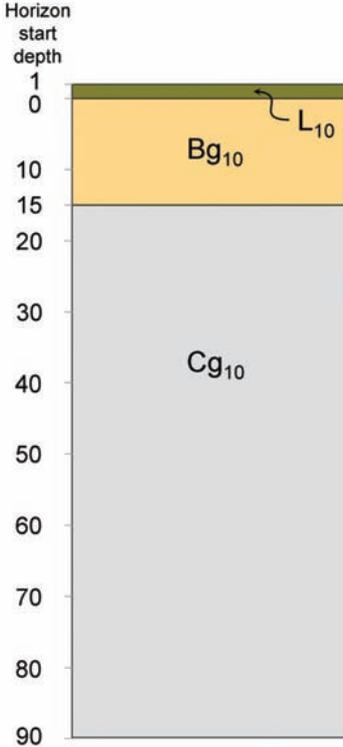
Taiga Shield
NA

Boreal Shield
-

Boreal Plain
NA

Prairie
NA

Soil Profile



Site Features

Soil Great Group - Order	Gleysol ₁₀
Parent Material	Lacustrine ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Sand ₁₀
Effective Texture	Sand ₁₀

Forest Productivity

none

Ecological Interpretation

Whereas BS26 ecosites more closely reflect the condition of the Athabasca Dunes ecodistrict, this ecosite (BS27) applies to the rocky-sandy shore conditions in other areas of the Boreal Shield ecozone. Like BS26, this ecosite also occurs as a narrow feature adjacent to lakes and ponds.

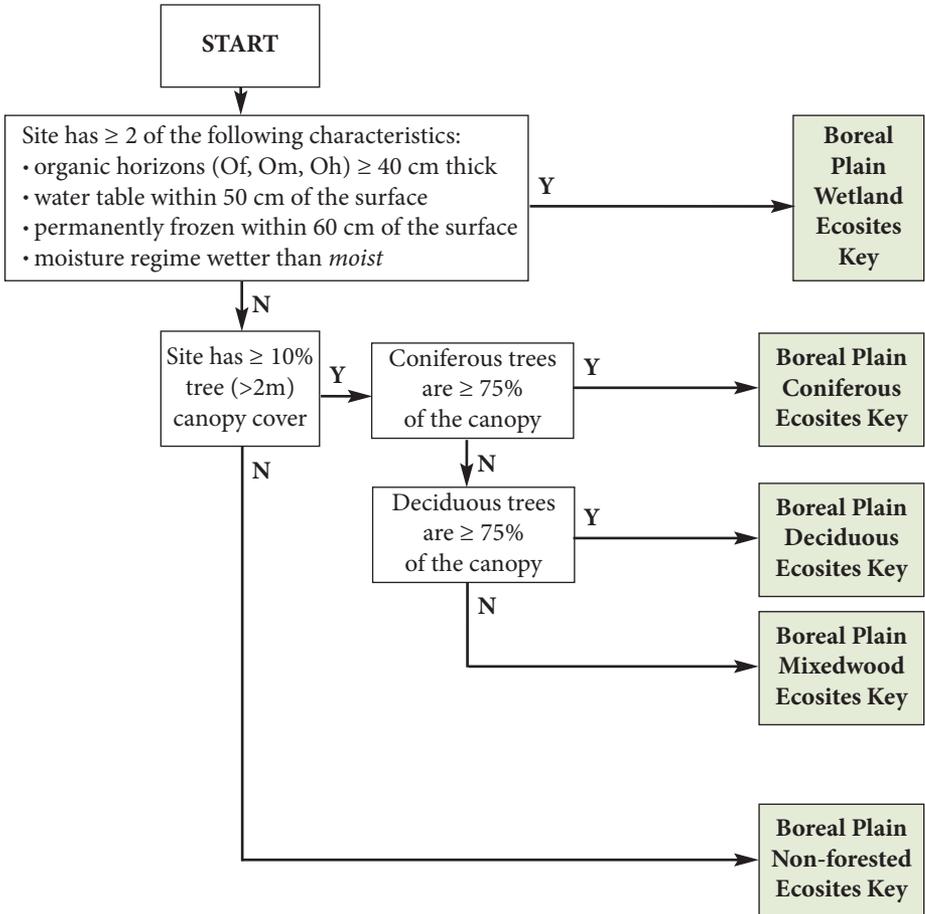


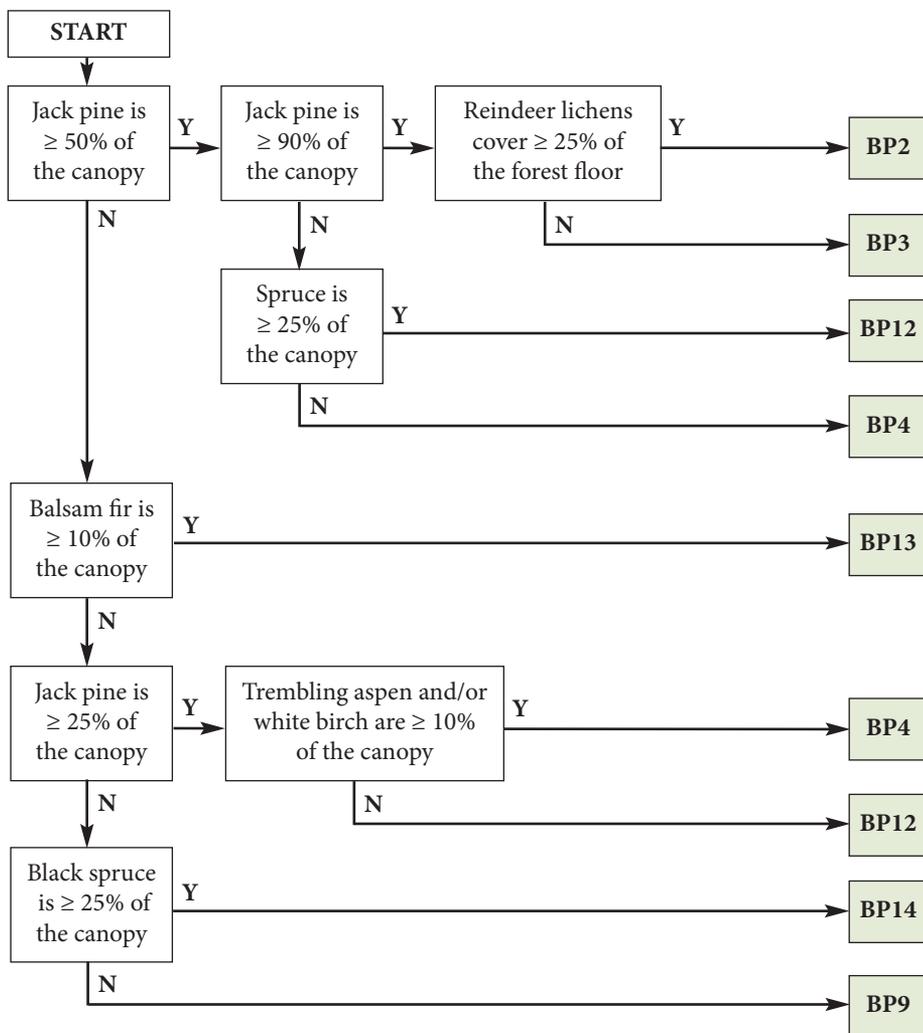
6.3 BOREAL PLAIN

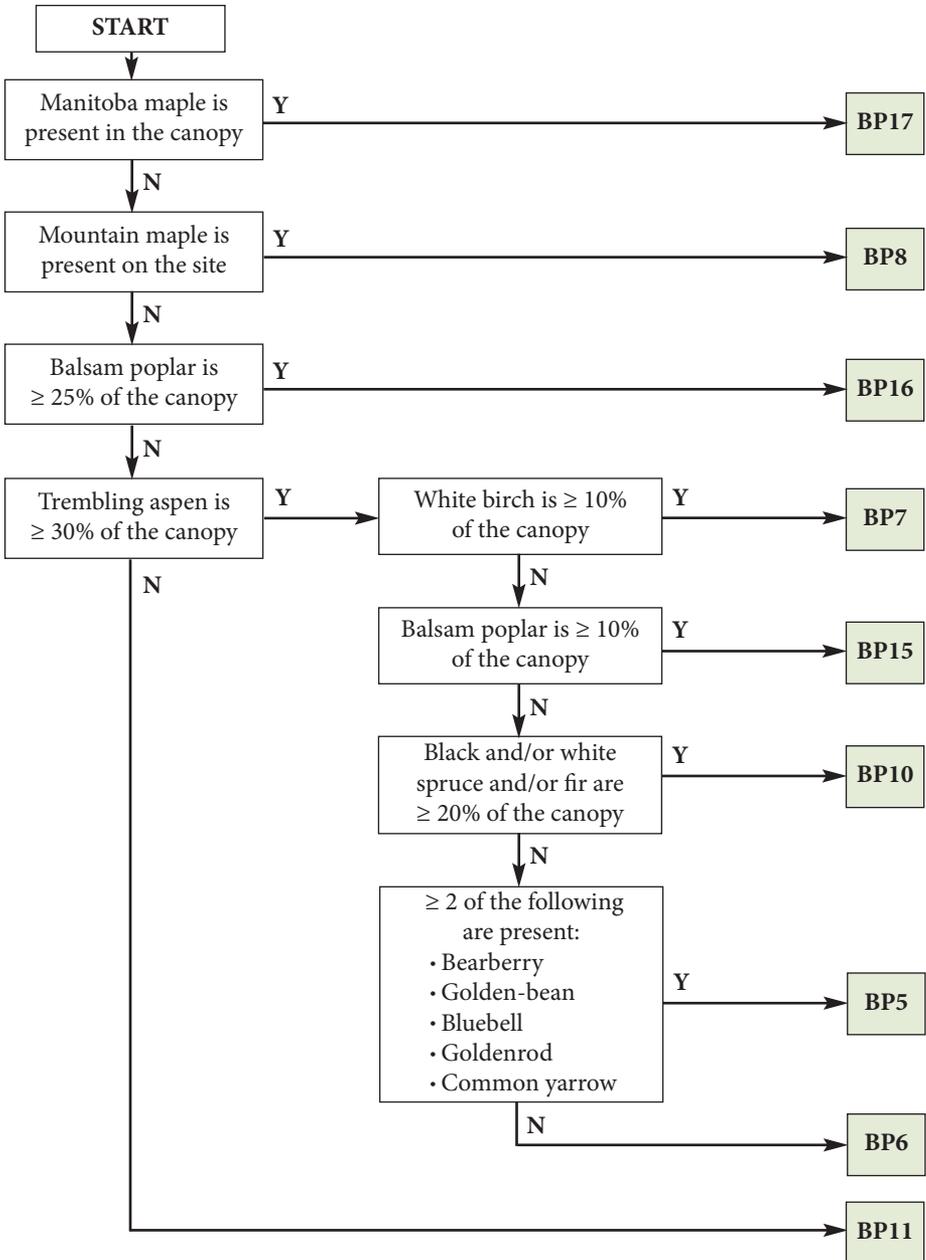
Keys & Fact Sheets

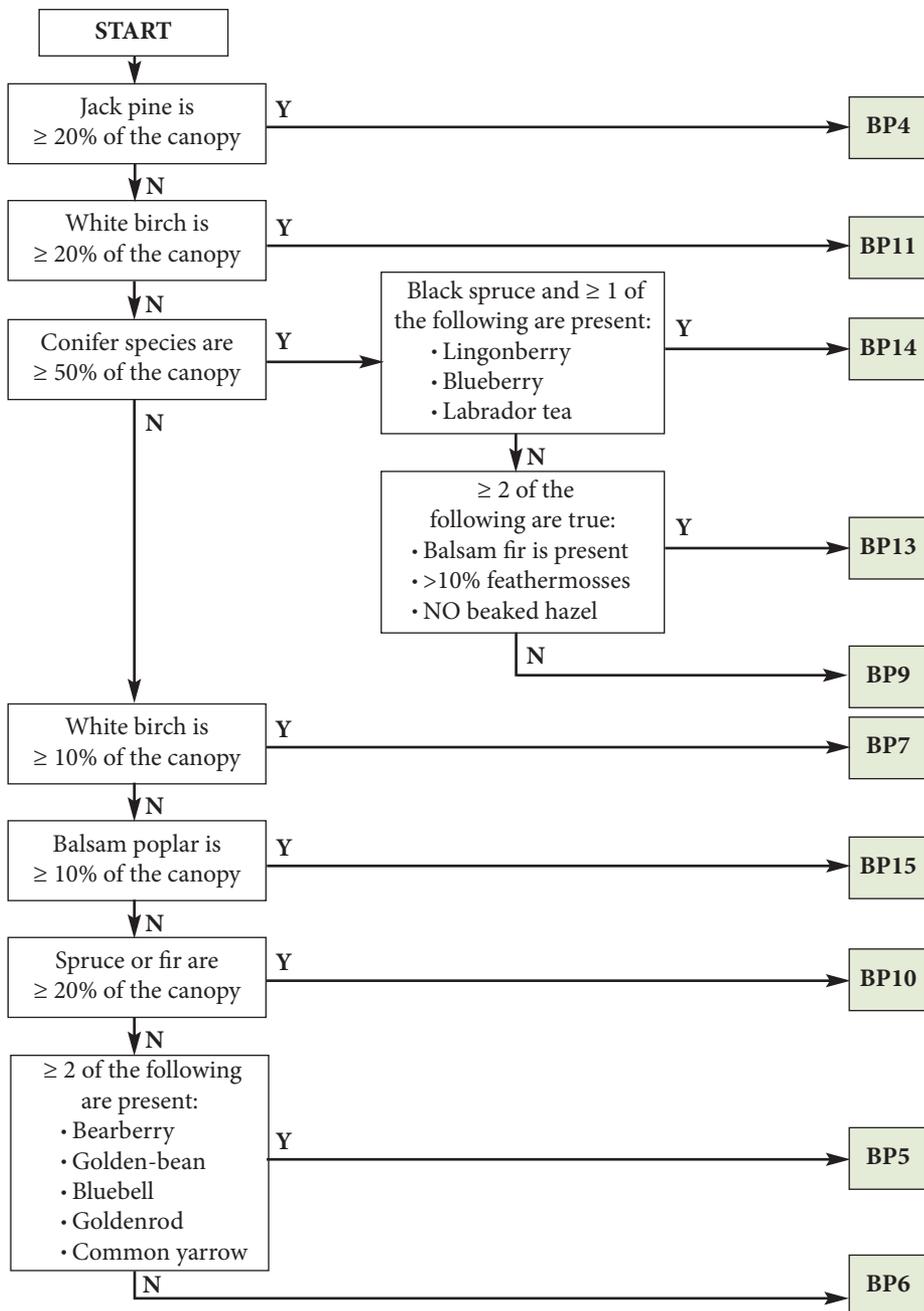
Ecosites of the Boreal Plain

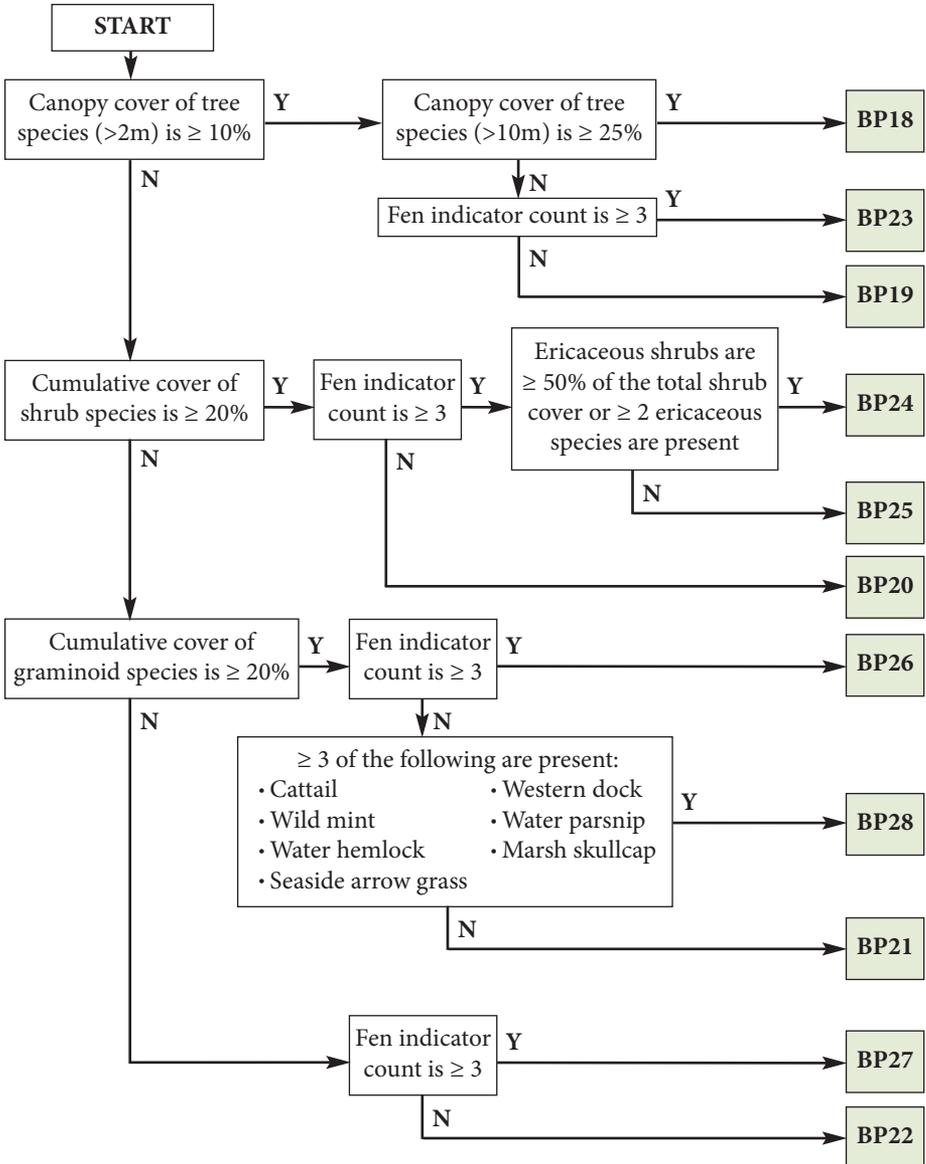
- BP1 - June grass - mountain goldenrod grassland: Moderately fresh loamy sand
BP2 - Jack pine / lichen: Moderately fresh sand
BP3 - Jack pine / feathermoss: Moderately fresh loamy sand
BP4 - Jack pine - trembling aspen / feathermoss: Moderately fresh sand
BP5 - Trembling aspen / prickly rose / grass: Fresh sand
BP6 - Trembling aspen / beaked hazel / sarsaparilla: Fresh loamy sand
BP7 - Trembling aspen - white birch / sarsaparilla: Fresh loamy sand
BP8 - Trembling aspen - white birch / mountain maple: Fresh sandy clay loam
BP9 - White spruce - trembling aspen / feathermoss: Fresh sand
BP10 - Trembling aspen - white spruce / feathermoss: Fresh silty loam
BP11 - White birch - white spruce - balsam fir: Fresh sandy clay loam
BP12 - Jack pine - spruce / feathermoss: Fresh loamy sand
BP13 - White spruce - balsam fir / feathermoss: Fresh sandy clay loam
BP14 - Black spruce / Labrador tea / feathermoss: Very moist sandy clay loam
BP15 - Balsam poplar - white spruce / feathermoss: Very moist silty loam
BP16 - Balsam poplar - trembling aspen / prickly rose: Fresh clay loam
BP17 - Manitoba maple - balsam poplar / ostrich fern: Moist silty clay loam
BP18 - Black spruce - tamarack treed swamp: Wet humic organic
BP19 - Black spruce treed bog: Moderately wet fibric organic
BP20 - Labrador tea shrubby bog: Wet fibric organic
BP21 - Graminoid bog: Wet fibric organic
BP22 - Open bog: Wet humic organic
BP23 - Tamarack treed fen: Wet fibric organic
BP24 - Leatherleaf shrubby poor fen: Wet fibric organic
BP25 - Willow shrubby rich fen: Wet humic organic
BP26 - Graminoid fen: Wet humic organic
BP27 - Open fen: Wet fibric organic
BP28 - Seaside arrow-grass marsh: Very moist humic organic

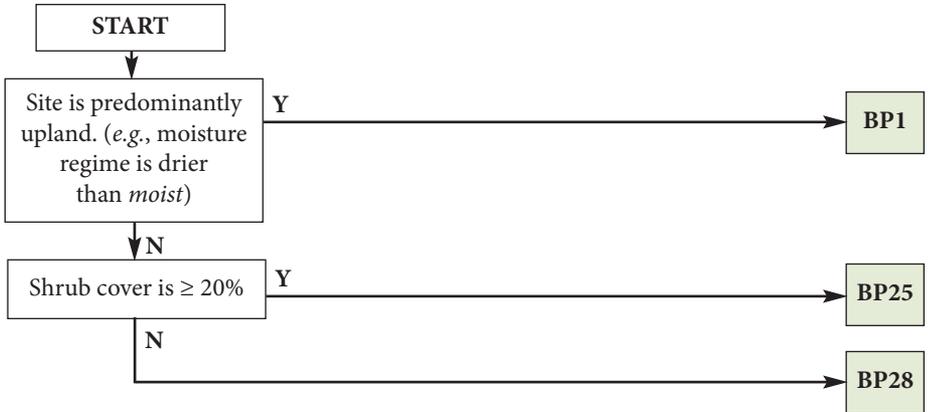
Boreal Plain Overview Key

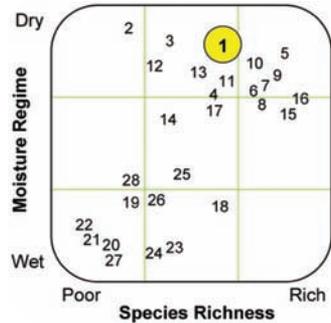
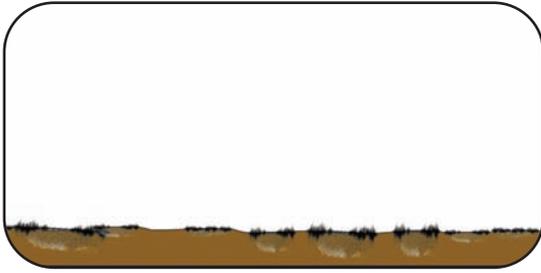
Boreal Plain Coniferous Ecosites Key

Boreal Plain Deciduous Ecosites Key

Boreal Plain Mixedwood Ecosites Key

Boreal Plain Wetland Ecosites Key

Boreal Plain Non-Forested Ecosites Key



Ecosite Description ($n = 10$)

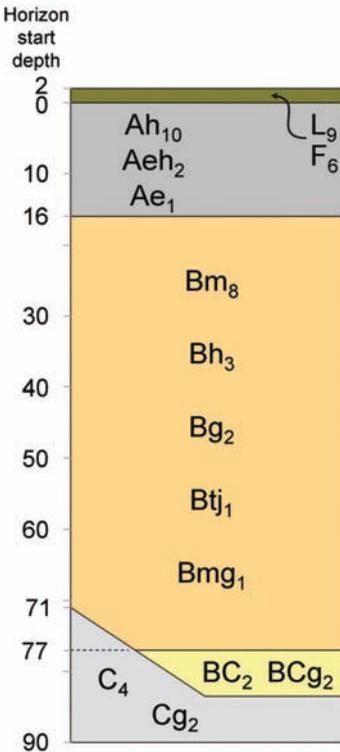
BP1 ecosites typically contain a variety of graminoid species including June grass, hay sedge, purple oat grass, and Kentucky bluegrass, which can be locally very abundant. Relatively drought resistant shrub species such as Saskatoon, blueberry, choke cherry, and the rose species (prickly and common wild) can also be found on the site but with low cover values. Green reindeer lichen is common on these sites.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.2)				
shrub (3.7)	Saskatoon	70	3	<i>Amelanchier alnifolia</i>
	blueberry	50	0.9	<i>Vaccinium myrtilloides</i>
	narrow-leaved meadowsweet	40	1	<i>Spiraea alba</i>
	choke cherry	40	1	<i>Prunus virginiana</i>
	prickly rose	40	1	<i>Rosa acicularis</i>
	herb (19.7)	bluebell	90	0.3
June-grass		80	2	<i>Koeleria macrantha</i>
common yarrow		80	1	<i>Achillea millefolium</i>
northern bedstraw		80	1	<i>Galium boreale</i>
early blue violet		80	0.4	<i>Viola adunca</i>
cut-leaved anemone		70	0.3	<i>Anemone multifida</i>
hay sedge		60	3	<i>Carex siccata</i>
mountain goldenrod		60	1	<i>Solidago simplex</i>
plains wormwood		60	0.7	<i>Artemisia campestris</i>
purple oat grass		50	2	<i>Schizachne purpurascens</i>
Richardson's alumroot		50	0.3	<i>Heuchera richardsonii</i>
Kentucky bluegrass		40	17	<i>Poa pratensis</i>
American vetch		40	0.6	<i>Vicia americana</i>
western red lily		40	0.1	<i>Lilium philadelphicum</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (11.4)	Schreber's moss	50	2	<i>Pleurozium schreberi</i>
	other mosses	100	12	-
	cup and spike lichens	90	1	<i>Cladonia</i> spp.
	green reindeer lichen	80	11	<i>Cladina mitis</i>
	other lichens	100	5	-
ground cover	leaf litter	100	61	-
	needle litter	50	0.5	-
	woody debris	60	0.5	-
	exposed soil	40	1	-

Soil Profile



Site Features

Soil Great Group - Order	Eutric Brunisol ₅ Dark Gray Chernozem ₄ Melanic Brunisol ₁
Parent Material	Eolian ₅ Fluvial ₃ Morainal ₂
Moisture Regime	Moderately Fresh ₄ Moderately Dry ₃ Very Fresh ₂ Moderately Moist ₁
Drainage	Rapid ₇ Imperfect ₃
Slope	(0-0.5) ₉ (5-9) ₁
Topographic Position	Level ₇ Lower Slope ₂ Crest ₁
Aspect	No Aspect ₉ West ₁
Surface Texture	Sand ₄ Loamy Sand ₄ Loam ₂
Effective Texture	Loamy Sands ₅ Sand ₃ Loam ₂

Ecozonal Synonyms

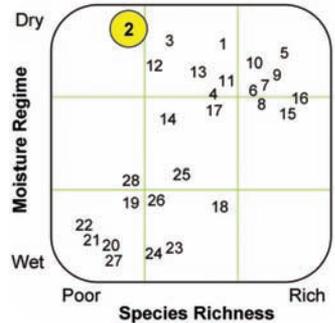
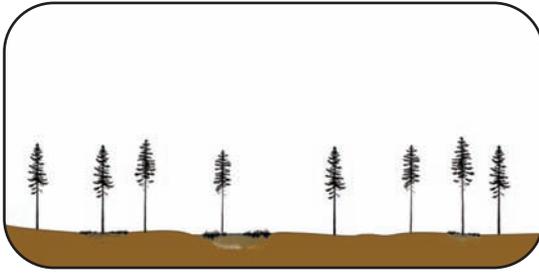
Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	-	PR1

Forest Productivity

none

Ecological Interpretation

These ecosites are associated with the relatively limited occurrences of Chernozemic soils in the Boreal Plain ecozone. While they may occur in many areas of the Boreal Plain, they are usually encountered in Saskatchewan's island forests (e.g., the Fort à la Corne or Nisbet forests). Following fire, these sites will usually return to their original condition. In the absence of fire, they will also remain in the grassland condition, but the ecosite margins may show the ingress of the surrounding tree and shrub species, and often invasive exotic grasses such as smooth brome.



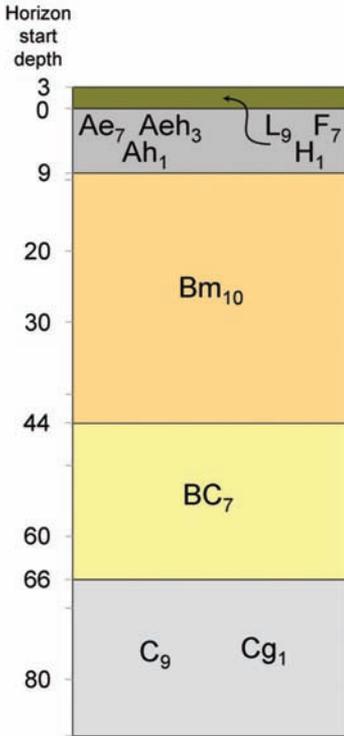
Ecosite Description ($n = 14$)

BP2 ecosites have a characteristically pure canopy of jack pine, a scattered ericaceous shrub and prickly rose understory, a near-continuous carpet of green reindeer and other lichens, and a significant cover of needle litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.1)	jack pine	100	28	<i>Pinus banksiana</i>
shrub (4.5)	bearberry	100	6	<i>Arctostaphylos uva-ursi</i>
	blueberry	79	2	<i>Vaccinium myrtilloides</i>
	lingonberry	64	3	<i>Vaccinium vitis-idaea</i>
	jack pine	64	2	<i>Pinus banksiana</i>
	prickly rose	43	0.5	<i>Rosa acicularis</i>
herb (7.2)	wild lily-of-the-valley	86	1	<i>Maianthemum canadense</i>
	spreading dogbane	43	0.8	<i>Apocynum androsaemifolium</i>
	grasses	43	0.5	Graminoid spp.
	mountain ricegrass	43	0.4	<i>Piptatherum pungens</i>
moss & lichen (22.2)	Schreber's moss	93	6	<i>Pleurozium schreberi</i>
	<i>Dicranum</i> mosses	71	0.9	<i>Dicranum</i> spp.
	other mosses	71	0.8	-
	green reindeer lichen	100	43	<i>Cladina mitis</i>
	cup and spike lichens	100	2	<i>Cladonia</i> spp.
	grey reindeer lichen	79	5	<i>Cladina rangiferina</i>
	northern reindeer lichen	79	1	<i>Cladina stellaris</i>
	other lichens	100	0.5	-
ground cover	needle litter	93	21	-
	woody debris	93	8	-
	leaf litter	71	1	-

Soil Profile



Site Features

Soil Great Group - Order	Eutric Brunisol ₈ Dystric Brunisol ₁ Dark Gray Chernozem ₁
Parent Material	Fluvial ₈ Lacustrine ₁ Eolian ₁
Moisture Regime	Moderately Dry ₄ Moderately Fresh ₄ Fresh ₁ Very Fresh ₁
Drainage	Rapid ₈ Moderately Well ₁ Well ₁
Slope	(0-0.5) ₄ (2-5) ₃ (0.5-2) ₂ (5-9) ₁
Topographic Position	Upper Slope ₄ Level ₃ Mid-Slope ₂ Lower Slope ₁ Crest ₁
Aspect	No Aspect ₄ West ₄ South ₁ East ₁
Surface Texture	Sand ₈ Loamy Sand ₁ Sandy Loam ₁
Effective Texture	Sand ₇ Loamy Sand ₂ Sandy Loam ₁

Forest Productivity

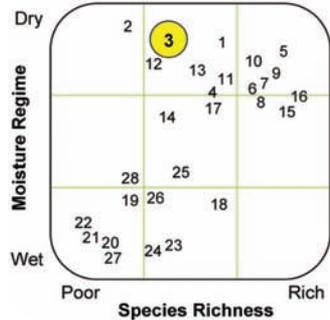
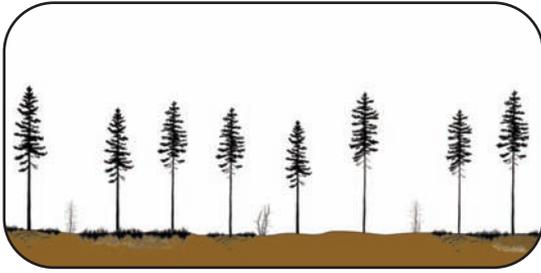
	Tree Species jP
Site Index (m at 50 years)	13.3 ± 1.5
Volume (m ³ /ha)	79.7 ± 34.4
MAI (m ³ /ha/yr)	1.37 ± 0.71
Basal Area (m ² /ha)	15 ± 5
Age (years)	64 ± 5
Height (m)	12.2 ± 1
D.B.H. (cm)	14.6 ± 2.1
Density (stems/ha)	900 ± 239

Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS2	BS3
Boreal Plain	Prairie
-	NA

Ecological Interpretation

These ecosites have the lowest species richness and lowest tree productivity (as measured by site index) of all the jack pine or conifer ecosites in the Boreal Plain ecozone. Following disturbance these sites usually return to their former condition. In the absence of disturbance these sites may still resemble their former species composition but the canopy closure will likely decrease and shrub species may become more prominent.



Ecosite Description ($n = 54$)

BP3 ecosites are dominated by a relatively consistent canopy of jack pine. Approximately 75% of the stands associated with this ecosite are pure jack pine. The remainder may have up to 10% inclusion of trembling aspen however spruce is also possible. The understory of these sites is predominantly ericaceous shrubs and green alder. For the most part, feathermosses (mostly Schreber's) cover the forest floor.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.7)	jack pine	100	44	<i>Pinus banksiana</i>
shrub (6.4)	blueberry	93	5	<i>Vaccinium myrtilloides</i>
	lingonberry	76	4	<i>Vaccinium vitis-idaea</i>
	green alder	70	10	<i>Alnus viridis</i>
	prickly rose	65	3	<i>Rosa acicularis</i>
	bearberry	50	5	<i>Arctostaphylos uva-ursi</i>
	Labrador tea	41	5	<i>Ledum groenlandicum</i>
herb (9.4)	wild lily-of-the-valley	89	2	<i>Maianthemum canadense</i>
	twinflower	72	3	<i>Linnaea borealis</i>
	grasses	48	3	Graminoid spp.
	wild sarsaparilla	44	2	<i>Aralia nudicaulis</i>
	starflower	44	0.9	<i>Trientalis borealis</i>
	bunchberry	43	3	<i>Cornus canadensis</i>
	moss & lichen (16.2)	Schreber's moss	96	39
<i>Dicranum</i> mosses		76	2	<i>Dicranum</i> spp.
stair-step moss		70	2	<i>Hylocomium splendens</i>
knight's plume		56	2	<i>Ptilium crista-castrensis</i>
other mosses		65	0.6	-
cup and spike lichens		76	0.8	<i>Cladonia</i> spp.
green reindeer lichen		65	3	<i>Cladina mitis</i>
other lichens		100	0.7	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	needle litter	89	26	-
	woody debris	98	9	-
	leaf litter	93	13	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	BS4 + BS5
Boreal Plain	Prairie
-	NA

Site Features

Soil Great Group - Order	Eutric Brunisol ₆ Dystric Brunisol ₃ Luvic Gleysol ₁
Parent Material	Fluvial ₆ Morainal ₂ Eolian ₁ Lacustrine ₁ Glacio-fluvial ₁
Moisture Regime	Moderately Fresh ₃ Fresh ₂ Moderately Dry ₂ Moist ₁ Very Fresh ₁
Drainage	Rapid ₄ Moderately Well ₄ Well ₄ Very Rapid ₁ Imperfect ₁
Slope	(0-0.5) ₄ (0.5-2) ₃ (2-5) ₁ (5-9) ₁ (9-15) ₁
Topographic Position	Level ₄ Mid-Slope ₂ Upper Slope ₁ Toe Slope ₁ Lower Slope ₁ Crest ₁
Aspect	No Aspects ₅ West ₂ North ₁ South ₁ East ₁
Surface Texture	Sand ₆ Loamy Sand ₃

Site Features

Effective Texture	Loamy Sand ₄ Sand ₄ Sandy Loam ₁ Silty Sand ₁
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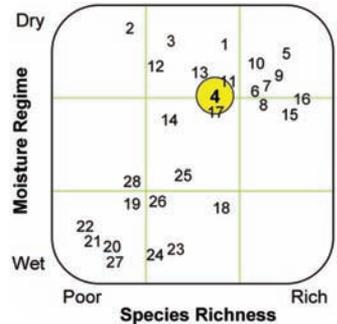
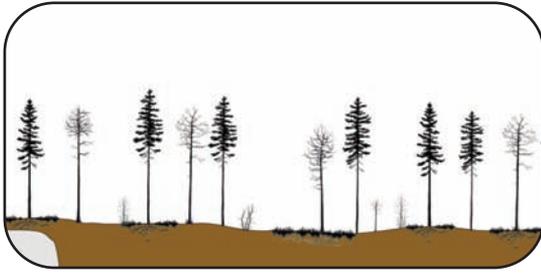
Forest Productivity

	Tree Species				
	bS	jP	tA	wB	wS
Site Index (m at 50 years)	12.7 ± 0.6	14.9 ± 0.6	12 ± 1.8	11.3 ± 6.8	11.8 ± 3.2
Volume (m ³ /ha)	12.3 ± 19.3	179.2 ± 31.5	6.6 ± 5.5	5.5 ± 13.2	11.2 ± 142.5
MAI (m ³ /ha/yr)	0.19 ± 0.29	2.65 ± 0.42	0.10 ± 0.07	0.1 ± 0.05	-
Basal Area (m ² /ha)	2.1 ± 1.6	26.7 ± 3.4	1.4 ± 0.9	1.6 ± 8.2	2.9 ± 14.2
Age (years)	60 ± 18	67 ± 4	53 ± 4	69 ± 12	63 ± 22
Height (m)	13.7 ± 10.8	15.1 ± 0.9	11.3 ± 1.9	12.1 ± 11.9	10.1 ± 60.7
D.B.H. (cm)	16.2 ± 6.3	17.3 ± 1.9	10.7 ± 1.8	10.4 ± 9.1	16.7 ± 76.1
Density (stems/ha)	100 ± x	1369 ± 222	150 ± 51	200 ± 1271	150 ± 635

Ecological Interpretation

As described above, BP3 ecosites may occasionally have trembling aspen present but not to the extent seen in BP4. Following disturbance, these ecosites may more closely resemble the composition of BP4 or even BP5 ecosites. In the absence of disturbance, stand openings will likely become more common and shrub layer development may become more pronounced but the ecosite will likely remain the same.

Green alder contributes nitrogen to these sites by biologically fixing (*i.e.*, converting) atmospheric nitrogen to ammonia. While the majority of nitrogen-fixing plants are in the legume family, alder is also capable of fixing nitrogen because of its symbiotic relationship with the *Frankia* actinobacteria.



Ecosite Description (n = 35)

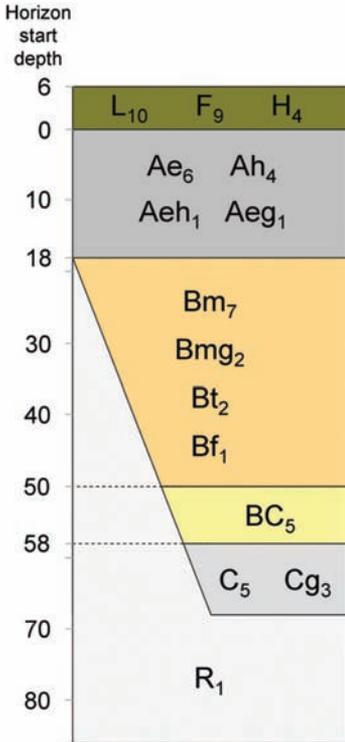
BP4 ecosites usually (63% of the sites) occur as pine-dominated mixedwoods with trembling aspen being the predominant hardwood species. Approximately 20% of the sites will exist in a near pure pine condition. The balance of the sites may exist in a pine-aspen-spruce condition. These ecosites may have a diverse shrub understory which includes the ericaceous shrubs, prickly rose, green alder and willows. The forest floor will have a conspicuous, but not predominant distribution of feathermosses (*i.e.*, mostly Schreber's) and high cover values of leaf and needle litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.1)	jack pine	100	33	<i>Pinus banksiana</i>
	trembling aspen	94	22	<i>Populus tremuloides</i>
shrub (7.1)	blueberry	86	5	<i>Vaccinium myrtilloides</i>
	prickly rose	63	2	<i>Rosa acicularis</i>
	green alder	54	8	<i>Alnus viridis</i>
	trembling aspen	51	2	<i>Populus tremuloides</i>
	lingonberry	49	4	<i>Vaccinium vitis-idaea</i>
	willows	46	2	<i>Salix</i> spp.
	bearberry	43	4	<i>Arctostaphylos uva-ursi</i>
	Labrador tea	40	7	<i>Ledum groenlandicum</i>
	common snowberry	40	1	<i>Symphoricarpos albus</i>
herb (12.4)	twinflower	80	3	<i>Linnaea borealis</i>
	wild lily-of-the-valley	77	2	<i>Maianthemum canadense</i>
	grasses	60	11	Graminoid spp.
	bunchberry	54	6	<i>Cornus canadensis</i>
	starflower	49	1	<i>Trientalis borealis</i>
	wild sarsaparilla	46	3	<i>Aralia nudicaulis</i>
	fireweed	43	0.8	<i>Chamerion angustifolium</i>
	northern bedstraw	43	0.6	<i>Galium boreale</i>
	wild strawberry	43	0.4	<i>Fragaria virginiana</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
moss & lichen (18.2)	Schreber's moss	94	17	<i>Pleurozium schreberi</i>
	stair-step moss	83	3	<i>Hylocomium splendens</i>
	<i>Dicranum</i> mosses	66	0.8	<i>Dicranum</i> spp.
	knight's plume	46	1	<i>Ptilium crista-castrensis</i>
	other mosses	59	0.9	-
	cup and spike lichens	66	1	<i>Cladonia</i> spp.
	other lichens	100	0.7	-
ground cover	needle litter	60	15	-
	woody debris	97	8	-
	leaf litter	100	44	-

Soil Profile



Site Features

Soil Great Group - Order	Eutric Brunisol ₅ Dystric Brunisol ₁ Melanic Brunisol ₁ Gray Luvisol ₁ Dark Gray Chernozem ₁
Parent Material	Fluvial ₆ Morainal ₂ Eolian ₁ Lacustrine ₁
Moisture Regime	Moderately Fresh ₄ Fresh ₂ Moderately Dry ₂ Very Fresh ₁ Moderately Moist ₁ Moist ₁ Very Moist ₁
Drainage	Rapid ₅ Well ₂ Imperfect ₂ Moderately Well ₁
Slope	(0-0.5) ₆ (0.5-2) ₂ (2-5) ₂
Topographic Position	Level ₅ Upper Slope ₂ Mid-Slope ₁ Lower Slope ₁ Depression ₁

Site Features

Aspect	No Aspect ₆ West ₁ North ₁ East ₁
Surface Texture	Sand ₆ Loamy Sand ₂ Sandy Loam ₂
Effective Texture	Sand ₄ Loamy Sand ₂ Sandy Loam ₂ Silty Sand ₁ Clay Loam ₁

Ecozonal Synonyms

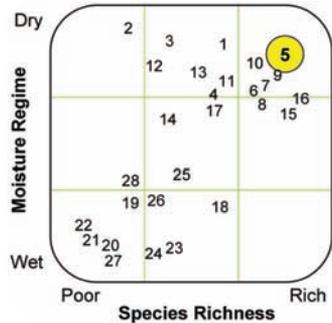
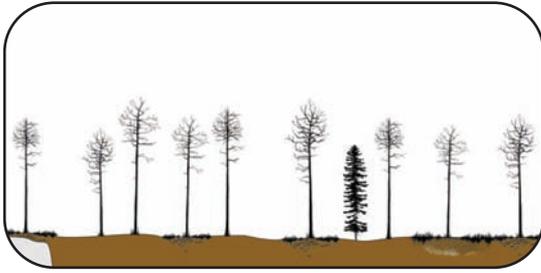
Taiga Shield	Boreal Shield
NA	BS6
Boreal Plain	Prairie
-	NA

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	14.5 ± 10	14 ± x	12.5 ± 3.3	16.2 ± 1.2	14.5 ± 1.2	10.8 ± 18.4	13.6 ± 3.3
Volume (m ³ /ha)	8.3 ± 18.2	41 ± x	11.3 ± 6.4	130.1 ± 21.2	34.7 ± 13.3	10.5 ± 29.1	30 ± 21
MAI (m ³ /ha/yr)	0.16 ± 0.5	0.76 ± x	0.2 ± 0.12	2.09 ± 0.35	0.55 ± 0.2	0.16 ± 0.55	0.51 ± 0.3
Basal Area (m ² /ha)	1.9 ± 3.2	9.8 ± x	2.8 ± 1	18.7 ± 2.7	6 ± 1.7	2.4 ± 5	5.5 ± 2.7
Age (years)	52 ± 21	49 ± 13	65 ± 8	63 ± 4	60 ± 4	89 ± 71	67 ± 9
Height (m)	9.9 ± 6.5	13.5 ± x	10.8 ± 2.2	16.4 ± 1.2	13 ± 1.4	11.5 ± 1.8	12.8 ± 3.6
D.B.H. (cm)	9.9 ± 5.1	12.2 ± x	13.2 ± 5.2	21.8 ± 2.4	14.2 ± 1.8	9.4 ± 4.9	17.8 ± 6.6
Density (stems/ha)	233 ± 379	800 ± x	257 ± 168	649 ± 189	366 ± 86	225 ± 239	289 ± 265

Ecological Interpretation

While this ecosite generally exists as a jack pine aspen mixedwood, it can also include a variety of other tree species (as identified in the forest productivity table). Following disturbance these ecosites may more closely resemble a BP5 or BP10 ecosite depending upon the previous stand composition. In the absence of disturbance aspen may be expected to drop out of the overstory and the site may more closely resemble a BP3 ecosite. An abundant presence of white spruce may shift it toward a BP9 ecosite with less compositional emphasis on the trembling aspen. Green alder, which is found on this site, is capable of biologically fixing nitrogen in its root nodules because of the symbiotic relationship it has with the *Frankia* actinobacteria.



Ecosite Description ($n = 17$)

BP5 ecosites usually exist as pure trembling aspen stands (on approximately 65% of the sites) but may also incorporate up to 20% white spruce in the stand composition on the remaining sites. Rose, Saskatoon, and common snowberry are frequently encountered shrubs while grasses and a rich herbaceous layer are also common. Much of the ground cover consists of leaf litter while moss and lichen cover is very low.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.4)	trembling aspen	100	51	<i>Populus tremuloides</i>
	white spruce	41	2	<i>Picea glauca</i>
shrub (8.4)	prickly rose	100	6	<i>Rosa acicularis</i>
	Saskatoon	88	4	<i>Amelanchier alnifolia</i>
	common snowberry	76	4	<i>Symphoricarpos albus</i>
	bearberry	71	5	<i>Arctostaphylos uva-ursi</i>
	trembling aspen	71	0.5	<i>Populus tremuloides</i>
	twining honeysuckle	65	1	<i>Lonicera dioica</i>
	beaked hazel	59	6	<i>Corylus cornuta</i>
	willows	53	2	<i>Salix</i> spp.
	choke cherry	47	2	<i>Prunus virginiana</i>
	pin cherry	47	1	<i>Prunus pensylvanica</i>
raspberry	41	4	<i>Rubus idaeus</i>	
herb (19.8)	wild lily-of-the-valley	100	2	<i>Maianthemum canadense</i>
	northern bedstraw	100	0.8	<i>Galium boreale</i>
	wild strawberry	82	0.8	<i>Fragaria virginiana</i>
	grasses	76	22	Graminoid spp.
	common yarrow	76	0.3	<i>Achillea millefolium</i>
	purple peavine	71	0.8	<i>Lathyrus venosus</i>
	American vetch	65	0.5	<i>Vicia americana</i>
asters	59	0.6	<i>Aster</i> spp.	

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.8)	bluebell	59	0.3	<i>Campanula rotundifolia</i>
	bunchberry	53	11	<i>Cornus canadensis</i>
	fireweed	53	3	<i>Chamerion angustifolium</i>
	creamy peavine	53	2	<i>Lathyrus ochroleucus</i>
	goldenrod	53	0.4	<i>Solidago</i> spp.
	twinflower	47	2	<i>Linnaea borealis</i>
	wild sarsaparilla	41	3	<i>Aralia nudicaulis</i>
	western Canada violet	41	3	<i>Viola canadensis</i>
	dewberry	41	2	<i>Rubus pubescens</i>
	pink wintergreen	41	2	<i>Pyrola asarifolia</i>
	veiny meadow rue	41	1	<i>Thalictrum venulosum</i>
	dandelion	41	0.4	<i>Taraxacum officinale</i>
moss & lichen (10.5)	Schreber's moss	53	0.7	<i>Pleurozium schreberi</i>
	other mosses	58	1	-
	other lichens	53	0.5	-
ground cover	leaf litter	94	61	-
	woody debris	76	9	-

Ecozonal Synonyms

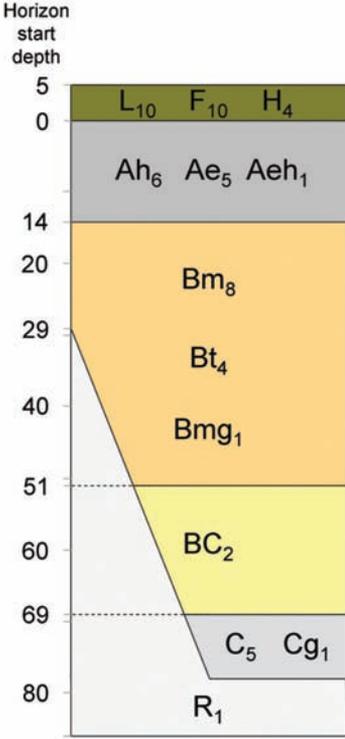
Taiga Shield
NA

Boreal Shield
NA

Boreal Plain
-

Prairie
PR4

Soil Profile



Site Features

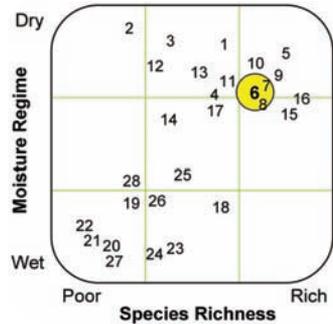
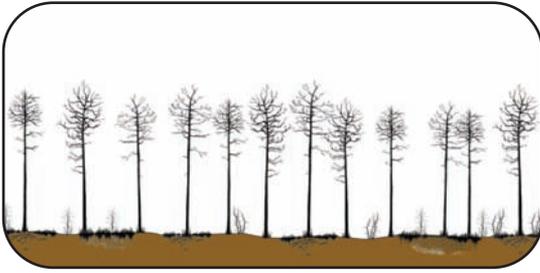
Soil Great Group - Order	Eutric Brunisol ₇ Gray Luvisol ₃
Parent Material	Fluvial ₄ Eolian ₄ Lacustrine ₂ Morainal ₁
Moisture Regime	Fresh ₄ Moderately Fresh ₄ Moderately Dry ₂ Very Fresh ₁
Drainage	Rapid ₅ Well ₂ Moderately Well ₂ Imperfect ₁
Slope	(0-0.5) ₈ (0.5-2) ₂
Topographic Position	Level ₈ Crest ₁ Lower Slope ₁ Mid-Slope ₁
Aspect	No Aspect ₉ North ₁ East ₁
Surface Texture	Sand ₇ Sandy Loam ₁ Loam ₁ Silty Loam ₁
Effective Texture	Sand ₆ Loamy Sand ₁ Clay Loam ₁ Sandy Loam ₁ Loam ₁ Clay ₁

Forest Productivity

	Tree Species			
	bF	jP	tA	wS
Site Index (m at 50 years)	-	14.7 ± 11.4	14.8 ± 2.5	16.7 ± 1.5
Volume (m ³ /ha)	8.8 ± x	12.4 ± 20.7	157.5 ± 61	13.3 ± 16.1
MAI (m ³ /ha/yr)	0.1 ± x	0.44 ± 0.47	2.53 ± 0.99	0.31 ± 0.39
Basal Area (m ² /ha)	2 ± x	3 ± 2.8	24.4 ± 6.5	3.3 ± 2.4
Age (years)	51 ± x	50 ± 9	65 ± 7	57 ± 6
Height (m)	11.3 ± x	10.9 ± 5.6	15.2 ± 2.3	10.7 ± 7.2
D.B.H. (cm)	16 ± x	18.5 ± 11	17.3 ± 2	15.8 ± 8.8
Density (stems/ha)	100 ± x	100 ± x	1046 ± 296	200 ± 184

Ecological Interpretation

BP5 ecosites are among the most diverse ecosites on the Boreal Plain ecozone despite existing in relatively dry (*i.e.*, moderately fresh - fresh) conditions. In the absence of disturbance these ecosites may transition toward the BP9 condition. Following stand-replacing disturbances such as fire, blow-down and forest harvesting, these ecosites will usually return to dominance by trembling aspen via the process of aspen suckering.



Ecosite Description ($n = 65$)

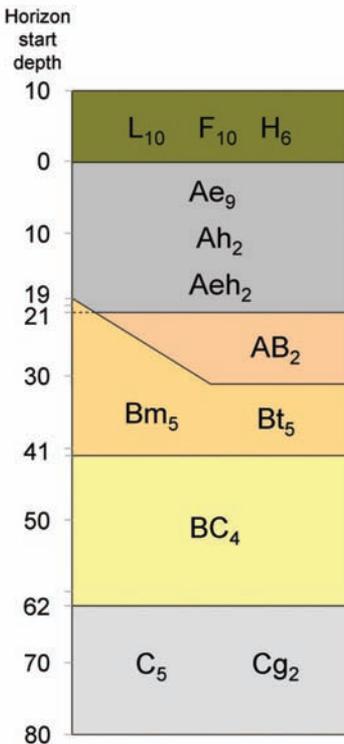
BP6 ecosites occur as pure or nearly pure stands of aspen approximately 88% of the time. The remainder of the sites may have white spruce or white birch occupying a small proportion (<10%) of the canopy. The understory species composition of BP6 may resemble that of BP5 with prickly rose and Saskatoon commonly encountered, but BP6 will have relatively higher proportions of low bush-cranberry, wild sarsaparilla, and beaked hazel. Moss and lichen cover is relatively low and leaf litter is relatively high.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	trembling aspen	98	64	<i>Populus tremuloides</i>
shrub (8.0)	prickly rose	94	4	<i>Rosa acicularis</i>
	low bush-cranberry	75	6	<i>Viburnum edule</i>
	Saskatoon	55	2	<i>Amelanchier alnifolia</i>
	willows	55	2	<i>Salix</i> spp.
	blueberry	49	5	<i>Vaccinium myrtilloides</i>
	beaked hazel	46	20	<i>Corylus cornuta</i>
	trembling aspen	43	1	<i>Populus tremuloides</i>
	twining honeysuckle	43	0.8	<i>Lonicera dioica</i>
	green alder	40	11	<i>Alnus viridis</i>
	pin cherry	40	6	<i>Prunus pensylvanica</i>
herb (17.3)	wild lily-of-the-valley	95	1	<i>Maianthemum canadense</i>
	bunchberry	91	6	<i>Cornus canadensis</i>
	wild sarsaparilla	89	10	<i>Aralia nudicaulis</i>
	dewberry	86	3	<i>Rubus pubescens</i>
	twinflower	83	3	<i>Linnaea borealis</i>
	fireweed	66	2	<i>Chamerion angustifolium</i>
	starflower	66	0.8	<i>Trientalis borealis</i>
	tall lungwort	65	2	<i>Mertensia paniculata</i>
	palmate-leaved coltsfoot	65	1	<i>Petasites palmatus</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (17.3)	wild strawberry	60	1	<i>Fragaria virginiana</i>
	northern bedstraw	58	0.6	<i>Galium boreale</i>
	pink wintergreen	55	2	<i>Pyrola asarifolia</i>
	American vetch	44	0.4	<i>Vicia americana</i>
	grasses	43	6	Graminoid spp.
	kidney-leaved violet	43	0.3	<i>Viola renifolia</i>
	creamy peavine	40	1	<i>Lathyrus ochroleucus</i>
moss & lichen (12.5)	other mosses	82	3	-
	Schreber's moss	57	4	<i>Pleurozium schreberi</i>
	stair-step moss	49	1	<i>Hylocomium splendens</i>
	other lichens	100	0.4	-
ground cover	leaf litter	100	76	-
	woody debris	91	14	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₅ Eutric Brunisol ₃ Dystric Brunisol ₁
Parent Material	Fluvial ₅ Lacustrine ₃ Morainal ₂
Moisture Regime	Fresh ₅ Very Fresh ₂ Moderately Fresh ₁ Moderately Dry ₁ Moist ₁ Very Moist ₁
Drainage	Well ₄ Moderately Well ₂ Rapid ₁ Imperfect ₁
Slope	(0-0.5) ₄ (0.5-2) ₂ (2-5) ₂ (5-9) ₁
Topographic Position	Level ₃ Mid-Slope ₂ Upper Slope ₂ Lower Slope ₁ Crest ₁

Site Features

Aspect	No Aspect ₄ North ₂ East ₂ West ₂ South ₁
Surface Texture	Loamy Sand ₃ Sand ₂ Loam ₁
Effective Texture	Loamy Sand ₂ Sandy Clay Loam ₂ Sand ₁ Sandy Loam ₁ Clay Loam ₁ Silty Clay ₁ Silty Clay Loam ₁ Clay ₁

Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS5	BS15
Boreal Plain	Prairie
-	PR5

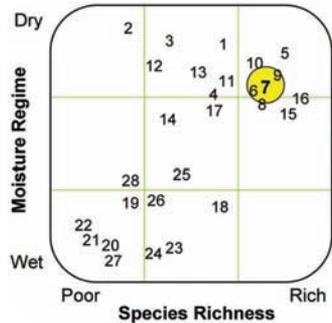
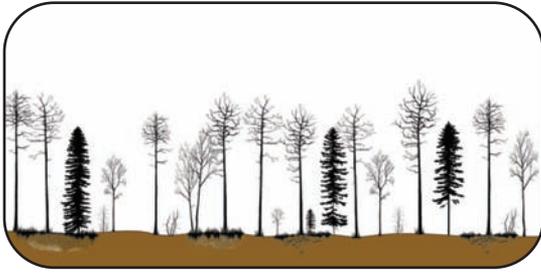
Forest Productivity

	Tree Species						
	bF	bP	bS	tA	tL	wB	wS
Site Index (m at 50 years)	17.9 ± 16.3	15.5 ± 7	16.1 ± 41.9	17.2 ± 0.7	-	9.9 ± x	15 ± 2.1
Volume (m ³ /ha)	34.6 ± 95	14 ± 11.7	13.4 ± 170.1	225.3 ± 36.6	7.9 ± x	8.4 ± 26.6	39 ± 51.4
MAI (m ³ /ha/yr)	0.91 ± 5.77	0.24 ± 0.2	0.49 ± x	3.2 ± 0.5	0.24 ± x	0.55 ± x	0.9 ± 1.1
Basal Area (m ² /ha)	4.7 ± 10.1	2.8 ± 1.8	3 ± 17	28.6 ± 3.5	1.5 ± x	1.5 ± 2.6	5.3 ± 5
Age (years)	44 ± 9	55 ± 6	49 ± 8	70 ± 4	38 ± x	44 ± 25	59 ± 10
Height (m)	13.8 ± 16.7	14.8 ± 4.2	11.5 ± 57.2	17.7 ± 0.9	13.2 ± x	10.9 ± 11.9	11.8 ± 4.9
D.B.H. (cm)	16 ± 19	17.3 ± 6.3	16 ± 96.4	18.4 ± 1.3	13.8 ± x	11.9 ± 11.4	18.7 ± 10.2
Density (stems/ha)	167 ± 143	120 ± 56	200 ± 1271	1121 ± 150	100 ± x	125 ± 80	150 ± 51

Ecological Interpretation

BP6 ecosites are among the most species diverse sites on the Boreal Plain ecozone. While similar to BP5 ecosites, the BP6 tends to be moister and includes a wider range of incidental tree species. BP6 ecosites also exhibit higher productivity levels for aspen than BP5 ecosites. Following stand-replacing disturbances such as fire or forest harvesting, these ecosites usually return to their former condition. In the absence of disturbance, these ecosites may transition toward the conditions observed on BP9.





Ecosite Description ($n = 15$)

BP7 ecosites may occasionally (about 33% of the sites) consist of a pure or near pure canopy of trembling aspen. It is far more common however for this ecosite to be an aspen dominated canopy mixedwood with lesser proportions of white birch and white spruce. Like BP5 and BP6, shrub levels are relatively low but the diversity of herbaceous species is relatively high with wild sarsaparilla being the most obvious. Moss and lichen ground cover is relatively low but leaf litter proportions are high.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.4)	trembling aspen	100	46	<i>Populus tremuloides</i>
	white birch	100	23	<i>Betula papyrifera</i>
	white spruce	73	11	<i>Picea glauca</i>
shrub (7.4)	prickly rose	87	3	<i>Rosa acicularis</i>
	Saskatoon	67	1	<i>Amelanchier alnifolia</i>
	red currant	60	2	<i>Ribes triste</i>
	low bush-cranberry	53	3	<i>Viburnum edule</i>
	green alder	47	8	<i>Alnus viridis</i>
	blueberry	40	9	<i>Vaccinium myrtilloides</i>
	pin cherry	40	2	<i>Prunus pensylvanica</i>
	raspberry	40	2	<i>Rubus idaeus</i>
	white birch	40	2	<i>Betula papyrifera</i>
	white spruce	40	2	<i>Picea glauca</i>
	trembling aspen	40	0.4	<i>Populus tremuloides</i>
herb (17.6)	twinflower	100	2	<i>Linnaea borealis</i>
	wild lily-of-the-valley	100	1	<i>Maianthemum canadense</i>
	wild sarsaparilla	93	15	<i>Aralia nudicaulis</i>
	bunchberry	93	4	<i>Cornus canadensis</i>
	dewberry	80	2	<i>Rubus pubescens</i>
	starflower	80	1	<i>Trientalis borealis</i>
	tall lungwort	67	1	<i>Mertensia paniculata</i>
	bishop's cap	67	0.7	<i>Mitella nuda</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (17.6)	kidney-leaved violet	67	0.3	<i>Viola renifolia</i>
	wild strawberry	60	0.9	<i>Fragaria virginiana</i>
	red and white baneberry	53	1	<i>Actaea rubra</i>
	fireweed	53	1	<i>Chamerion angustifolium</i>
	palmate-leaved coltsfoot	53	0.7	<i>Petasites palmatus</i>
	creamy peavine	53	0.5	<i>Lathyrus ochroleucus</i>
	sweet-scented bedstraw	53	0.4	<i>Galium triflorum</i>
	grasses	47	4	Graminoid spp.
	northern bedstraw	40	8	<i>Galium boreale</i>
	stiff club-moss	40	3	<i>Lycopodium annotinum</i>
	fringed aster	40	0.7	<i>Symphytotrichum ciliolatum</i>
	moss & lichen (14.5)	Schreber's moss	80	2
other mosses		73	2	-
stair-step moss		47	2	<i>Hylocomium splendens</i>
<i>Dicranum</i> moss		47	2	<i>Dicranum</i> spp.
cup and spike lichens		60	0.4	<i>Cladonia</i> spp.
other lichens	100	1	-	
ground cover	needle litter	60	8	-
	leaf litter	100	70	-
	woody debris	87	10	-

Ecozonal Synonyms

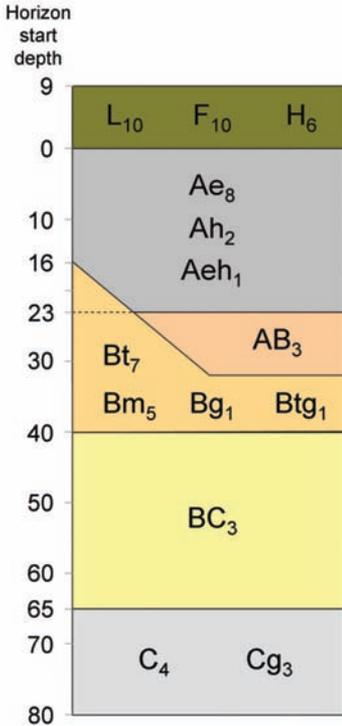
Taiga Shield
TS5

Boreal Shield
BS15

Boreal Plain
-

Prairie
NA

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisols ₅ Eutric Brunisol ₂ Dystric Brunisol ₁ Luvic Gleysol ₁ Humic Gleysol ₁ Humo-ferric Podzol ₁
Parent Material	Fluvial ₃ Lacustrine ₃ Morainal ₃ Glacio-lacustrine ₁
Moisture Regime	Fresh ₃ Very Fresh ₃ Moderately Fresh ₁ Moderately Dry ₁ Moist ₁ Very Moist ₁
Drainage	Rapid ₃ Moderately Well ₃ Well ₂ Imperfect ₂
Slope	(0-0.5) ₅ (0.5-2) ₁ (2-5) ₁ (5-9) ₁ (9-15) ₁ (15-30) ₁
Topographic Position	Levels Mid-Slope ₃ Upper Slope ₃
Aspect	No Aspects South ₂ North ₁ West ₁ East ₁
Surface Texture	Loamy Sand ₃ Silty Sand ₂ Sand ₁ Loam ₁ Silty Loam ₁ Clay Loam ₁ Silty Clay Loam ₁ Silty Clay ₁

Site Features

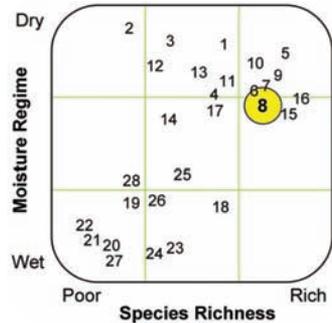
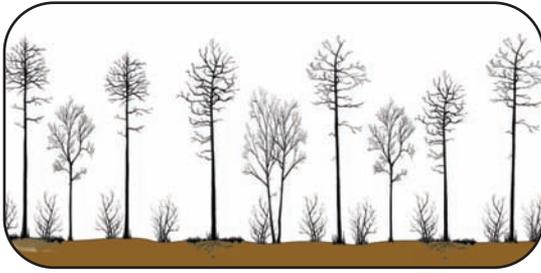
Effective Texture	Loamy Sand ₂
	Silty Clay ₂
	Sandy Clay Loam ₁
	Clay Loam ₁
	Clay ₁
	Sand ₁
	Silty Sand ₁
	Sandy Clay ₁

Forest Productivity

	Tree Species					
	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	12.1 ± x	9.8 ± x	19 ± x	16.8 ± 1.8	13.3 ± 2.4	15.6 ± 1.9
Volume (m ³ /ha)	79.9 ± x	6.2 ± x	2.5 ± x	135.3 ± 62.4	10.8 ± 6.5	29.1 ± 26.2
MAI (m ³ /ha/yr)	1.5 ± x	0.11 ± x	0.04 ± x	2.4 ± 1.05	0.29 ± 0.15	0.74 ± 0.65
Basal Area (m ² /ha)	13.7 ± x	3 ± x	0.7 ± x	17.8 ± 6.7	2.6 ± 1.2	4.8 ± 3.3
Age (years)	59 ± 70	65 ± 6	23 ± 19	63 ± 7	49 ± 7	58 ± 10
Height (m)	14 ± x	8.4 ± x	9.6 ± x	16 ± 2.2	11.6 ± 2	12.7 ± 4.3
D.B.H. (cm)	20.4 ± x	9.6 ± x	9.6 ± x	16.7 ± 3.7	10 ± 1.1	17.8 ± 9.2
Density (stems/ha)	300 ± x	400 ± x	100 ± x	733 ± 201	308 ± 142	178 ± 84

Ecological Interpretation

BP7 ecosites are among the most diverse ecosites in the Boreal Plain ecozone. While they usually occur with a mixedwood composition (on about 67% of the sites), they can also occur as a hardwood stand. In the absence of disturbance these ecosites may transition toward the BP9 ecosite condition or even BP13 if the previous stand composition had sufficient balsam fir present. Following disturbance these ecosites may return to their former condition and composition.



Ecosite Description ($n = 12$)

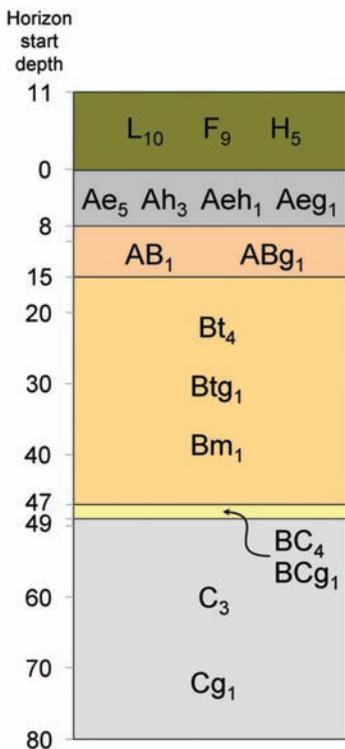
The typical BP8 ecosite consists of a mixture of trembling aspen and white birch in the canopy, however mixtures including balsam poplar, white spruce, and balsam fir are also possible. Higher proportions of white spruce may make it easy to confuse these ecosites with BP10 or BP11 except that BP8 has an obvious presence of mountain maple. The herbaceous layer of this ecosite is generally thick while the presence of moss and lichens is low.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.8)	trembling aspen	83	37	<i>Populus tremuloides</i>
	white birch	75	19	<i>Betula papyrifera</i>
shrub (9.6)	mountain maple	100	40	<i>Acer spicatum</i>
	beaked hazel	83	10	<i>Corylus cornuta</i>
	prickly rose	75	2	<i>Rosa acicularis</i>
	low bush-cranberry	75	1	<i>Viburnum edule</i>
	red currant	67	1	<i>Ribes triste</i>
	trembling aspen	67	0.7	<i>Populus tremuloides</i>
	Saskatoon	58	1	<i>Amelanchier alnifolia</i>
	red-osier dogwood	50	2	<i>Cornus sericea</i>
	choke cherry	50	0.7	<i>Prunus virginiana</i>
herb (15.8)	wild sarsaparilla	92	11	<i>Aralia nudicaulis</i>
	sweet-scented bedstraw	92	0.3	<i>Galium triflorum</i>
	dewberry	83	2	<i>Rubus pubescens</i>
	wild lily-of-the-valley	83	1	<i>Maianthemum canadense</i>
	bunchberry	75	4	<i>Cornus canadensis</i>
	fairybells	75	0.8	<i>Prosartes trachycarpum</i>
	common horsetail	67	4	<i>Equisetum arvense</i>
	tall lungwort	67	2	<i>Mertensia paniculata</i>
	western Canada violet	67	1	<i>Viola canadensis</i>
	wild strawberry	58	2	<i>Fragaria virginiana</i>
	bishop's cap	58	2	<i>Mitella nuda</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (15.8)	palmate-leaved coltsfoot	58	1	<i>Petasites palmatus</i>
	asters	58	0.9	<i>Aster</i> spp.
	pink wintergreen	58	0.5	<i>Pyrola asarifolia</i>
	grasses	42	0.7	Graminoid spp.
	red and white baneberry	42	0.8	<i>Actaea rubra</i>
	northern bedstraw	42	0.4	<i>Galium boreale</i>
	moss & lichen (15.2)	other mosses	75	1
other lichens		100	0.5	-
ground cover	needle litter	41	0.8	-
	woody debris	100	14	-
	leaf litter	100	82	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₄ Regosol ₂ Humic Regosol ₁ Luvic Gleysol ₁ Gleysol ₁ Eutric Brunisol ₁
Parent Material	Fluvial ₅ Morainals ₃ Lacustrine ₂
Moisture Regime	Fresh ₇ Moderately Fresh ₁ Very Fresh ₁ Moist ₁ Very Moist ₁
Drainage	Well ₇ Imperfect ₂ Moderately Well ₁ Rapid ₁
Slope	(0-0.5) ₄ (0.5-2) ₃ (2-5) ₂ (5-9) ₁
Topographic Position	Level ₄ Upper Slope ₄ Mid-Slope ₁ Crest ₁
Aspect	No Aspect ₄

Site Features

Aspect	North ₄ South ₁ West ₁
Surface Texture	Sandy Loam ₄ Loamy Sand ₃ Silty Loam ₂
Effective Texture	Sandy Clay Loam ₃ Silty Clay ₂ Sand ₁ Sandy Loam ₁ Silty Clay Loam ₁ Loam ₁ Clay Loam ₁ Sandy Clay ₁

Ecozonal Synonyms

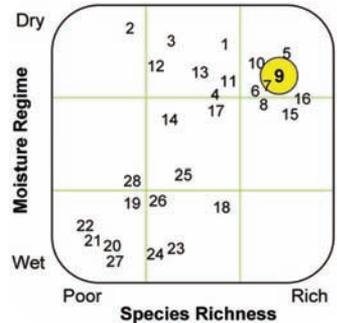
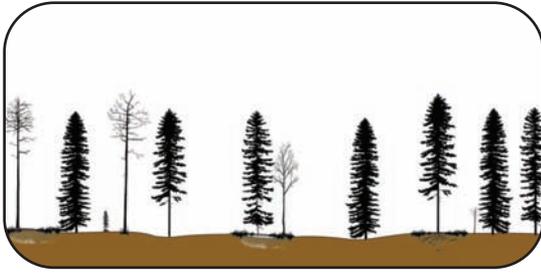
Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	-	NA

Forest Productivity

	Tree Species				
	bF	bP	tA	wB	wS
Site Index (m at 50 years)	10.4 ± x	12.3 ± x	21 ± 1.9	14.1 ± 1.5	13.9 ± 3
Volume (m ³ /ha)	68.4 ± x	5.9 ± x	215.9 ± 131.2	66.3 ± 71.6	107.4 ± 167.9
MAI (m ³ /ha/yr)	0.93 ± x	0.11 ± x	2.87 ± 1.99	0.99 ± 1.2	1.23 ± 1.9
Basal Area (m ² /ha)	9.1 ± x	1.5 ± x	23 ± 12.4	9.3 ± 9.5	15.3 ± 23.9
Age (years)	78 ± 57	58 ± 89	73 ± 11	66 ± 10	88 ± 12
Height (m)	16.4 ± x	11.7 ± x	22 ± 2.5	16.6 ± 3.5	17.1 ± 5.1
D.B.H. (cm)	16.6 ± x	16.6 ± x	27.5 ± 3.9	18.1 ± 8.6	22.5 ± 5.8
Density (stems/ha)	400 ± x	100 ± x	430 ± 268	283 ± 43	367 ± 574

Ecological Interpretation

BP8 ecosites are usually hardwood stands although the spruce or fir component may be sufficient to nudge their classification toward the mixedwood type ecosites. In the absence of disturbance these ecosites may transition toward the BP13 ecosite condition if the spruce and fir components are sufficient. In the absence of a conifer species, this ecosite may more closely resemble a tall shrub dominated ecosite as the birch, aspen, or balsam poplar fall out of the canopy. Following disturbance it is expected that the site will return to its former condition.



Ecosite Description ($n = 55$)

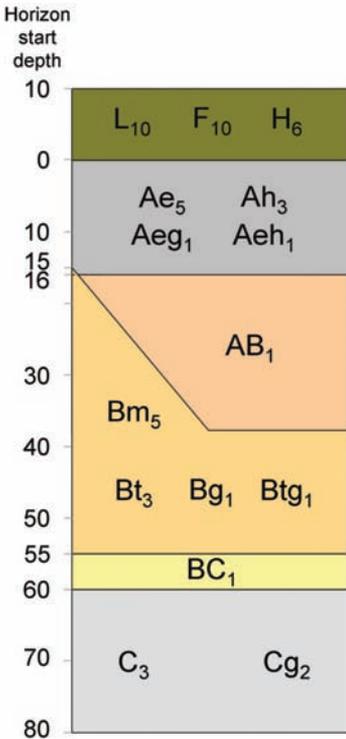
BP9 ecosites have a canopy dominated by white spruce 90% of the time. Nearly 60% of the time, the canopy is either pure or nearly pure white spruce. Trembling aspen is the most common tree to accompany the spruce. However, white birch and balsam poplar may occasionally be found. While prickly rose is the most commonly encountered shrub, beaked hazel can be the most abundant. This ecosite has a conspicuous but patchy layer of feathermosses present.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	white spruce	100	45	<i>Picea glauca</i>
	trembling aspen	67	17	<i>Populus tremuloides</i>
	white birch	40	9	<i>Betula papyrifera</i>
shrub (7.9)	prickly rose	91	2	<i>Rosa acicularis</i>
	low bush-cranberry	60	2	<i>Viburnum edule</i>
	beaked hazel	53	9	<i>Corylus cornuta</i>
	trembling aspen	53	2	<i>Populus tremuloides</i>
	common snowberry	51	2	<i>Symphoricarpos albus</i>
	white spruce	47	2	<i>Picea glauca</i>
	Saskatoon	42	0.6	<i>Amelanchier alnifolia</i>
	twining honeysuckle	40	0.6	<i>Lonicera dioica</i>
herb (18.7)	bunchberry	80	5	<i>Cornus canadensis</i>
	twinfleur	80	4	<i>Linnaea borealis</i>
	wild lily-of-the-valley	78	0.8	<i>Maianthemum canadense</i>
	dewberry	73	2	<i>Rubus pubescens</i>
	northern bedstraw	71	0.4	<i>Galium boreale</i>
	wild sarsaparilla	69	4	<i>Aralia nudicaulis</i>
	wild strawberry	65	0.9	<i>Fragaria virginiana</i>
	grasses	64	4	Graminoid spp.
	tall lungwort	58	2	<i>Mertensia paniculata</i>
	bishop's cap	58	1	<i>Mitella nuda</i>
	palmate-leaved coltsfoot	58	1	<i>Petasites palmatus</i>
	starflower	53	0.6	<i>Trientalis borealis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (18.7)	one-sided wintergreen	45	0.5	<i>Orthilia secunda</i>
	western Canada violet	43	0.8	<i>Viola canadensis</i>
	asters	40	0.7	<i>Aster</i> spp.
	kidney-leaved violet	40	0.4	<i>Viola renifolia</i>
moss & lichen (19.7)	Schreber's moss	91	5	<i>Pleurozium schreberi</i>
	stair-step moss	82	8	<i>Hylocomium splendens</i>
	other mosses	78	3	-
	<i>Dicranum</i> moss	44	0.5	<i>Dicranum</i> spp.
	knight's plume	42	2	<i>Ptilium crista-castrensis</i>
	cup and spike lichens	60	0.7	<i>Cladonia</i> spp.
ground cover	other lichens	100	0.4	-
	needle litter	69	11	-
	woody debris	91	16	-
	leaf litter	91	42	-

Soil Profile



Site Features

Soil Great Group - Order	Eutric Brunisol ₄ Gray Luvisol ₃ Luvic Gleysol ₁ Gleysol ₁ Dark Gray Chernozem ₁
Parent Material	Lacustrine ₄ Eolian ₂ Fluvial ₂ Morainal ₂
Moisture Regime	Fresh ₃ Moderately Fresh ₃ Very Moist ₂ Very Fresh ₁ Moderately Dry ₁
Drainage	Rapid ₃ Well ₃ Moderately Well ₁ Imperfect ₁ Poor ₁
Slope	(0-0.5) ₅ (2-5) ₂ (0.5-2) ₁ (5-9) ₁
Topographic Position	Level ₄ Mid-Slope ₂ Upper Slope ₂ Lower Slope ₁

Site Features

Topographic Position	Crest ₁
Aspect	No Aspect ₄ West ₂ East ₂ North ₁ South ₁
Surface Texture	Sand ₄ Loamy Sand ₁ Sandy Loam ₁ Loam ₁ Silty Loam ₁ Silty Clay ₁
Effective Texture	Sand ₃ Silty Clay ₂ Sandy Clay Loam ₁ Silty Clay Loam ₁ Sandy Loam ₁ Clay Loam ₁ Clay ₁

Ecozonal Synonyms

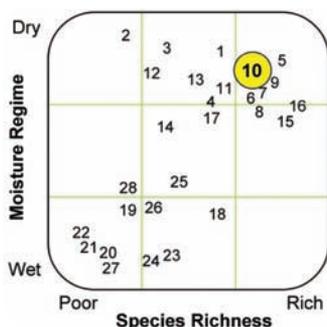
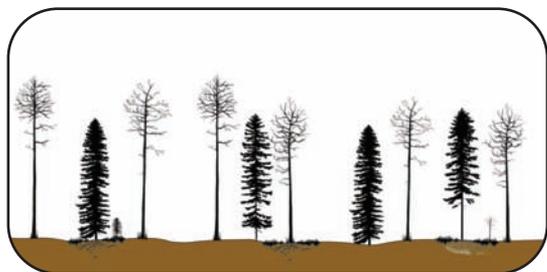
Taiga Shield	Boreal Shield
TS6	NA
Boreal Plain	Prairie
-	PR7

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	17.7 ± 22.3	15.3 ± 2.6	9.7 ± 7.7	15.4 ± 7	16.9 ± 1.5	12.3 ± 3.4	15.7 ± 0.9
Volume (m ³ /ha)	6.7 ± 15.7	54.7 ± 42.4	22.7 ± 33.9	58.6 ± 158.6	57.9 ± 17.4	9.1 ± 13.9	203.8 ± 35.9
MAI (m ³ /ha/yr)	0.09 ± 0.28	0.67 ± 0.52	0.3 ± 0.57	0.67 ± 3.77	0.76 ± 0.22	0.1 ± 0.16	2.37 ± 0.44
Basal Area (m ² /ha)	1.8 ± 2.2	8.7 ± 6.1	3.7 ± 4.6	9 ± 39.2	7.8 ± 2.1	2.2 ± 1.7	28.1 ± 4
Age (years)	45 ± 24	76 ± 13	111 ± 24	93 ± 54	77 ± 10	88 ± 30	90 ± 6
Height (m)	10.9 ± 5.9	16.7 ± 2.4	11.6 ± 7.6	18.5 ± 14.6	16.6 ± 2.2	11.6 ± 4.8	16.4 ± 1.1
D.B.H. (cm)	12 ± 9.9	17.5 ± 3.7	14.5 ± 10.7	33.3 ± 75	20.5 ± 2.8	12.8 ± 7.2	22.9 ± 2.4
Density (stems/ha)	175 ± 239	325 ± 194	200 ± 225	100 ± x	223 ± 55	200 ± 215	744 ± 132

Ecological Interpretation

BP9 ecosites usually occur as pure or nearly pure white spruce stands but also occur in a mixed-wood condition. Following disturbance these ecosites may more closely resemble the conditions associated with BP8 or BP7 although they may migrate toward BP15 or BP16 if they had sufficient quantities of balsam poplar present. In the absence of disturbance these ecosites would retain much of their original character except that the loss of the hardwood component would possibly be met with an increase in the shrub component.



Ecosite Description ($n = 36$)

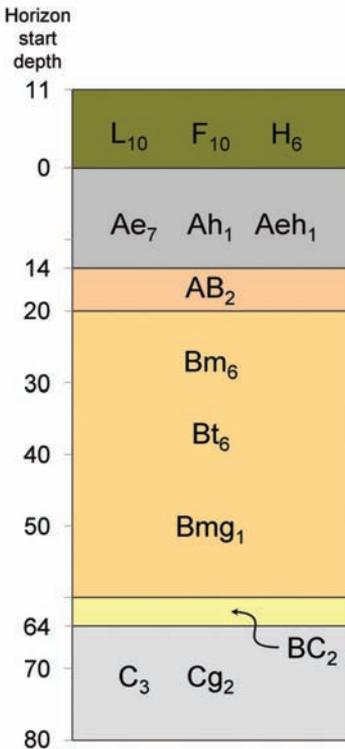
BP10 ecosites are typically mixedwoods with trembling aspen leading over white spruce although balsam fir or black spruce may occasionally occur in the canopy. The shrub understory tends to be less diverse than the other mixedwood ecosites (e.g., BP7, BP8) but the herbaceous layer is often as rich. Feathermosses are apparent on these ecosites amongst the consistent cover of leaf litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.2)	trembling aspen	100	46	<i>Populus tremuloides</i>
	white spruce	86	23	<i>Picea glauca</i>
shrub (6.7)	prickly rose	89	3	<i>Rosa acicularis</i>
	low bush-cranberry	72	2	<i>Viburnum edule</i>
	trembling aspen	64	1	<i>Populus tremuloides</i>
	white spruce	42	2	<i>Picea glauca</i>
herb (16.9)	bunchberry	94	3	<i>Cornus canadensis</i>
	twinflower	86	1	<i>Linnaea borealis</i>
	palmate-leaved coltsfoot	81	1	<i>Petasites palmatus</i>
	wild sarsaparilla	78	5	<i>Aralia nudicaulis</i>
	dewberry	78	2	<i>Rubus pubescens</i>
	wild lily-of-the-valley	78	1	<i>Maianthemum canadense</i>
	starflower	61	0.6	<i>Trientalis borealis</i>
	tall lungwort	58	1	<i>Mertensia paniculata</i>
	wild strawberry	58	0.7	<i>Fragaria virginiana</i>
	bishop's cap	56	1	<i>Mitella nuda</i>
	grasses	50	6	Graminoid spp.
	northern bedstraw	50	0.6	<i>Galium boreale</i>
	fireweed	47	0.9	<i>Chamerion angustifolium</i>
	one-sided wintergreen	47	0.3	<i>Orthilia secunda</i>
	creamy peavine	44	0.9	<i>Lathyrus ochroleucus</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (16.9)	pink wintergreen	44	0.5	<i>Pyrola asarifolia</i>
moss & lichen (21.0)	other mosses	97	2	-
	Schreber's moss	81	5	<i>Pleurozium schreberi</i>
	stair-step moss	67	10	<i>Hylocomium splendens</i>
	knight's plume	53	0.6	<i>Ptilium crista-castrensis</i>
	<i>Dicranum</i> moss	44	0.5	<i>Dicranum</i> spp.
	cup and spike lichens	67	0.5	<i>Cladonia</i> spp.
ground cover	other lichens	100	0.6	-
	needle litter	64	8	-
	woody debris	97	13	-
	leaf litter	100	57	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₅ Eutric Brunisol ₄ Dark Gray Chernozem ₁
Parent Material	Fluvial ₃ Lacustrine ₃ Morainal ₃
Moisture Regime	Fresh ₆ Moderately Fresh ₁ Moderately Moist ₁ Moist ₁
Drainage	Well ₄ Moderately Well ₂ Imperfect ₂ Rapid ₁
Slope	(0-0.5) ₄ (0.5-2) ₃ (2-5) ₂ (5-9) ₁
Topographic Position	Level ₄ Mid-Slope ₂ Upper Slope ₂ Lower Slope ₁
Aspect	No Aspect ₄ North ₂ East ₂ South ₁ West ₁

Site Features

Surface Texture	Sand ₃
	Silty Loam ₂
	Loamy Sand ₁
	Loam ₁
	Silty Loam ₁
	Silty Clay Loam ₁
Effective Texture	Sandy Clay Loam ₂
	Silty Loam ₂
	Silty Clay ₁
	Sand ₁
	Clay ₁
	Clay Loam ₁
	Sandy Loam ₁
	Silty Clay Loam ₁

Ecozonal Synonyms

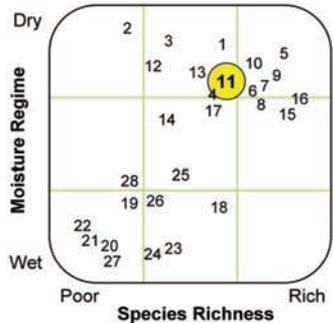
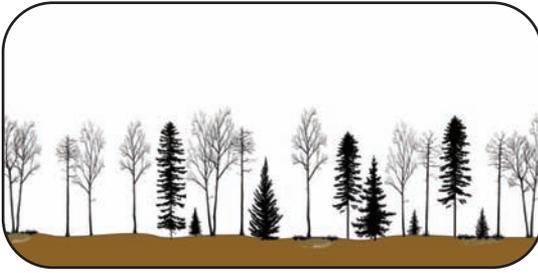
Taiga Shield	Boreal Shield
TS5	NA
Boreal Plain	Prairie
-	PR7

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index	16.1 ±	12.6 ± 6	12.2 ±	15.9 ± 7.6	16.7 ± 1.3	9.8 ± x	14.5 ± 1.0
(m at 50 years)	3.3		1.7				
Volume (m ³ /ha)	25.1 ±	32.3 ±	51.2 ± 39.8	40.7 ±	224.4 ±	5.2 ± x	73.4 ± 26
	15.1	58.5		362.3	51.2		
M.AI (m ³ /ha/yr)	0.4 ± 0.28	0.61 ± 1.44	0.62 ± 0.5	1.1 ± x	2.84 ± 0.69	0.04 ± x	0.9 ± 0.28
Basal Area	4.7 ± 2.8	5 ± 7.7	8.2 ± 5.2	5.9 ±	26.8 ± 5	0.8 ± x	11.5 ± 2.9
(m ² /ha)				39.8			
Age (years)	57 ± 11	70 ± 11	94 ± 13	76 ± 24	80 ± 7	125 ± 19	76 ± 8
Height (m)	13 ± 2.5	16.2 ± 8.1	14 ± 3.7	15.8 ± 57	19.1 ± 2	16.2 ± x	13.9 ± 1.8
D.B.H. (cm)	14.8 ± 4.4	18.5 ± 13.8	15.8 ± 5.6	22.4 ± 146.5	22.6 ± 2.7	10.1 ± x	19.3 ± 2.8
Density	350 ±	150 ± 92	488 ±	200 ±	740 ±	100 ± x	418 ±
(stems/ha)	279		391	1271	162		131

Ecological Interpretation

These ecosites commonly exist as mixedwoods although they may grade into more of a pure hardwood condition. In the absence of disturbance, these ecosites may more closely resemble the conditions associated with BP9 or BP13 depending upon the amount of balsam fir that was on the site previously. Balsam fir is shade tolerant and able to germinate, establish, and grow in the shade of other trees. Following disturbance, it is possible for the ecosite to more closely resemble BP6 or BP7 although they may return to the BP10 condition if the white spruce component was maintained.



Ecosite Description ($n = 24$)

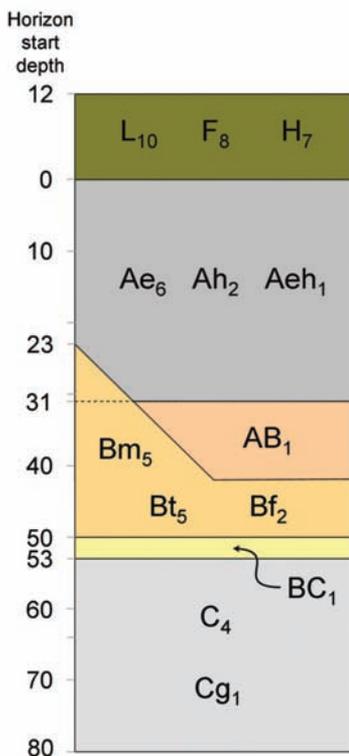
BP11 ecosites usually have white birch as the leading species in the canopy, accompanied by white spruce, balsam fir, and occasionally trembling aspen. The shrub understory is somewhat diverse but is not particularly plentiful although balsam fir is apparent. The herbaceous layer is also relatively diverse and sarsaparilla is prevalent. The moss and lichen coverage on BP11 is quite low but the leaf litter is abundant.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.6)	white birch	100	49	<i>Betula papyrifera</i>
	white spruce	75	21	<i>Picea glauca</i>
	balsam fir	67	15	<i>Abies balsamea</i>
	trembling aspen	50	13	<i>Populus tremuloides</i>
shrub (5.8)	prickly rose	79	1	<i>Rosa acicularis</i>
	low bush-cranberry	75	1	<i>Viburnum edule</i>
	balsam fir	62	13	<i>Abies balsamea</i>
	red currant	58	0.6	<i>Ribes triste</i>
	northern gooseberry	42	0.6	<i>Ribes oxycanthoides</i>
herb (14.4)	wild sarsaparilla	88	8	<i>Aralia nudicaulis</i>
	bunchberry	79	6	<i>Cornus canadensis</i>
	twinflower	79	1	<i>Linnaea borealis</i>
	bishop's cap	67	1	<i>Mitella nuda</i>
	dewberry	63	3	<i>Rubus pubescens</i>
	starflower	63	0.8	<i>Trientalis borealis</i>
	palmate-leaved coltsfoot	58	1	<i>Petasites palmatus</i>
	tall lungwort	58	1	<i>Mertensia paniculata</i>
	kidney-leaved violet	54	0.4	<i>Viola renifolia</i>
	sweet-scented bedstraw	50	0.6	<i>Galium triflorum</i>
	pink wintergreen	50	0.6	<i>Pyrola asarifolia</i>
	wild lily-of-the-valley	50	0.5	<i>Maianthemum canadense</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (14.4)	one-sided wintergreen	46	0.3	<i>Orthilia secunda</i>
	grasses	42	0.5	Graminoid spp.
	common horsetail	42	0.5	<i>Equisetum arvense</i>
moss & lichen (21.9)	Schreber's moss	79	2	<i>Pleurozium schreberi</i>
	stair-step moss	71	3	<i>Hylocomium splendens</i>
	knight's plume	67	0.9	<i>Ptilium crista-castrensis</i>
	other mosses	75	3	-
	cup and spike lichens	58	0.4	<i>Cladonia</i> spp.
	other lichens	100	0.5	-
ground cover	needle litter	71	7	-
	woody debris	100	12	-
	leaf litter	100	71	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisols Eutric Brunisol ₂ Humic Gleysol ₁
Parent Material	Fluvial ₄ Lacustrine ₂ Morainal ₂ Organic ₁
Moisture Regime	Fresh ₄ Very Moist ₂ Moist ₁ Very Fresh ₁ Moderately Dry ₁
Drainage	Well ₄ Imperfect ₄ Moderately Well ₁ Rapid ₁ Poor ₁
Slope	(0-0.5) ₆ (2-5) ₂ (5-9) ₁
Topographic Position	Levels Mid-Slope ₁ Lower Slope ₁ Upper Slope ₁ Toe Slope ₁
Aspect	No Aspects East ₂ North ₁

Aspect	South ₁ West ₁
Surface Texture	Sand ₂ Sandy Loam ₂ Loamy Sand ₁ Silty Loam ₁
Effective Texture	Sandy Clay Loam ₃ Sand ₁ Sandy Clay ₁ Clay ₁

Ecozonal Synonyms

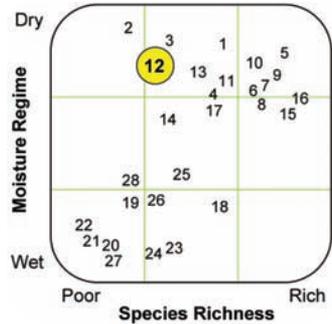
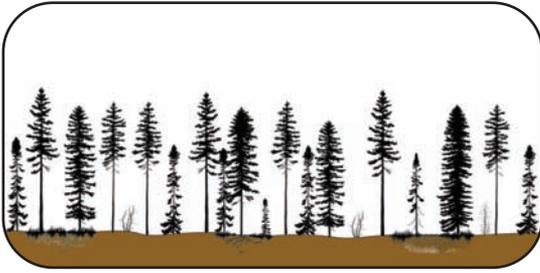
Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
-	NA

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	15.3 ± 2.3	16.8 ± 18.4	15.1 ± 24.5	13.2 ± x	15.8 ± 2.5	14.4 ± 1.4	13.4 ± 2.1
Volume (m ³ /ha)	41.2 ± 30.4	62.4 ± 537	68.7 ± 359	18.2 ± x	42.7 ± 33.6	78.9 ± 20.6	72.5 ± 37.3
MAI (m ³ /ha/yr)	0.63 ± 0.57	0.93 ± 7.63	1.04 ± 5	0.29 ± x	0.7 ± 0.61	1.04 ± 0.24	1.16 ± 0.43
Basal Area (m ² /ha)	8.6 ± 6.9	9.8 ± 86.9	12.3 ± 49.9	2.7 ± x	5.7 ± 3.5	13 ± 2.8	10 ± 4.7
Age (years)	49 ± 7	70 ± 8	62 ± 17	71 ± 172	65 ± 8	67 ± 7	89 ± 14
Height (m)	11.5 ± 1.7	19 ± 10.4	12.8 ± 17.8	16.3 ± x	16.3 ± 4	15.2 ± 1.5	14.2 ± 3.4
D.B.H. (cm)	12.7 ± 1.8	22.7 ± 40	14.7 ± 42.9	18.5 ± x	20.4 ± 6	16 ± 2.3	18.4 ± 4.1
Density (stems/ha)	582 ± 365	200 ± 1271	700 ± 1271	100 ± x	190 ± 133	765 ± 248	281 ± 112

Ecological Interpretation

BP11 can occur in either a mixedwood or a hardwood condition. It may sometimes be confused with BP13 if the balsam fir component is relatively high. However, BP11 is distinguished from BP13 by having more white birch and far less feathermoss. In the absence of disturbance, these ecosystems may more closely resemble the conditions associated with BP13 or BP9 ecosites depending upon the quantities of balsam fir or trembling aspen previously on the site. Following disturbance, the BP11 ecosite may more closely resemble BP6 or BP7.



Ecosite Description ($n = 27$)

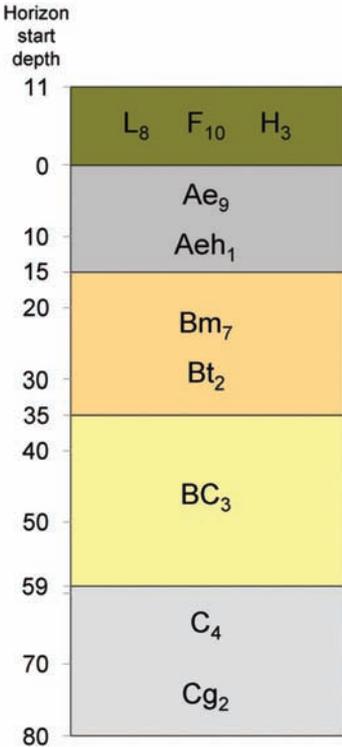
BP12 ecosites typically have jack pine dominated canopies mixed with varying amounts of black and/or white spruce. The understory shrubs are ericaceous and mixed with small amounts of green alder, prickly rose, and willow. The forest floor is typically covered with a near continuous carpet of feathermosses.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.4)	jack pine	100	37	<i>Pinus banksiana</i>
	black spruce	78	23	<i>Picea mariana</i>
	white spruce	44	19	<i>Picea glauca</i>
shrub (4.9)	blueberry	74	4	<i>Vaccinium myrtilloides</i>
	lingonberry	74	2	<i>Vaccinium vitis-idaea</i>
	Labrador tea	70	11	<i>Ledum groenlandicum</i>
	black spruce	67	3	<i>Picea mariana</i>
	green alder	52	8	<i>Alnus viridis</i>
	prickly rose	44	3	<i>Rosa acicularis</i>
	willows	41	0.9	<i>Salix</i> spp.
	herb (7.2)	twinflower	78	2
	bunchberry	59	4	<i>Cornus canadensis</i>
	grasses	52	0.4	Graminoid spp.
	wild lily-of-the-valley	44	4	<i>Maianthemum canadense</i>
moss & lichen (22.3)	Schreber's moss	100	51	<i>Pleurozium schreberi</i>
	stair-step moss	93	7	<i>Hylocomium splendens</i>
	knight's plume	89	4	<i>Ptilium crista-castrensis</i>
	<i>Dicranum</i> moss	78	0.8	<i>Dicranum</i> spp.
	other mosses	74	1	-
	cup and spike lichens	81	2	<i>Cladonia</i> spp.
	green reindeer lichen	48	2	<i>Cladina mitis</i>
	other lichens	100	1	-
ground cover	needle litter	100	14	-
	woody debris	100	11	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	leaf litter	96	13	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	BS4 + BS5 + BS9
Boreal Plain	Prairie
-	NA

Site Features

Soil Great Group - Order	Eutric Brunisol ₅ Gray Luvisol ₃ Luvic Gleysol ₁ Dystric Brunisol ₁
Parent Material	Fluvial ₆ Morainals ₃ Lacustrine ₁
Moisture Regime	Very Fresh ₂ Fresh ₂ Moderately Fresh ₂ Very Moist ₁ Moist ₁ Moderately Dry ₁
Drainage	Imperfect ₃ Moderately Well ₂ Well ₂ Rapid ₁ Very Rapid ₁
Slope	(0-0.5) ₆ (2-5) ₂ (5-9) ₁
Topographic Position	Level ₆ Mid-Slope ₂ Upper Slope ₁
Aspect	No Aspect ₆ West ₃ East ₁
Surface Texture	Sand ₅ Loamy Sand ₁ Sandy Loam ₁
Effective Texture	Sand ₂ Loamy Sand ₂ Sandy Clay Loam ₂ Sandy Loam ₁ Sandy Clay ₁

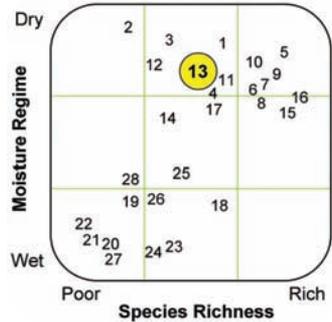
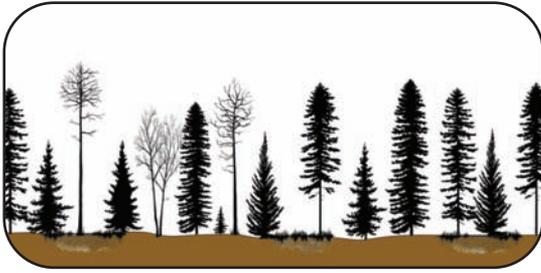
Forest Productivity

	Tree Species					
	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	-	13.4 ± 1.2	14.5 ± 0.8	11.2 ± 3.3	12 ± x	15.5 ± 1.7
Volume (m ³ /ha)	-	38.4 ± 16.1	140.4 ± 26.2	18.9 ± 126	3.7 ± 47.2	68.4 ± 47.4
MAI (m ³ /ha/yr)	-	0.54 ± 0.22	1.82 ± 0.33	0.31 ± 2.09	0.12 ± x	0.9 ± 0.49
Basal Area (m ² /ha)	0.5 ± x	7.3 ± 2.2	20.7 ± 3.3	4 ± 26.1	1.2 ± 8.2	9.7 ± 5
Age (years)	-	79 ± 7	81 ± 7	90 ± 39	50 ± 83	73 ± 11
Height (m)	4.4 ± x	11.7 ± 1.5	16.2 ± 1.3	12 ± 1.1	10.5 ± 11.1	15.2 ± 4.2
D.B.H. (cm)	8.3 ± x	12.8 ± 2	17.6 ± 2.2	9.7 ± 7.8	9.8 ± 14.6	20.9 ± 7.3
Density (stems/ha)	100 ± x	562 ± 154	1059 ± 267	500 ± 2541	150 ± 635	290 ± 145

Ecological Interpretation

These ecosites are similar in nature to BP3 ecosites except that BP12 ecosites have a conspicuous canopy of black or white spruce. In the absence of disturbance it is possible that the pine component of the canopy will decrease while the spruce component increases but without changing the ecosite's classification. Following disturbance, these ecosites may more closely resemble BP3 or BP4 ecosites depending upon how much aspen was previously on the site. Green alder, which is found on this site, is capable of biologically fixing nitrogen in its root nodules because of the symbiotic relationship it has with the *Frankia* actinobacteria.





Ecosite Description ($n = 45$)

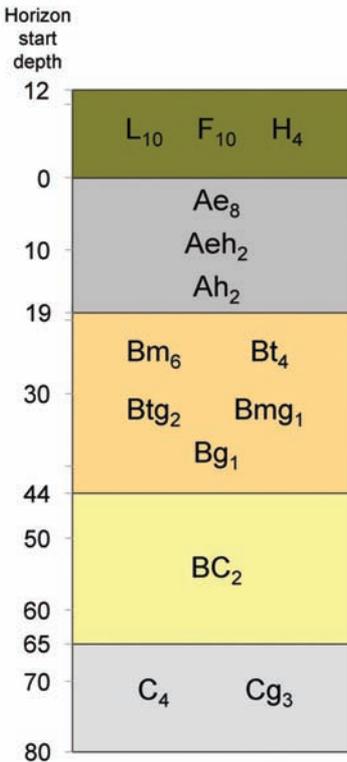
BP13 ecosites are mostly (66% of the sites) either white spruce and/or balsam fir dominated conifer stands. The remainder of the time they are usually white spruce dominated mixedwoods. The shrub layer (aside from tree species) is relatively sparse and the herb layer while somewhat diverse is sporadic. Feathermosses are apparent amongst the extensive cover of leaf and needle litter on the forest floor.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.9)	white spruce	89	33	<i>Picea glauca</i>
	balsam fir	89	29	<i>Abies balsamea</i>
	trembling aspen	69	19	<i>Populus tremuloides</i>
	white birch	56	13	<i>Betula papyrifera</i>
	balsam poplar	42	12	<i>Populus balsamifera</i>
shrub (4.2)	balsam fir	89	6	<i>Abies balsamea</i>
	prickly rose	69	3	<i>Rosa acicularis</i>
	low bush-cranberry	69	2	<i>Viburnum edule</i>
	trembling aspen	51	0.8	<i>Populus tremuloides</i>
	white birch	47	2	<i>Betula papyrifera</i>
herb (12.4)	twinflower	93	2	<i>Linnaea borealis</i>
	bunchberry	91	2	<i>Cornus canadensis</i>
	bishop's cap	82	1	<i>Mitella nuda</i>
	starflower	78	0.6	<i>Trientalis borealis</i>
	wild sarsaparilla	71	3	<i>Aralia nudicaulis</i>
	dewberry	67	1	<i>Rubus pubescens</i>
	wild lily-of-the-valley	62	0.6	<i>Maianthemum canadense</i>
	palmate-leaved coltsfoot	53	1	<i>Petasites palmatus</i>
	tall lungwort	51	2	<i>Mertensia paniculata</i>
	moss & lichen (20.8)	stair-step moss	100	11
Schreber's moss		100	10	<i>Pleurozium schreberi</i>
other mosses		84	4	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
	knight's plume	80	2	<i>Ptilium crista-castrensis</i>
	cup and spike lichens	71	0.5	<i>Cladonia</i> spp.
	other lichens	100	0.8	-
ground cover	needle litter	78	9	-
	woody debris	96	16	-
	leaf litter	100	45	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	BS11
Boreal Plain	Prairie
-	NA

Site Features

Soil Great Group - Order	Gray Luvisol ₅ Eutric Brunisol ₄
Parent Material	Fluvial ₃ Lacustrine ₃ Morainal ₃
Moisture Regime	Fresh ₅ Very Fresh ₁ Moderately Fresh ₁ Moist ₁ Very Moist ₁
Drainage	Well ₅ Moderately Well ₂ Imperfect ₂ Rapid ₁
Slope	(0-0.5) ₄ (0.5-2) ₂ (2-5) ₂ (5-9) ₁
Topographic Position	Level ₃ Mid-Slope ₂ Upper Slope ₂ Lower Slope ₂ Crest ₁
Aspect	No Aspect ₃ East ₃ West ₂ North ₁ South ₁
Surface Texture	Loamy Sand ₂ Silty Loam ₂ Sand ₁ Sandy Loam ₁ Loam ₁ Silt ₁

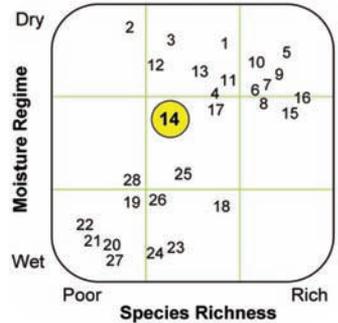
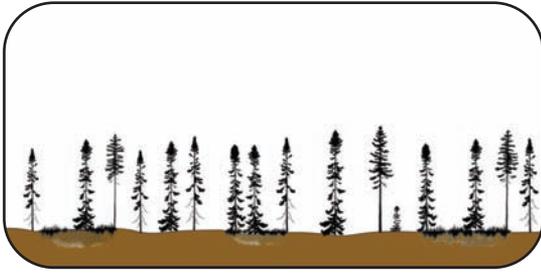
Effective Texture	Sandy Clay Loam ₃
	Clay Loam ₂
	Silty Clay ₁
	Sandy Loam ₁
	Loamy Sand ₁
	Silty Loam ₁

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	15.2 ± 1.8	17.8 ± 2.6	12.5 ± 3.2	19 ± x	18 ± 1.5	15.7 ± 3.3	14.8 ± 0.9
Volume (m ³ /ha)	53.4 ± 21.6	69.2 ± 37.5	105 ± 203	16.8 ± x	109.7 ± 43.6	69.1 ± 71.4	203.2 ± 51.9
MAI (m ³ /ha/yr)	0.81 ± 0.37	0.89 ± 0.41	1.12 ± 2.8	0.22 ± x	1.22 ± 0.42	0.74 ± 0.71	2.12 ± 0.56
Basal Area (m ² /ha)	8.5 ± 2.9	10.3 ± 5	16.6 ± 35	2.4 ± x	12.8 ± 4.4	9.6 ± 7.8	24.3 ± 5.2
Age (years)	61 ± 6	69 ± 12	114 ± 36	56 ± 25	87 ± 10	81 ± 17	100 ± 6
Height (m)	12.4 ± 1.2	17.5 ± 2.5	14.7 ± 4	16.9 ± x	19.7 ± 1.8	15.3 ± 2.5	18.5 ± 1.5
D.B.H. (cm)	13.2 ± 1.6	21.2 ± 4.6	15 ± 3.8	17.3 ± x	25.5 ± 4.8	21.3 ± 5.9	23.2 ± 2.4
Density (stems/ha)	552 ± 180	270 ± 117	967 ± 2387	100 ± x	260 ± 85	240 ± 159	573 ± 123

Ecological Interpretation

While this ecosite is usually classed as a conifer condition, it can also grade into the mixedwood condition. Their relatively high proportion of both balsam fir and feathermoss distinguish them from other ecosites. After disturbance there are a number of successional paths that this ecosite may follow. Typically, BP13 will closely resemble a BP6 ecosite after disturbance; however, it may resemble the BP5 if bearberry, golden-bean, bluebell, goldenrod and/or common yarrow are present. If the balsam poplar content prior to disturbance is sufficient, this site may come to resemble a BP16 ecosite. In the absence of disturbance, this site may stay as a BP13 but with a reduced hardwood component and an increased shrub component, with the long-term possibility of the stand succeeding to dominance by balsam fir, a shade-tolerant conifer.



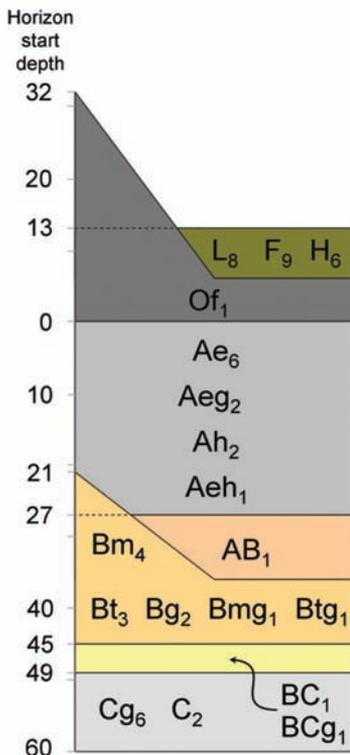
Ecosite Description (n = 66)

BP14 ecosites typically have black spruce dominated canopies which may contain jack pine, white spruce or trembling aspen. Over 80% of the sites classified as BP14 will be a conifer site. The understory of this ecosite is generally limited to ericaceous shrubs but low bush-cranberry, and green alder may occasionally be found. While a great variety of herbs is associated with this ecosite, only a few species occur with any constancy. The forest floor generally has a continuous carpet of feathermoss mixed with abundant needle and leaf litter. While moist mineral soils are associated with this ecosite, the occurrence of an organic soil is possible, but not common.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.7)	black spruce	100	42	<i>Picea mariana</i>
	jack pine	44	13	<i>Pinus banksiana</i>
shrub (5.0)	Labrador tea	70	9	<i>Ledum groenlandicum</i>
	blueberry	67	3	<i>Vaccinium myrtilloides</i>
	lingonberry	65	2	<i>Vaccinium vitis-idaea</i>
	prickly rose	59	1	<i>Rosa acicularis</i>
	black spruce	58	3	<i>Picea mariana</i>
herb (9.2)	bunchberry	68	2	<i>Cornus canadensis</i>
	twinflower	58	1	<i>Linnaea borealis</i>
	palmate-leaved coltsfoot	42	2	<i>Petasites palmatus</i>
	dewberry	42	1	<i>Rubus pubescens</i>
moss & lichen (18.9)	Schreber's moss	95	46	<i>Pleurozium schreberi</i>
	stair-step moss	94	9	<i>Hylocomium splendens</i>
	knight's plume	76	1	<i>Ptilium crista-castrensis</i>
	<i>Dicranum</i> moss	64	0.9	<i>Dicranum</i> spp.
	other mosses	64	1	-
	cup and spike lichens	70	0.5	<i>Cladonia</i> spp.
	green reindeer lichen	42	4	<i>Cladina mitis</i>
other lichens	100	1	-	
ground cover	needle litter	82	10	-
	woody debris	98	12	-
	leaf litter	86	19	-

Soil Profile



Site Features

Soil Great Group - Order	Gleysol ₃ Gray Luvisol ₂ Eutric Brunisol ₂ Luvic Gleysol ₁
Parent Material	Fluvial ₅ Lacustrine ₂ Morainal ₂
Moisture Regime	Very Moist ₄ Fresh ₂ Very Fresh ₁ Moderately Moist ₁ Moist ₁
Drainage	Imperfect ₄ Moderately Well ₂ Well ₁ Poor ₁ Very Poor ₁
Slope	(0-0.5) _s (0.5-2) ₂
Topographic Position	Levels Upper Slope ₁
Aspect	No Aspects ₈ South ₁
Surface Texture	Loamy Sand ₃ Sand ₂ Sandy Loam ₂ Silty Loam ₁
Effective Texture	Sandy Clay Loam ₂ Loamy Sand ₁ Sandy Loam ₁ Silty Clay Loam ₁ Sand ₁ Clay Loam ₁ Sandy Clay ₁ Organic Humic ₁

Ecozonal Synonyms

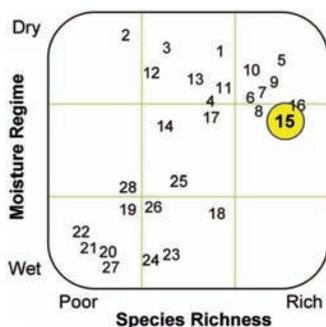
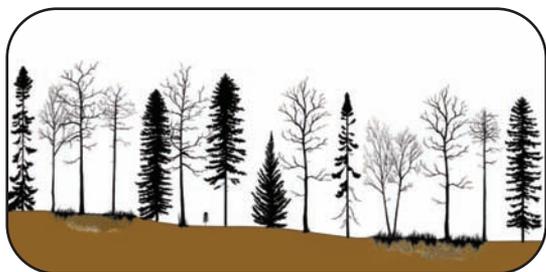
Taiga Shield	Boreal Shield
TS4	BS9 + BS10
Boreal Plain	Prairie
-	NA

Forest Productivity

	Tree Species							
	bF	bP	bS	jP	tA	tL	wB	wS
Site Index	12.6 ±	17.1 ±	11.9 ±	13 ± 1.2	15.3 ± 2	12.1 ± x	13 ± 0.7	14.8 ±
(m at 50 years)	40.7	15.9	0.8					1.9
Volume	1.5 ± 19.4	44.7 ±	99 ± 21.7	55.1 ±	77.2 ±	25.5 ±	14.6 ±	77.3 ±
(m ³ /ha)		39.4		20.8	38.5	46.7	16.1	34.6
MAI	0.03 ± x	0.53 ±	1.26 ±	0.76 ±	1.08 ±	0.4 ±	0.3 ±	0.99 ±
(m ³ /ha/yr)		0.38	0.24	0.25	0.44	0.8	0.29	0.48
Basal Area	0.7 ± 1.4	7.4 ±	18.1 ±	9.5 ±	11.1 ±	4.7 ± 11	3.1 ±	11.6 ±
(m ² /ha)		5.3	3.1	2.9	4.7		3.1	4.8
Age (years)	56 ± 42	73 ± 4	84 ± 4	72 ± 7	69 ± 10	55 ± 13	49 ± 8	77 ± 12
Height (m)	9.4 ± 8.3	17.6 ±	12 ± 0.7	13.7 ±	15.3 ± 2	14.1 ±	11.6 ±	14.2 ±
		4.4		1.5		14.9	1.9	2.3
D.B.H. (cm)	9.3 ± 9.5	20.5 ±	12.7 ±	17.5 ±	18.4 ±	14.7 ±	10.8 ±	17 ±
		7.9	0.8	2.7	3.9	15	2.2	3.6
Density	100 ± x	280 ±	1416 ±	488 ±	406 ±	333 ±	280 ±	444 ±
(stems/ha)		309	252	174	144	1004	204	197

Ecological Interpretation

BP14 ecosites tend to be rather moist. It is not unusual to find them adjacent to treed bogs (BP19). Following disturbance, these sites may retain their pre-disturbance tree composition provided they were in a pure conifer condition or they may move toward a BP19 ecosite condition if the site's moisture regime was affected. For BP14 ecosites with a hardwood component they may exhibit similarities to the BP6 or BP7 ecosites if the aspen component was high; however, the moisture regime may lessen the likelihood of this shift. In the absence of disturbance, the BP14 ecosite may not change dramatically in condition or composition, although the jack pine component will eventually decrease.



Ecosite Description ($n = 5$)

BP15 ecosites generally have a canopy that has balsam poplar leading in combination with white and/or black spruce. Trembling aspen, white birch, and/or balsam fir may occasionally also occur in the canopy. Both the shrub and herb layers tend to be diverse and a conspicuous layer of feathermosses is apparent above the layer of leaf litter.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (4.2)	balsam poplar	100	29	<i>Populus balsamifera</i>
	white spruce	100	18	<i>Picea glauca</i>
	white birch	60	9	<i>Betula papyrifera</i>
	trembling aspen	60	8	<i>Populus tremuloides</i>
	balsam fir	40	8	<i>Abies balsamea</i>
	black spruce	40	8	<i>Picea mariana</i>
shrub (6.6)	low bush-cranberry	100	4	<i>Viburnum edule</i>
	prickly rose	100	3	<i>Rosa acicularis</i>
	northern gooseberry	80	0.2	<i>Ribes oxycanthoides</i>
	white spruce	60	4	<i>Picea glauca</i>
	Saskatoon	60	0.6	<i>Amelanchier alnifolia</i>
	beaked hazel	40	6	<i>Corylus cornuta</i>
	red currant	40	0.9	<i>Ribes triste</i>
	common snowberry	40	0.9	<i>Symphoricarpos albus</i>
	twining honeysuckle	40	0.3	<i>Lonicera dioica</i>
herb (20.0)	bunchberry	100	6	<i>Cornus canadensis</i>
	dewberry	100	5	<i>Rubus pubescens</i>
	palmate-leaved coltsfoot	100	3	<i>Petasites palmatus</i>
	wild sarsaparilla	100	3	<i>Aralia nudicaulis</i>
	bishop's cap	100	2	<i>Mitella nuda</i>
	tall lungwort	100	0.8	<i>Mertensia paniculata</i>
	starflower	100	0.7	<i>Trientalis borealis</i>
	wild strawberry	80	6	<i>Fragaria virginiana</i>
	twinner	80	1	<i>Linnaea borealis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (20.0)	wild lily-of-the-valley	80	0.9	<i>Maianthemum canadense</i>
	pink wintergreen	80	0.4	<i>Pyrola asarifolia</i>
	kidney-leaved violet	80	0.3	<i>Viola renifolia</i>
	American vetch	60	1	<i>Vicia americana</i>
	grasses	60	0.7	Graminoid spp.
	sweet-scented bedstraw	60	0.6	<i>Galium triflorum</i>
	creamy peavine	60	0.4	<i>Lathyrus ochroleucus</i>
	northern bedstraw	60	0.3	<i>Galium boreale</i>
	red and white baneberry	40	0.5	<i>Actaea rubra</i>
	lesser rattlesnake-plantain	40	0.4	<i>Goodyera repens</i>
	western Canada violet	40	0.3	<i>Viola canadensis</i>
	moss & lichen (19.0)	Schreber's moss	80	2
other mosses		80	0.9	-
stair-step moss		80	19	<i>Hylocomium splendens</i>
<i>Dicranum</i> moss		60	0.8	<i>Dicranum</i> spp.
knight's plume		60	0.4	<i>Ptilium crista-castrensis</i>
cup and spike lichens		40	0.4	<i>Cladonia</i> spp.
ground cover	other lichens	100	2	-
	needle litter	60	3	-
	woody debris	80	11	-
	leaf litter	100	38	-

Ecozonal Synonyms

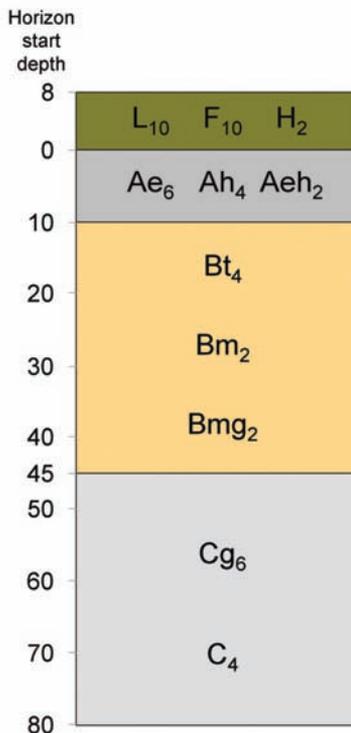
Taiga Shield
NA

Boreal Shield
NA

Boreal Plain
-

Prairie
NA

Soil Profile



Site Features

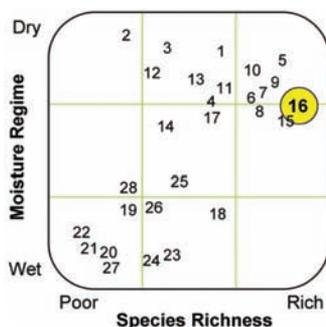
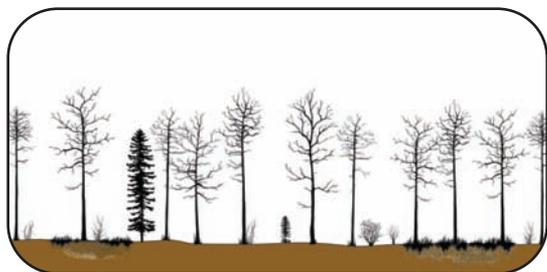
Soil Great Group - Order	Eutric Brunisol ₆ Gray Luvisol ₂ Folisol Organic ₂
Parent Material	Fluvial ₄ Glacio-lacustrine ₂ Lacustrine ₂ Organic ₂
Moisture Regime	Very Moist ₄ Moderately Moist ₂ Fresh ₂ Moderately Dry ₂
Drainage	Imperfect ₄ Poor ₂ Well ₂ Rapid ₂
Slope	(0.5-2) ₄ (2-5) ₄ (0-0.5) ₂
Topographic Position	Lower Slope ₄ Level ₂ Mid-Slope ₂ Toe Slope ₂
Aspect	North ₄ East ₄ No Aspect ₂
Surface Texture	Sand ₂ Silty Sand ₂ Sandy Loam ₂ Silty Loam ₂
Effective Texture	Sandy Loam ₃ Silty Loam ₃ Clay Loam ₃ Silty Clay ₃

Forest Productivity

	Tree Species						
	bF	bP	bS	jP	tA	wB	wS
Site Index (m at 50 years)	19.2 ± x	14.9 ± 3.2	7.8 ± x	14.7 ± x	18.3 ± 38.1	12 ± x	14.3 ± 2.8
Volume (m ³ /ha)	6.7 ± x	70.1 ± 126.8	44.1 ± x	39.8 ± x	22.2 ± 152.3	11.5 ± x	24.4 ± 55.5
MAI (m ³ /ha/yr)	0.05 ± x	0.89 ± 1.67	0.3 ± x	0.57 ± x	0.31 ± 2.32	0.15 ± x	0.39 ± 1.2
Basal Area (m ² /ha)	1.4 ± x	10.5 ± 17.9	6.5 ± x	6.3 ± x	3.2 ± 12.4	2 ± x	3.6 ± 7.1
Age (years)	31 ± 25	81 ± 18	194 ± 83	96 ± 19	40 ± 23	95 ± 241	65 ± 26
Height (m)	11.6 ± x	17.7 ± 5.6	17.9 ± x	16.1 ± x	14.7 ± 31.4	15 ± x	13.8 ± 12
D.B.H. (cm)	13.5 ± x	19.4 ± 7.4	28.7 ± x	19.6 ± x	12.3 ± 35	16 ± x	15 ± 12.7
Density (stems/ha)	100 ± x	320 ± 476	100 ± x	200 ± x	250 ± 635	100 ± x	150 ± 92

Ecological Interpretation

This ecosite has a consistently high diversity of shrub and herb species and will also support a wide variety of tree species. Following disturbance, these ecosites may return to their former condition although they may also resemble BP6 or BP7 if their previous stand condition had sufficient aspen. In the absence of disturbance, these ecosites may more closely resemble BP9 or BP13 as succession unfolds.



Ecosite Description ($n = 14$)

BP16 ecosites have deciduous canopies with either balsam poplar or trembling aspen as the leading species. Black and/or white spruce, balsam fir or white birch may also occur, but in minor proportions. Both the shrub and herbaceous layers tend to be diverse. Moss and lichen cover is low and leaf litter covers much of the forest floor.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.1)	balsam poplar	100	36	<i>Populus balsamifera</i>
	trembling aspen	86	38	<i>Populus tremuloides</i>
	white spruce	43	8	<i>Picea glauca</i>
shrub (9.4)	prickly rose	100	10	<i>Rosa acicularis</i>
	willows	86	4	<i>Salix</i> spp.
	northern gooseberry	79	0.5	<i>Ribes oxycanthoides</i>
	river alder	57	11	<i>Alnus incana</i>
	raspberry	57	2	<i>Rubus idaeus</i>
	beaked hazel	50	4	<i>Corylus cornuta</i>
	red-osier dogwood	43	12	<i>Cornus sericea</i>
	white spruce	43	6	<i>Picea glauca</i>
	low bush-cranberry	43	3	<i>Viburnum edule</i>
	twining honeysuckle	43	2	<i>Lonicera dioica</i>
	red currant	43	1	<i>Ribes triste</i>
herb (19.6)	dewberry	86	2	<i>Rubus pubescens</i>
	sedges	79	2	<i>Carex</i> spp.
	wild strawberry	79	1	<i>Fragaria virginiana</i>
	northern bedstraw	79	0.3	<i>Galium boreale</i>
	wild sarsaparilla	71	10	<i>Aralia nudicaulis</i>
	common horsetail	71	3	<i>Equisetum arvense</i>
	wild lily-of-the-valley	71	0.6	<i>Maianthemum canadense</i>
	tall lungwort	64	3	<i>Mertensia paniculata</i>
	palmate-leaved	64	2	<i>Petasites palmatus</i>
	coltsfoot			

Layer (Richness)	Common name	% constancy	% cover	Latin name	
herb (19.6)	bishop's cap	57	2	<i>Mitella nuda</i>	
	sweet-scented bedstraw	57	0.3	<i>Galium triflorum</i>	
	bunchberry	50	2	<i>Cornus canadensis</i>	
	western Canada violet	50	0.9	<i>Viola canadensis</i>	
	star-flowered Solomon's seal	50	0.6	<i>Maianthemum stellatum</i>	
	dandelion	50	0.3	<i>Taraxacum officinale</i>	
	asters	43	0.9	<i>Aster</i> spp.	
	pink wintergreen	43	0.6	<i>Pyrola asarifolia</i>	
	fireweed	43	0.5	<i>Chamerion angustifolium</i>	
	common yarrow	43	0.4	<i>Achillea millefolium</i>	
	American vetch	43	0.3	<i>Vicia americana</i>	
	moss & lichen (10.9)	other mosses	71	6	-
		other lichens	100	0.6	-
ground cover	woody debris	79	15	-	
	leaf litter	100	72	-	

Ecozonal Synonyms

Taiga Shield

NA

Boreal Shield

NA

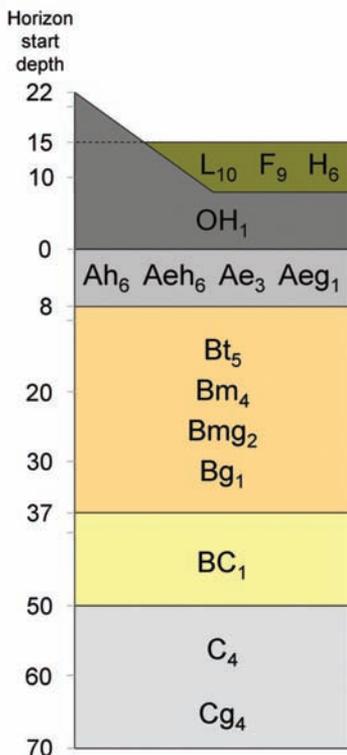
Boreal Plain

-

Prairie

NA

Soil Profile



Site Features

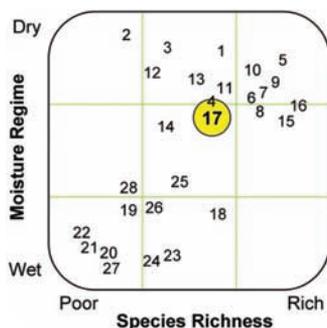
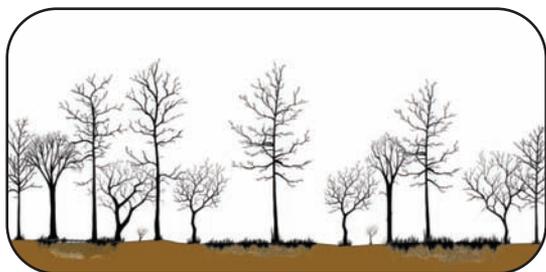
Soil Great Group - Order	Eutric Brunisol ₄ Gray Luvisol ₄ Luvic Gleysol ₁ Gleysol ₁ Melanic Brunisol ₁
Parent Material	Fluvial ₆ Lacustrine ₄
Moisture Regime	Fresh ₃ Moderately Fresh ₂ Very Moist ₂ Very Fresh ₁ Moderately Moist ₁ Moist ₁
Drainage	Imperfect ₄ Well ₄ Moderately Well ₁ Rapid ₁ Poor ₁
Slope	(0-0.5) ₆ (0.5-2) ₃ (15-30) ₁
Topographic Position	Level ₆ Mid-Slope ₁ Lower Slope ₁ Upper Slope ₁
Aspect	No Aspect ₆ North ₁ South ₁ East ₁
Surface Texture	Sand ₃ Silty Loam ₂ Loamy Sand ₁ Loam ₁ Sandy Clay Loam ₁ Silty Clay Loam ₁
Effective Texture	Clay Loam ₃ Sand ₃ Silty Clay ₁ Loamy Sand ₁ Sandy Clay Loam ₁ Silty Loam ₁ Silty Clay Loam ₁

Forest Productivity

	Tree Species					
	bF	bP	bS	tA	wB	wS
Site Index (m at 50 years)	25.1 ± x	18.9 ± 1.7	-	16.1 ± 4.3	12.7 ± x	11 ± 6.4
Volume (m ³ /ha)	17 ± x	109.1 ± 71.5	8.5 ± x	98.8 ± 68.9	4.9 ± x	60.4 ± 159.8
MAI (m ³ /ha/yr)	0.41 ± x	1.91 ± 1.19	0.11 ± x	1.2 ± 0.92	0.08 ± x	1.42 ± 1.52
Basal Area (m ² /ha)	4 ± x	17.6 ± 10.1	1.5 ± x	14.5 ± 10.4	1.1 ± x	10 ± 21.4
Age (years)	36 ± 19	65 ± 11	91 ± x	66 ± 16	63 ± 6	85 ± 90
Height (m)	10.7 ± x	16.2 ± 3.1	13.3 ± x	15.3 ± 2.3	11.7 ± x	13.1 ± 13.9
D.B.H. (cm)	12.9 ± x	22.3 ± 7.6	14 ± x	16.2 ± 3.3	11.8 ± x	21.3 ± 22.6
Density (stems/ha)	300 ± x	509 ± 269	100 ± x	663 ± 495	100 ± x	200 ± 248

Ecological Interpretation

While these ecosites tend to be relatively species rich, they are not as moist as one might expect given the presence of balsam poplar in the overstory. In the absence of disturbance these sites may migrate toward the condition seen in BP13. Following disturbance, these ecosites may be expected to remain as a BP16 ecosite but possibly with a slightly greater proportion of trembling aspen.



Ecosite Description ($n = 38$)

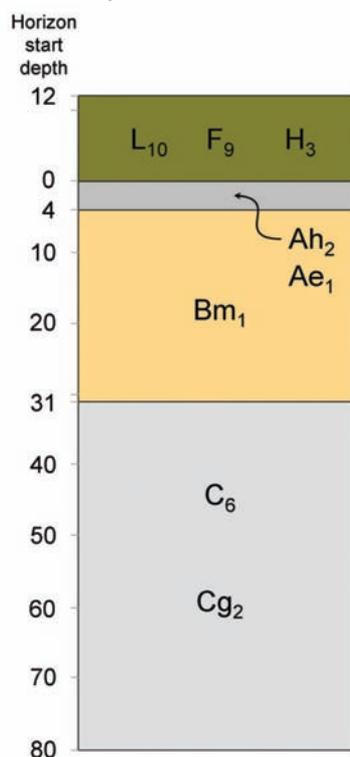
All BS17 ecosites have Manitoba maple in the canopy. In addition to the maple, they may have balsam poplar, white elm, green ash and/or trembling aspen in any number of possible combinations. Both the shrub and herbaceous layers tend to be diverse, but ostrich fern is the species most commonly encountered in any substantial quantity. Mosses and lichens do exist on these ecosites but their cover value is relatively low. As expected the leaf litter is high on these ecosites.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.4)	Manitoba maple	100	23	<i>Acer negundo</i>
	balsam poplar	58	22	<i>Populus balsamifera</i>
	white elm	47	14	<i>Ulmus americana</i>
	green ash	26	11	<i>Fraxinus pennsylvanica</i>
shrub (6.7)	choke cherry	66	2	<i>Prunus virginiana</i>
	raspberry	63	4	<i>Rubus idaeus</i>
	high bush-cranberry	61	3	<i>Viburnum opulus</i>
	red-osier dogwood	53	3	<i>Cornus sericea</i>
	prickly rose	50	2	<i>Rosa acicularis</i>
	northern black currant	42	0.6	<i>Ribes hudsonianum</i>
	white elm	34	0.3	<i>Ulmus americana</i>
	Manitoba maple	29	5	<i>Acer negundo</i>
	green ash	8	0.7	<i>Fraxinus pennsylvanica</i>
herb (12.2)	sweet-scented bedstraw	82	0.4	<i>Galium boreale</i>
	ostrich fern	76	40	<i>Matteuccia struthiopteris</i>
	dewberry	76	1	<i>Rubus pubescens</i>
	wild sarsaparilla	71	3	<i>Aralia nudicaulis</i>
	common horsetail	68	11	<i>Equisetum arvense</i>
	bishop's cap	58	2	<i>Mitella nuda</i>
	tall lungwort	50	2	<i>Mertensia paniculata</i>
	sedges	50	0.5	<i>Carex</i> spp.

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (12.2)	early blue violet	45	2	<i>Viola adunca</i>
	small enchanter's - nightshade	42	2	<i>Circaea alpina</i>
moss & lichen (4.8)	other lichens	100	0.4	-
ground cover	leaf litter	100	77	-
	woody debris	100	11	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
-	PR8

Site Features

Soil Great Group - Order	Regosol ₇ Gleysol ₂ Eutric Brunisol ₁
Parent Material	Fluvial ₉ Lacustrine ₁
Moisture Regime	Fresh ₃ Moist ₃ Moderately Moist ₂ Very Fresh ₂
Drainage	Imperfect ₅ Well ₂ Moderately Well ₂
Slope	(0-0.5) ₈ (0.5-2) ₁ (2-5) ₁
Topographic Position	Level ₇ Lower Slope ₁ Mid-Slope ₁ Upper Slope ₁ Depression ₁
Aspect	No Aspects ₈ North ₁ East ₁ West ₁
Surface Texture	Loamy Sand ₃ Sandy Loam ₃ Sand ₁ Loam ₁ Silty Loam ₁ Clay Loam ₁ Silty Clay Loam ₁ Silty Clay ₁

Site Features

Effective Texture	Sandy Loam ₃
	Silty Clay Loam ₃
	Sandy Clay Loam ₁
	Silty Clay ₁
	Silty Loam ₁
	Clay Loam ₁

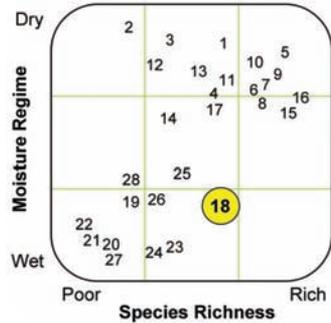
Forest Productivity

	Tree Species							
	bF	bP	gA	mM	tA	wB	wE	wS
Site Index (m at 50 years)	14.2 ± x	18.9 ±	14.2 ±	11.2 ±	17.1 ±	13 ± 0.7	12 ±	12.3 ±
		1.4	17.3	1	4.8		3.5	3.6
Volume (m ³ /ha)	66.7 ± x	282.2 ±	69.3 ±	29.3 ±	85.9 ±	96.1 ±	162.3 ±	15.6 ±
		128.4	155.9	10.4	133.3	87.5	344.7	30
MAI (m ³ /ha/yr)	0.94 ± x	4.17 ±	1.13 ±	0.52 ±	1.46 ±	1.89 ±	1.89 ±	0.38 ±
		1.71	3.14	0.17	2.29	1.89	3.94	1.07
Basal Area (m ² /ha)	11.2 ± x	35.8 ±	14.5 ±	7.3 ±	12.3 ±	14.3 ±	28.5 ±	4 ± 5.5
		15.2	42.7	2	17.7	11.8	57.2	
Age (years)	60 ± 19	66 ± 8	59 ± 21	61 ± 6	58 ± 17	64 ± 10	80 ± 22	55 ± 12
Height (m)	17.5 ± x	20.5 ±	15.2 ±	10.5 ±	16.3 ±	15.1 ±	12 ± 4	10.5 ±
		2.6	12.2	0.9	7.9	4.6		5.9
D.B.H. (cm)	37.7 ± x	30.6 ±	19.8 ±	13.8 ±	19.2 ±	25.8 ±	19.7 ±	13.9 ±
		10.2	18.6	1.5	13.9	20.6	16.4	3.6
Density (stems/ha)	100 ± x	535 ±	533 ±	431 ±	450 ±	233 ±	314 ±	250 ±
		226	1654	96	643	127	223	276

Ecological Interpretation

BP17 ecosites are restricted to the eastern portion of the Boreal Plain ecozone. The elm that occurs on these sites may be the last remaining naturally occurring native elms in the provincial forests. Decline of the elm due to Dutch elm disease is evident and despite having an intermediate shade tolerance, regenerating elms occurred on only about one-third of the relevés and with a low cover value. Similarly the green ash encountered on these sites was sporadic and cover values were relatively low. In the absence of disturbance, these sites may slowly migrate toward the condition expressed in BP15, provided the white spruce component was sufficient. However, it is possibly more likely that the canopy will continue to thin and the tall shrub understory will become more prominent. Following disturbance, it is likely that the Manitoba maple and balsam poplar will readily recolonize the site from stump sprouts.





Ecosite Description (n = 47)

BP18 ecosites may occur as pure black (or white) spruce stands or pure tamarack stands and any of the intergrades between the three. While ericaceous shrubs are consistently found on these sites, their cover is relatively low. The herbaceous layer is conspicuous on these sites and the diversity of species can be quite high. The feathermosses are abundant on this ecosite, needle litter cover is high and exposed surface water may be present.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.5)	black spruce	96	38	<i>Picea mariana</i>
	tamarack	74	26	<i>Larix laricina</i>
shrub (6.4)	Labrador tea	91	12	<i>Ledum groenlandicum</i>
	lingonberry	77	2	<i>Vaccinium vitis-idaea</i>
	black spruce	72	4	<i>Picea mariana</i>
	willows	64	3	<i>Salix</i> spp.
herb (13.9)	sedges	72	8	<i>Carex</i> spp.
	bishop's cap	70	2	<i>Mitella nuda</i>
	three-leaved false	62	2	<i>Maianthemum trifolium</i>
	twinflower	60	3	<i>Linnaea borealis</i>
	dewberry	60	2	<i>Rubus pubescens</i>
	grasses	53	5	Graminoid spp.
	common horsetail	45	4	<i>Equisetum arvense</i>
	dwarf scouring-rush	43	2	<i>Equisetum scirpoides</i>
	kidney-leaved violet	43	0.4	<i>Viola renifolia</i>
moss & lichen (23.6)	Schreber's moss	87	30	<i>Pleurozium schreberi</i>
	stair-step moss	87	12	<i>Hylocomium splendens</i>
	other mosses	85	8	-
	<i>Sphagnum</i> mosses	62	4	<i>Sphagnum</i> spp.
	knight's plume	47	0.8	<i>Ptilium crista-castrensis</i>
	<i>Dicranum</i> moss	40	0.6	<i>Dicranum</i> spp.
	cup and spike lichens	62	0.5	<i>Cladonia</i> spp.
	other lichens	100	0.8	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	needle litter	91	19	-
	leaf litter	85	9	-
	woody debris	96	8	-
	open water	34	7	-

Ecozonal Synonyms

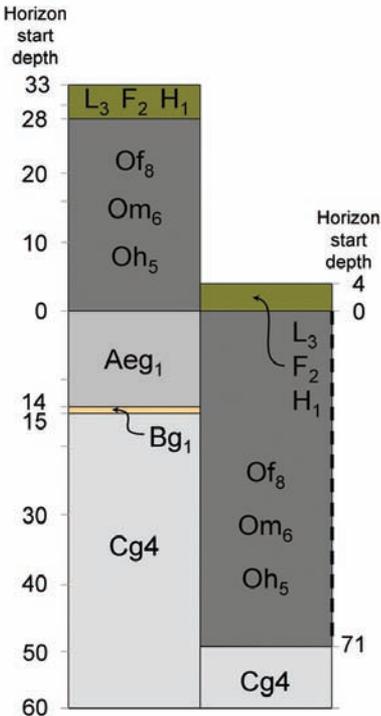
Taiga Shield
NA

Boreal Shield
BS16

Boreal Plain
-

Prairie
NA

Soil Profile



Site Features

Soil Great Group - Order	Humisol Organic ₃ Mesisol Organic ₃ Fibrisol Organic ₂ Gleysol ₁ Humic Gleysol ₁
Parent Material	Organic ₈ Lacustrine ₂
Moisture Regime	Wet ₄ Moderately Wet ₂ Very Moist ₂ Very Wet ₁
Drainage	Very Poor ₉ Poor ₁
Slope	(0-0.5) ₉ (0.5-2) ₁
Topographic Position	Level ₇ Depression ₁ Lower Slope ₁ Toe Slope ₁
Aspect	No Aspect ₉ West ₁
Surface Texture	Organic Fibric ₇
Effective Texture	Organic Humic ₅ Organic Mesic ₃ Organic Fibric ₂

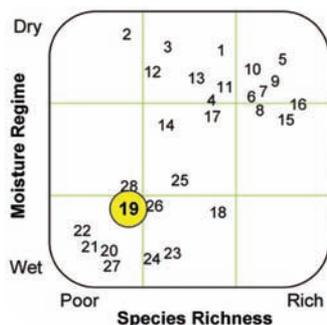
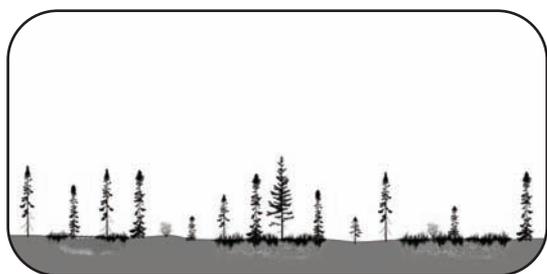
Forest Productivity

	Tree Species					
	bF	bP	bS	tL	wB	wS
Site Index (m at 50 years)	11 ± 33	12.2 ± x	10.2 ± 0.9	15.4 ± 1.4	12 ± 3.3	13.4 ± 5.3
Volume (m ³ /ha)	5.8 ± 73.6	15 ± x	92.3 ± 21.3	95.6 ± 37.7	12.3 ± 25.4	151.7 ± 204.1
MAI (m ³ /ha/yr)	0.13 ± x	0.16 ± x	1.03 ± 0.22	1.34 ± 0.5	0.35 ± 2.09	1.81 ± 2.24
Basal Area (m ² /ha)	1.8 ± 9.3	4.3 ± x	18.3 ± 3.6	14.5 ± 4.5	3.3 ± 6.1	18.6 ± 22.2
Age (years)	52 ± 29	43 ± 89	95 ± 6	72 ± 6	55 ± 12	95 ± 28
Height (m)	9.2 ± 17.2	11.6 ± x	11.8 ± 0.8	14.6 ± 1.2	10.2 ± 7.1	17 ± 4.2
D.B.H. (cm)	10.2 ± 23.8	11.4 ± x	13.1 ± 1	16 ± 1.8	11.8 ± 6.8	25.5 ± 6.9
Density (stems/ha)	200 ± x	400 ± x	1418 ± 329	697 ± 183	275 ± 457	233 ± 184

Ecological Interpretation

BP18 ecosites can be considered an intermediate step between upland and wetland conditions. The diversity of species associated with these sites, high forest productivity, and frequent presence of open water makes them unique. The water visible in these ecosites is often ephemeral and frequently a flow is apparent. Following disturbance these sites may return to their former condition but they may also become shrub dominated depending on the previous presence of alders and willows. In the absence of disturbance little change in their composition and state is expected, except where balsam fir in the understory may grow into a more prominent presence in the canopy.





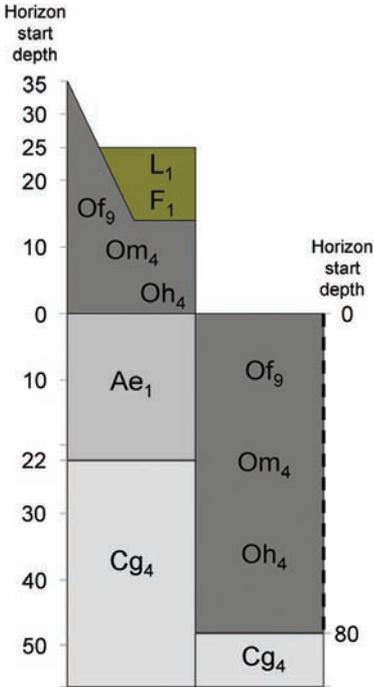
Ecosite Description ($n = 44$)

BP19 ecosites consistently have a somewhat open canopy of all-aged black spruce. Tamarack also occurs on about half of the sites but with relatively little cover. The understory is largely ericaceous shrubs (mostly Labrador tea) and the ground cover is represented by an even distribution of *Sphagnum* moss interspersed with the occasional stair-step moss.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.9)	black spruce	100	24	<i>Picea mariana</i>
	tamarack	50	2	<i>Larix laricina</i>
shrub (5.6)	Labrador tea	98	25	<i>Ledum groenlandicum</i>
	lingonberry	98	7	<i>Vaccinium vitis-idaea</i>
	black spruce	91	10	<i>Picea mariana</i>
	small bog cranberry	86	1	<i>Vaccinium oxycoccos</i>
	northern bog-laurel	57	0.8	<i>Kalmia polifolia</i>
	willows	41	5	<i>Salix</i> spp.
herb (5.4)	cloudberry	70	4	<i>Rubus chamaemorus</i>
	three-leaved false	64	2	<i>Maianthemum trifolium</i>
	Solomon's-seal			
	sedges	45	2	<i>Carex</i> spp.
moss & lichen (25.3)	Schreber's moss	95	21	<i>Pleurozium schreberi</i>
	<i>Sphagnum</i> mosses	93	34	<i>Sphagnum</i> spp.
	other mosses	80	3	-
	<i>Dicranum</i> moss	52	0.5	<i>Dicranum</i> spp.
	stair-step moss	50	7	<i>Hylocomium splendens</i>
	green reindeer lichen	77	4	<i>Cladina mitis</i>
	cup and spike lichens	75	1	<i>Cladonia</i> spp.
	grey reindeer lichen	70	5	<i>Cladina rangiferina</i>
other lichens	100	0.6	-	
ground cover	needle litter	84	5	-
	leaf litter	84	4	-
	woody debris	86	4	-
	open water	9	3	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS9	BS17
Boreal Plain	Prairie
-	NA

Site Features

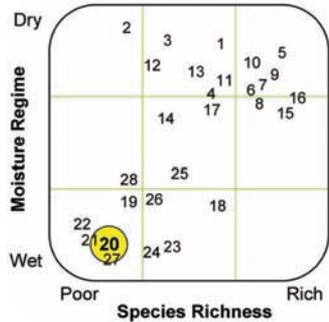
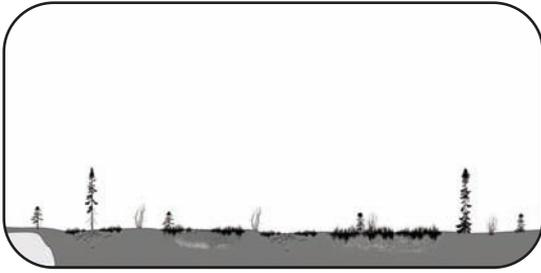
Soil Great Group - Order	Fibrisol Organic ₅ Mesisol Organic ₂ Humisol Organic ₁ Gleysol ₁
Parent Material	Organic ₈ Fluvial ₁
Moisture Regime	Wet ₄ Moderately Wet ₄ Very Moist ₁
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₉
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₈
Effective Texture	Organic Fibric ₅ Organic Humic ₃ Organic Mesic ₂

Forest Productivity

	Tree Species		
	bS	jP	tL
Site Index (m at 50 years)	6 ± 0.6	7.7 ± 14.6	7.4 ± 1.2
Volume (m ³ /ha)	10.6 ± 6.9	1.6 ± 20	0.13 ± x
MAI (m ³ /ha/yr)	0.21 ± 0.1	0.05 ± x	0.7 ± x
Basal Area (m ² /ha)	5.8 ± 2.3	1.3 ± 7.6	2.4 ± 1
Age (years)	95 ± 28	61 ± 5	83 ± 15
Height (m)	7.4 ± 0.5	7.5 ± 3.4	9 ± 2.1
D.B.H. (cm)	9 ± 0.4	9 ± 3	11.8 ± 2.8
Density (stems/ha)	789 ± 263	200 ± 1271	236 ± 96

Ecological Interpretation

Treed bogs are relatively common in the Boreal Plain ecozone. The black spruce on these sites usually represents all ages as the *Sphagnum* moss on the site encourages vegetative reproduction by layering. *Sphagnum* is also a suitable seed bed for spruce germination provided that the moss isn't Girgensohn's or another fast-growing peat moss which can outcompete and smother black spruce germinants. Despite the wet conditions, black spruce can remain free from rot for long periods. In the absence of disturbance these sites will likely remain as a treed bog. Following disturbance, these sites may more closely resemble BP20 or BP22.



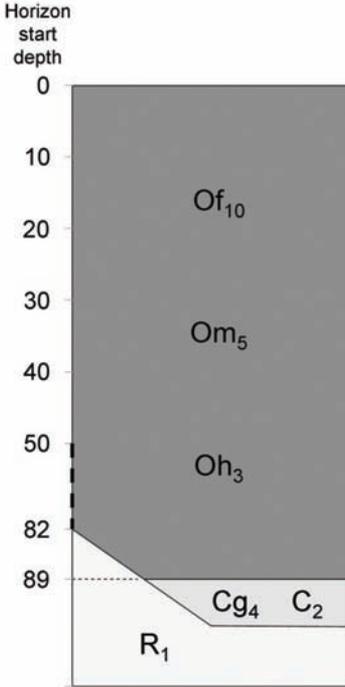
Ecosite Description ($n = 12$)

BP20 ecosites are dominated by a variety of ericaceous shrubs, notably leatherleaf and Labrador tea. Occasionally, black spruce and/or tamarack may occur in tree form (*i.e.* >2 m) but the cover is usually low (*i.e.*, <10%). Aside from the expected absence of trees, shrubby bogs tend to have a greater proportion of *Sphagnum* moss than would be found on treed bogs (BP19).

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.4)	black spruce	58	2	<i>Picea mariana</i>
shrub (5.1)	small bog cranberry	100	3	<i>Vaccinium oxycoccos</i>
	Labrador tea	92	29	<i>Ledum groenlandicum</i>
	leatherleaf	92	16	<i>Chamaedaphne calyculata</i>
	black spruce	75	8	<i>Picea mariana</i>
	lingonberry	58	8	<i>Vaccinium vitis-idaea</i>
	northern bog-laurel	58	2	<i>Kalmia polifolia</i>
herb (3.7)	dwarf bog-rosemary	50	3	<i>Andromeda polifolia</i>
	cloudberry	75	3	<i>Rubus chamaemorus</i>
	three-leaved false Solomon's-seal	50	3	<i>Maianthemum trifolium</i>
	sedges	42	2	<i>Carex</i> spp.
moss & lichen (17.8)	<i>Sphagnum</i> mosses	100	56	<i>Sphagnum</i> spp.
	other mosses	58	2	-
	Schreber's moss	50	6	<i>Pleurozium schreberi</i>
	green reindeer lichen	67	5	<i>Cladina mitis</i>
	cup and spike lichens	58	0.6	<i>Cladonia</i> spp.
ground cover	other lichens	100	0.9	-
	leaf litter	58	8	-
	woody debris	58	2	-
	open water	25	6	-

Soil Profile



Site Features

Soil Great Group - Order	Fibrisol Organic ₈ Mesisol Organic ₂ Gleysol ₁
Parent Material	Organic ₉ Fluvial ₁
Moisture Regime	Wet ₆ Moderately Wet ₂ Very Wet ₁ Very Moist ₁
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₉ Depression ₁
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₉ Sand ₁
Effective Texture	Organic Fibric ₈ Organic Humic ₂ Organic Mesic ₁

Forest Productivity

Tree Species

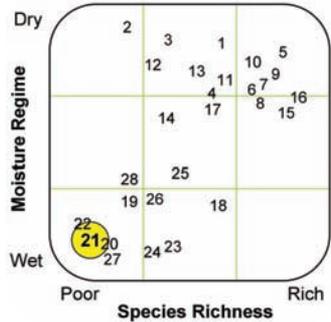
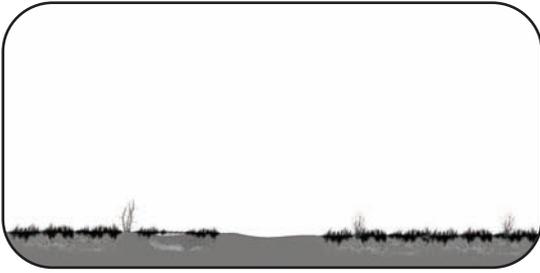
	bS
Site Index (m at 50 years)	8.9 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	0.7 ± x
Age (years)	66 ± 6
Height (m)	7.8 ± 7.8
D.B.H. (cm)	9.7 ± x
Density (stems/ha)	100 ± x

Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS10	BS18
Boreal Plain	Prairie
-	NA

Ecological Interpretation

Shrubby bogs are relatively common in the Boreal Plain ecozone but less so than in other ecozones. Being wetter than treed bogs, they tend to be associated with Fibrisol and Mesisol organic soils orders. Like the other forms of bogs, most of the moisture they receive is the result of precipitation. Shrubby bogs, unlike treed bogs, are more likely to be found on level sites. Since the water table associated with shrubby bogs is usually below the site surface, they are still susceptible to disturbance from fire. Fires with a long enough duration or intensity may kill shrub species and the bog may transition into an open (BP22) or graminoid dominated (BP21) condition.



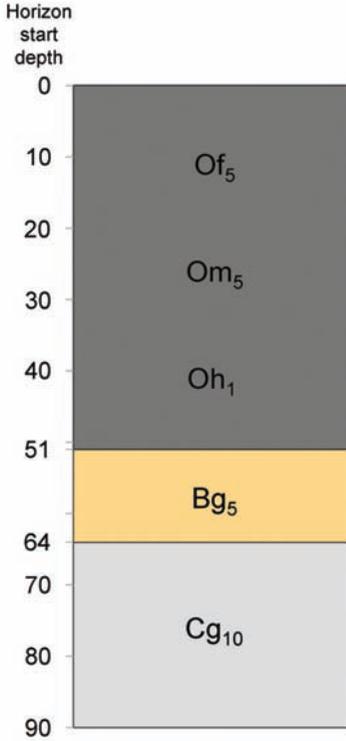
Ecosite Description ($n = 2$)

BP21 ecosites are dominated by sedges and other graminoids in association with *Sphagnum* moss. They typically lack any substantial tree or shrub cover and can occur on mineral or organic substrates.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.0)				
shrub (2.5)	small bog cranberry	50	6	<i>Vaccinium oxycoccos</i>
	Labrador tea	50	3	<i>Ledum groenlandicum</i>
	black spruce	50	3	<i>Picea mariana</i>
	northern bog-laurel	50	3	<i>Kalmia polifolia</i>
	dwarf birch	50	2	<i>Betula pumila</i>
	jack pine	50	0.5	<i>Pinus banksiana</i>
	lingonberry	50	0.3	<i>Vaccinium vitis-idaea</i>
herb (5.0)	water sedge	50	50	<i>Carex aquatilis</i>
	bluejoint grass	50	50	<i>Calamagrostis canadensis</i>
	other grasses	50	20	Graminoid spp.
	other sedges	50	6	<i>Carex</i> spp.
	three-leaved false Solomon's-seal	50	1	<i>Maianthemum trifolium</i>
	cloudberry	50	0.3	<i>Rubus chamaemorus</i>
	wild strawberry	50	0.3	<i>Fragaria virginiana</i>
	tall cotton-grass	50	0.5	<i>Eriophorum angustifolium</i>
	sheathed cotton-grass	50	0.5	<i>Eriophorum vaginatum</i>
	moss & lichen (3.0)	<i>Sphagnum</i> mosses	100	56
other mosses		50	0.3	-
ground cover	leaf litter	100	17	-
	woody debris	100	2	-
	open water	50	0.3	-

Soil Profile



Site Features

Soil Great Group - Order	Fibrisol Organic ₅ Humisol Organic ₅
Parent Material	Organic ₁₀
Moisture Regime	Wet ₅ Moderately Wet ₅
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₅ Organic Mesci ₅
Effective Texture	Organic Fibric ₅ Organic Humic ₅

Ecozonal Synonyms

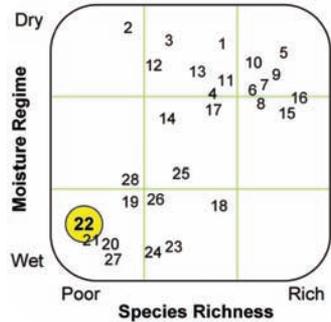
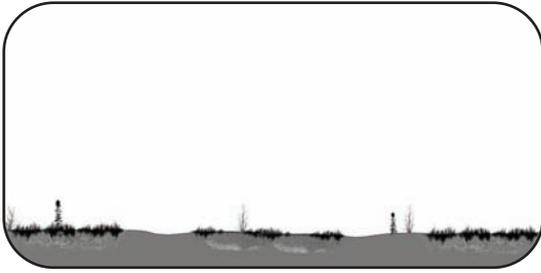
Taiga Shield	Boreal Shield
TS11	BS19
Boreal Plain	Prairie
-	NA

Forest Productivity

none

Ecological Interpretation

Graminoid bogs are infrequently encountered (as indicated by the low sample size). While similar to sedge fens they lack fen species and standing water is not readily seen. Following disturbance by either fire or prolonged flooding, these sites will typically return to their former condition. However, they may revert to an open bog condition until the grasses become re-established. Increased water tables may make these sites more closely resemble a fen condition.



Ecosite Description ($n = 3$)

BP22 ecosites are dominated by *Sphagnum* moss with low cover of trees (<10%), shrubs (<20%), and herbs (<20%). They are typically associated with organic soils.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.3)				
shrub (4.3)	northern bog-laurel	100	0.7	<i>Kalmia polifolia</i>
	small bog cranberry	100	0.4	<i>Vaccinium oxycoccos</i>
	Labrador tea	67	13	<i>Ledum groenlandicum</i>
	leatherleaf	67	6	<i>Chamaedaphne calyculata</i>
	black spruce	67	3	<i>Picea mariana</i>
herb (2.7)	sheathed cotton-grass	67	3	<i>Eriophorum vaginatum</i>
moss & lichen (12.7)	<i>Sphagnum</i> mosses	100	60	<i>Sphagnum</i> spp.
	Schreber's moss	67	0.8	<i>Pleurozium schreberi</i>
	<i>Dicranum</i> moss	67	0.4	<i>Dicranum</i> spp.
	other lichens	100	0.9	-
ground cover	leaf litter	67	5	-
	woody debris	67	3	-
	open water	67	0.9	-

Ecozonal Synonyms

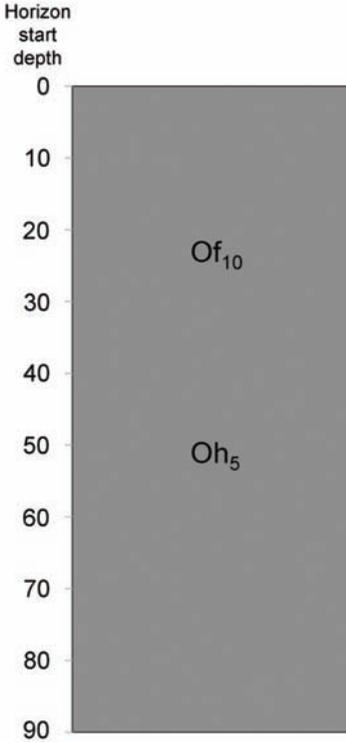
Taiga Shield
TS12

Boreal Shield
BS20

Boreal Plain
-

Prairie
NA

Soil Profile



Site Features

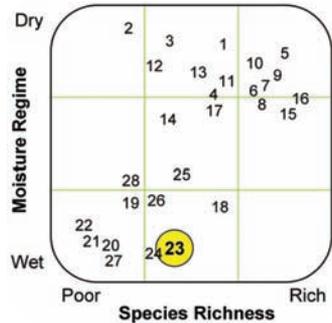
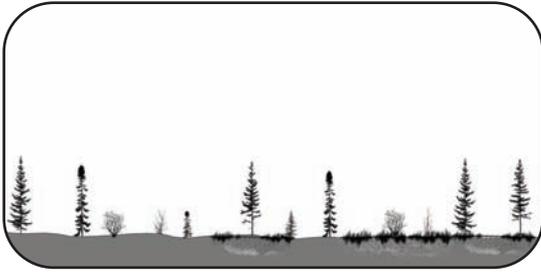
Soil Great Group - Order	Fibrisol Organic ₅ Gleysol ₅
Parent Material	Organic ₇ Fluvial ₃
Moisture Regime	Wet ₇ Very Moist ₃
Drainage	Very Poor ₇ Imperfect ₃
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₇ Sand ₃
Effective Texture	Organic Humic ₇ Sand ₃

Forest Productivity

none

Ecological Interpretation

Open *Sphagnum* bogs are infrequently encountered (as indicated by the low sample size) in the Boreal Plain ecozone. They tend to occur within treed or shrubby bogs (BP19 & BP20 respectively) which is why they more closely resemble those ecosites rather than graminoid bogs (BP21). Open bogs also tend to be wetter than their surrounding conditions. Over time, these ecosites could be expected to become a shrubby or treed bog.



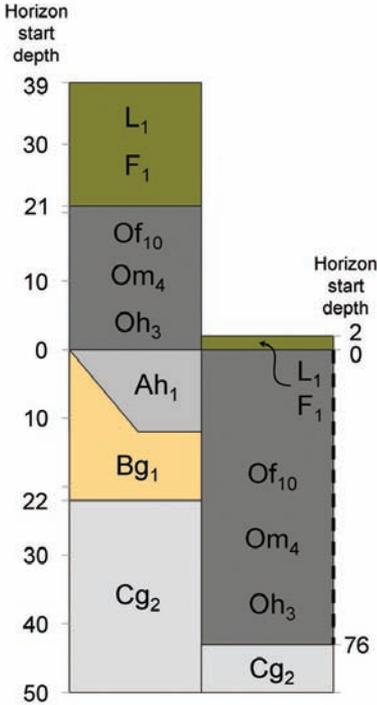
Ecosite Description ($n = 14$)

Tamarack is the predominant tree species on BP23 ecosites although black spruce may also occur, but in lesser amounts. Many of the shrub and herb species encountered in fens are commonly associated with wet conditions. It is not uncommon for tamarack treed fens to have a water table at or near the surface. Treed fen ecosites may occur on organic soils or they may have a mineral soil substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.2)	tamarack	100	15	<i>Larix laricina</i>
	black spruce	92	10	<i>Picea mariana</i>
shrub (5.7)	willows	100	7	<i>Salix</i> spp.
	Labrador tea	85	5	<i>Ledum groenlandicum</i>
	dwarf birch	77	5	<i>Betula pumila</i>
	small bog cranberry	69	4	<i>Vaccinium oxycoccos</i>
	black spruce	69	4	<i>Picea mariana</i>
	lingonberry	69	3	<i>Vaccinium vitis-idaea</i>
	tamarack	54	2	<i>Larix laricina</i>
herb (9.9)	sedges	77	7	<i>Carex</i> spp.
	three-leaved false	77	6	<i>Maianthemum trifolium</i>
	Solomon's-seal	62	1	<i>Comarum palustre</i>
	marsh cinquefoil	62	1	<i>Comarum palustre</i>
moss & lichen (13.6)	<i>Sphagnum</i> mosses	92	22	<i>Sphagnum</i> spp.
	other mosses	92	10	-
	Schreber's moss	62	5	<i>Pleurozium schreberi</i>
	stair-step moss	46	4	<i>Hylocomium splendens</i>
	other lichens	100	1	-
ground cover	needle litter	77	5	-
	leaf litter	92	23	-
	woody debris	92	5	-
	open water	62	11	-

Soil Profile



Site Features

Soil Great Group - Order	Fibrisol Organic ₅ Mesisol Organic ₃ Gleysol ₂
Parent Material	Organic ₈ Lacustrine ₁ Fluvial ₁
Moisture Regime	Wet ₄ Very Wet ₃ Very Moist ₂ Moderately Wet ₁
Drainage	Very Poor ₉ Poor ₁
Slope	(0-0.5) ₁₀
Topographic Position	Level ₈ Depression ₂
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₈ Sandy Clay Loam ₁ Silty Clay Loam ₁
Effective Texture	Organic Fibric ₆ Organic Mesic ₂ Organic Humic ₂

Ecozonal Synonyms

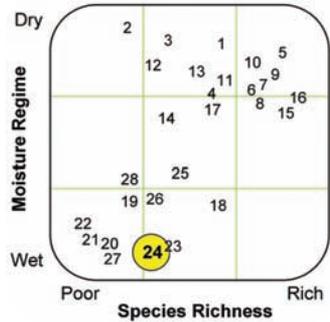
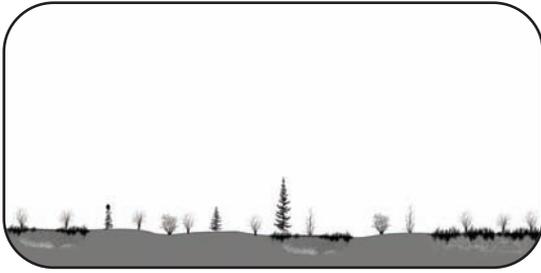
Taiga Shield	Boreal Shield
TS13	BS21
Boreal Plain	Prairie
-	NA

Forest Productivity

	Tree Species	
	bS	tL
Site Index (m at 50 years)	8.5 ± 2.7	8.1 ± 2.2
Volume (m ³ /ha)	9 ± 8.3	18.2 ± 18.6
MAI (m ³ /ha/yr)	0.16 ± 0.09	0.28 ± 0.29
Basal Area (m ² /ha)	3.5 ± 2.7	7.5 ± 4.2
Age (years)	84 ± 15	86 ± 16
Height (m)	8 ± 1.5	8.5 ± 2
D.B.H. (cm)	10.4 ± 1.5	11.7 ± 2.3
Density (stems/ha)	350 ± 218	763 ± 589

Ecological Interpretation

Tamarack treed fens are typically not as common as black spruce treed bogs (BP19). They tend to occur in association with shrubby fens (BP24) and resemble ribbons in the landscape along drainage ways. Following disturbance, these ecosites could be expected to become shrubby fens (BP24). In the absence of disturbance, these ecosites will likely remain in their current condition.



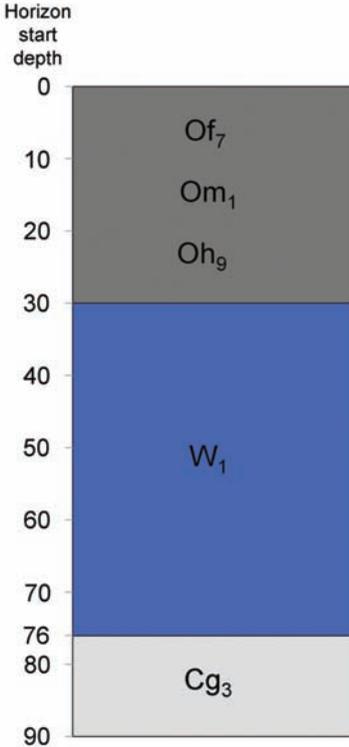
Ecosite Description (n = 9)

Leatherleaf, dwarf birch, and dwarf bog-rosemary are the dominant shrub species on this ecosite. Scattered tamarack or black spruce may also occur. Many of the shrub and herb species encountered in fens are commonly associated with wetter conditions than those found in bogs. It is not uncommon for shrubby fens to have a water table at or near the surface. Shrubby fen ecosites usually occur on organic soils.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.8)	tamarack	78	3	<i>Larix laricina</i>
shrub (6.2)	dwarf birch	100	10	<i>Betula pumila</i>
	leatherleaf	89	37	<i>Chamaedaphne calyculata</i>
	willows	89	7	<i>Salix</i> spp.
	black spruce	78	2	<i>Picea mariana</i>
	dwarf bog-rosemary	67	12	<i>Andromeda polifolia</i>
	Labrador tea	67	3	<i>Ledum groenlandicum</i>
	small bog cranberry	67	1	<i>Vaccinium oxycoccos</i>
	tamarack	56	1	<i>Larix laricina</i>
herb (7.4)	swamp horsetail	78	2	<i>Equisetum fluviatile</i>
	marsh cinquefoil	67	1	<i>Comarum palustre</i>
	sedges	56	2	<i>Carex</i> spp.
	three-leaved false	56	2	<i>Maianthemum trifolium</i>
	Solomon's-seal			
moss & lichen (11.6)	<i>Sphagnum</i> mosses	100	29	<i>Sphagnum</i> spp.
	other mosses	78	9	-
	other lichens	100	0.6	-
ground cover	needle litter	67	2	-
	leaf litter	89	17	-
	woody debris	100	4	-
	open water	89	10	-

Soil Profile



Ecozonal Synonyms

Taiga Shield	Boreal Shield
TS14	BS22
Boreal Plain	Prairie
-	NA

Site Features

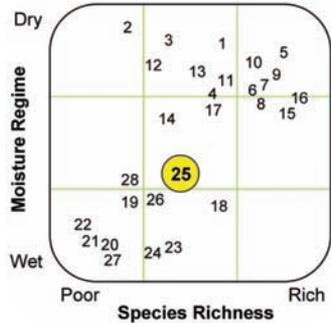
Soil Great Group - Order	Fibrisol Organic ₆ Mesisol Organic ₃ Gleysol ₁
Parent Material	Organic ₉ Fluvial ₁
Moisture Regime	Wet ₆ Moderately Wet ₂ Very Wet ₂
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₈ Depression ₂
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Fibric ₈ Organic Mesic ₂

Forest Productivity

	Tree Species
	tL
Site Index (m at 50 years)	8.9 ± x
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	1.4 ± x
Age (years)	54 ± 13
Height (m)	7.5 ± x
D.B.H. (cm)	9.4 ± x
Density (stems/ha)	200 ± x

Ecological Interpretation

Leatherleaf shrubby poor fens are similar to tamarack treed fen (BP23) conditions and frequently occur adjacent to them. However, leatherleaf shrubby poor fens tend to be wetter than treed fens, and as such, will have lesser amounts of lingonberry and Schreber’s moss but a higher proportion of swamp horsetail. Following disturbance, these ecosites could be expected to return to a shrubby fen condition or possibly to a BP26 or BP27 condition. As with all fens, the water on these sites is largely of ground water origin and relatively mineral-rich.



Ecosite Description (n = 28)

BP25 ecosites have characteristically high cover values of willow. The typical willows associated with this site are pussy willow and flat-leaved willow. Other shrubs that may be found on the site include dwarf birch, northern gooseberry, northern red current and alder-leaved buckthorn. Shrubby rich fens also tend to have more open water at the surface than shrubby poor fens (BP24). In the Boreal Plain ecozone, willow shrubby rich fens commonly occur on organic soils.

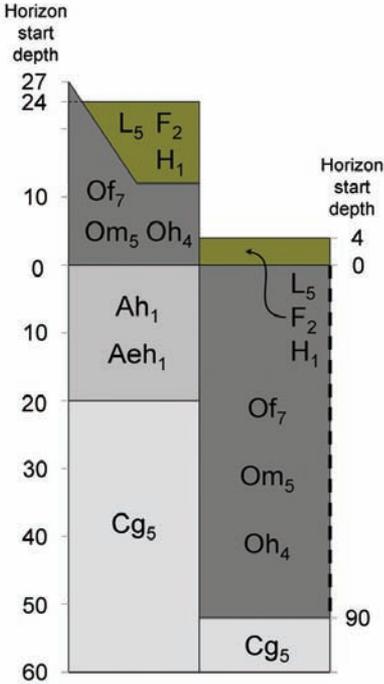
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.0)				
shrub (4.6)	willows	93	39	<i>Salix</i> spp.
herb (13.2)	sedges	71	13	<i>Carex</i> spp.
	small bedstraw	54	0.4	<i>Galium trifidum</i>
	marsh cinquefoil	50	2	<i>Comarum palustre</i>
	grasses	46	22	Graminoid spp.
	arrow-leaved coltsfoot	39	2	<i>Petasites sagittatus</i>
	dwarf raspberry	39	2	<i>Rubus arcticus</i>
moss & lichen (14.4)	other mosses	82	14	-
	other lichens	100	1	-
ground cover	leaf litter	93	45	-
	woody debris	82	9	-
	open water	32	23	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	BS23	-	NA

Soil Profile



Site Features

Soil Great Group - Order	Fibrisol Organic ₂ Mesisol Organic ₂ Humisol Organic ₂ Gleysol ₁
Parent Material	Organic ₇ Fluvial ₂ Morainal ₁
Moisture Regime	Wet ₃ Moderately Wet ₂ Very Moist ₂ Very Wet ₂
Drainage	Very Poor ₈ Poor ₁ Imperfect ₁
Slope	(0-0.5) ₉ (2-5) ₁
Topographic Position	Level ₈ Depression ₂
Aspect	No Aspect ₉
Surface Texture	Organic Fibric ₃ Organic Mesic ₁ Organic Humic ₁ Sand ₃ Sandy Clay Loam ₁ Loam ₁ Clay Loam ₁ Silty Clay Loam ₁
Effective Texture	Organic Humic ₄ Organic Fibric ₃ Organic Mesic ₂

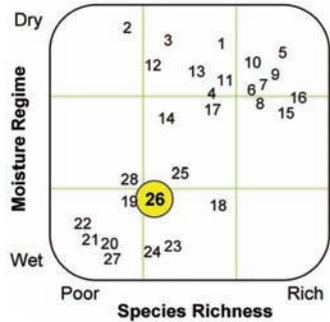
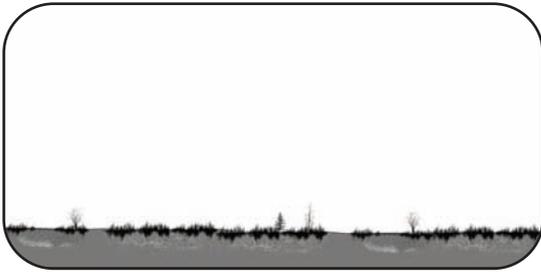
Forest Productivity

	Tree Species			
	bS	tL	wB	wS
Site Index (m at 50 years)	10.9 ± x	-	8.3 ± 8.6	9.5 ± x
Volume (m ³ /ha)	-	-	-	-
MAI (m ³ /ha/yr)	-	-	-	0.4 ± x
Basal Area (m ² /ha)	0.5 ± x	0.5 ± x	1 ± 3.9	6.5 ± x
Age (years)	101 ± 51	27 ± x	64 ± 111	92 ± 90
Height (m)	5.2 ± x	5.5 ± x	6.3 ± 13.3	13.1 ± x
D.B.H. (cm)	7.6 ± x	7.7 ± x	9.3 ± 1.9	20 ± x
Density (stems/ha)	100 ± x	100 ± x	150 ± 635	200 ± x

Ecological Interpretation

Willow shrubby rich fens differ considerably from leatherleaf shrubby poor fens (BP24). Rich fen ecosites often occur adjacent to streams and lakes. They may also occur as part of a swale or draw. In the absence of disturbance these ecosites are self-sustaining. Following disturbance they will likely return to their former composition or may more closely resemble an open fen (BP27) condition.





Ecosite Description (*n* = 9)

Graminoid or sedge fens often support various sedge species (e.g., beaked sedge) and sometimes marsh reed grasses. They generally lack tree and shrub cover. Graminoid fens usually have water at or near the surface which accounts for the presence of water smartweed, yellow marsh marigold, and marsh skullcap. While graminoid fen ecosites are usually associated with organic soils, they may also occur with mineral substrates.

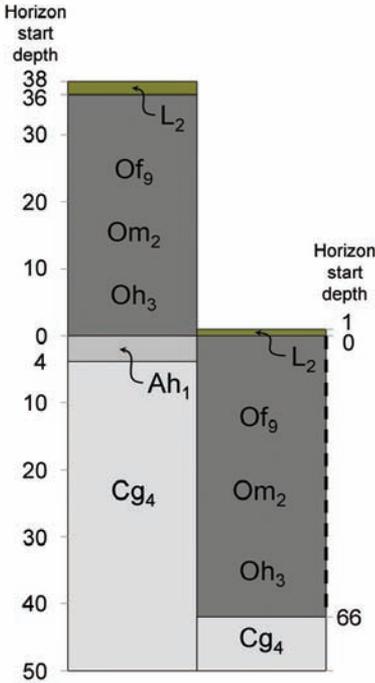
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.8)				
shrub (3.7)	willows	100	2	<i>Salix</i> spp.
	tamarack	44	3	<i>Larix laricina</i>
	dwarf birch	33	1	<i>Betula pumila</i>
herb (11.2)	sedges	56	20	<i>Carex</i> spp.
	grasses	56	5	Graminoid spp.
	small bedstraw	44	0.5	<i>Galium trifidum</i>
moss & lichen (8.4)	other mosses	89	10	-
	other lichens	100	0.5	-
ground cover	leaf litter	56	37	-
	open water	44	39	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
TS15	BS24	-	PR9

Soil Profile



Forest Productivity

Tree Species

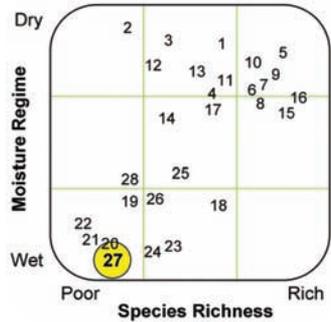
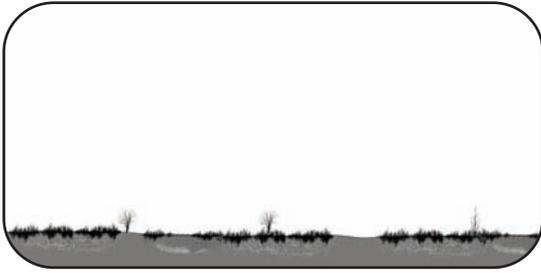
	tL
Site Index	-
(m at 50 years)	-
Volume (m ³ /ha)	-
MAI (m ³ /ha/yr)	-
Basal Area (m ² /ha)	0.5 ± x
Age (years)	56 ± x
Height (m)	4.6 ± x
D.B.H. (cm)	7.6 ± x
Density (stems/ha)	100 ± x

Site Features

Soil Great Group - Order	Gleysol ₄ Fibrisol Organic ₂ Mesisol Organic ₂ Humisol Organic ₁
Parent Material	Organic ₆ Fluvial ₂ Lacustrine ₂
Moisture Regime	Very Moist ₄ Very Wet ₃ Moderately Wet ₂
Drainage	Very Poor ₉ Poor ₁
Slope	(0-0.5) ₁₀
Topographic Position	Level ₉ Depression ₁
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₆ Loamy Sand ₁ Silt ₁ Silty Clay Loam ₁
Effective Texture	Organic Humic ₄ Organic Fibric ₃ Organic Mesic ₂

Ecological Interpretation

Graminoid (sedge) fens are occasionally found across the Boreal Plain ecozone. They are often in close proximity to lake shorelines but can also form a relatively continuous wet meadow. These sites deviate little from their original condition either in the presence of or absence from disturbance.



Ecosite Description (n = 8)

Open fens are conspicuous by the lack of any dominant form of vegetation with the exception of mosses. It is not uncommon for open fens to exhibit many of the vegetation species found in adjacent ecosites. However, while the diversity of species may be relatively high, the cover values are low. In terms of substrate, open fens can occur with either a mineral or organic substrate.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.6)				
shrub (4.0)	willows	87	3	<i>Salix</i> spp.
	dwarf birch	75	2	<i>Betula pumila</i>
	small bog cranberry	50	0.9	<i>Vaccinium oxycoccos</i>
herb (6.1)	sedges	87	2	<i>Carex</i> spp.
	marsh cinquefoil	50	1	<i>Comarum palustre</i>
	three-leaved false	50	0.8	<i>Maianthemum trifolium</i>
	Solomon's-seal			
moss & lichen (6.6)	<i>Sphagnum</i> mosses	50	62	<i>Sphagnum</i> spp.
	other mosses	75	37	-
	other lichens	100	0.5	-
ground cover	leaf litter	100	48	-
	woody debris	100	2	-
	open water	50	4	-

Ecozonal Synonyms

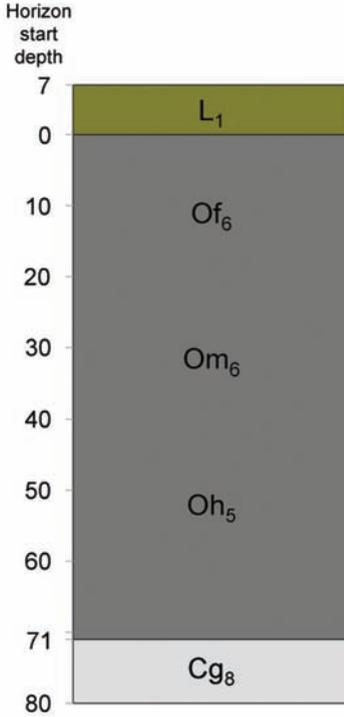
Taiga Shield
TS16

Boreal Shield
BS25

Boreal Plain
-

Prairie
NA

Soil Profile



Site Features

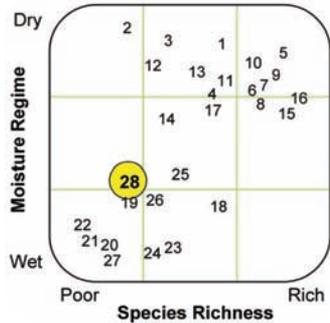
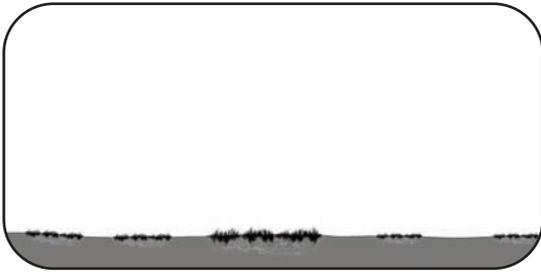
Soil Great Group - Order	Fibrisol Organic ₅ Mesisol Organic ₄ Gleysol ₁
Parent Material	Organic ₉ Fluvial ₁
Moisture Regime	Wet ₄ Very Wet ₄ Moderately Wet ₂
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Organic Fibric ₁₀
Effective Texture	Organic Fibric ₅ Organic MesiC ₄ Organic Humic ₁

Forest Productivity

none

Ecological Interpretation

While open fens appear uncommon across the Boreal Plain ecozone (as indicated by low sample size numbers) this is an artifact of their existence as small pockets nested within other fen ecosites. Rarely do open fens exist as large expanses. Following disturbance, these ecosites could be expected to return to open fens, but over time, it is likely that they would become part of the more extensive adjacent fen ecosite types.



Ecosite Description (n = 21)

BP28 ecosites commonly contain a variety of graminoid and small herbaceous species, including reed grass, seaside arrow-grass, water sedge, awned sedge, and foxtail barley. The substrate for BP28 ecosites can be either organic or mineral soil.

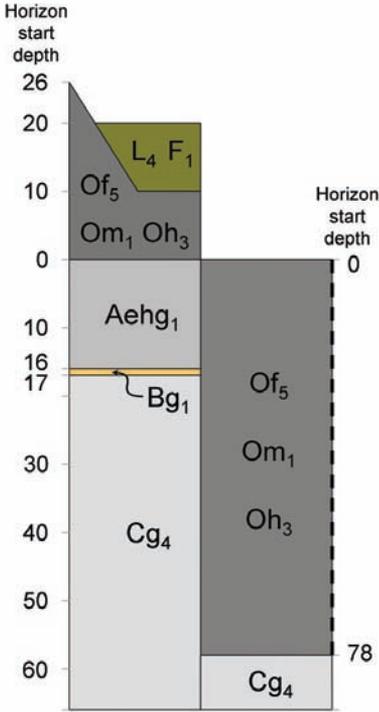
Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.3)				
shrub (0.7)				
herb (11.8)	narrow reed grass	52	7	<i>Calamagrostis stricta</i>
	wild mint	52	2	<i>Mentha arvensis</i>
	seaside arrow-grass	43	19	<i>Triglochin maritimum</i>
	small bedstraw	43	3	<i>Galium trifidum</i>
	marsh skullcap	43	2	<i>Scutellaria galericulata</i>
	water sedge	38	10	<i>Carex aquatilis</i>
	foxtail barley	38	7	<i>Hordeum jubatum</i>
moss & lichen (3.6)	awned sedge	33	24	<i>Carex atherodes</i>
	other mosses	57	34	-
ground cover	leaf litter	81	71	-
	open water	19	3	-

Ecozonal Synonyms

Taiga Shield	Boreal Shield	Boreal Plain	Prairie
NA	NA	-	NA

Soil Profile



Forest Productivity

none

Site Features

Soil Great Group - Order	Gleysol ₄ Fibrisol Organic ₂ Mesisol Organic ₂ Humisol Organic ₁ Humic Gleysol ₁
Parent Material	Organic ₅ Lacustrine ₂ Morainal ₂ Fluvial ₁
Moisture Regime	Very Moist ₅ Moderately Wet ₃ Wet ₁
Drainage	Poor ₅ Very Poor ₅
Slope	(0-0.5) ₈ (0.5-2) ₁ (2-5) ₁
Topographic Position	Level ₆ Depression ₂ Mid-Slope ₁
Aspect	No Aspect ₁₀ North ₂
Surface Texture	Organic Fibric ₃ Organic Mesci ₁ Clay Loam ₂ Silty Clay Loam ₂
Effective Texture	Organic Humic ₄ Organic Mesci ₃ Organic Fibric ₂

Ecological Interpretation

Seaside arrow-grass marshes are commonly described as meadow marshes owing to their abundance of grasses and sedges. These ecosystems are very species diverse and it is not uncommon to encounter water hemlock, common cattail, stinging nettle, or curled dock (an introduced species) on these sites. These ecosystems often occur at the margins of small ponds and are affected by changes in water level that lead to alterations in species composition as water-loving species come and go with the fluctuating moisture regime.

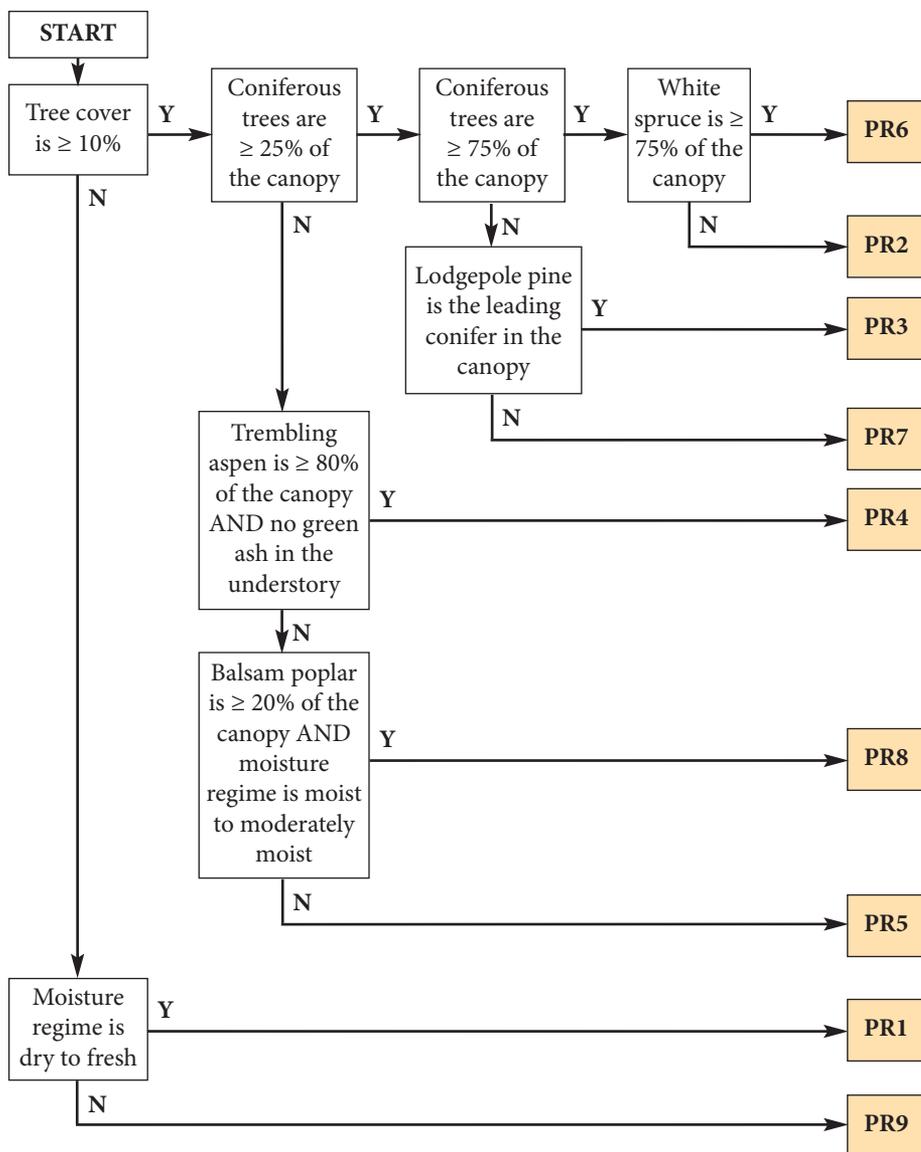


6.4 PRAIRIE

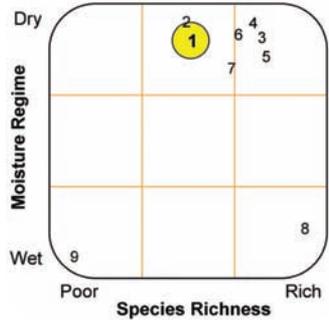
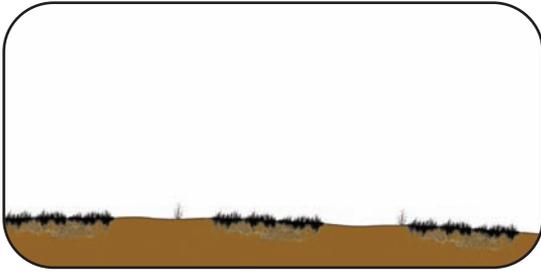
Keys & Fact Sheets

Ecosites of the Prairie

- PR1 - Plains rough fescue - timber oatgrass grassland: Fresh silty clay loam
- PR2 - Lodgepole pine / grass: Fresh sandy clay
- PR3 - Trembling aspen - lodgepole pine / bearberry: Fresh clay loam
- PR4 - Trembling aspen / bearberry / strawberry: Fresh clay loam
- PR5 - Trembling aspen / beaked hazel / sarsaparilla: Fresh silty clay
- PR6 - White spruce / grass / other mosses: Fresh silty clay
- PR7 - Trembling aspen - white spruce / western snowberry: Fresh silty clay
- PR8 - Balsam poplar - trembling aspen - green ash: Very moist silty clay loam
- PR9 - Graminoid fen: Very moist clay

Prairie Ecosites Key





Ecosite Description (n = 10)

PR1 ecosites are restricted to the benchlands of the Cypress Hills and are unique in the province. Their closest floristic affinities are with the montane fescue grasslands of the Alberta foothills. These ecosites are typically dominated by plains rough fescue with a strong showing of timber oatgrass and several wheatgrasses. The montane element of the flora consists of relatively rare species with less than 40% constancy, including silvery lupine, Wyoming kitten-tails, Idaho fescue, sticky purple geranium, western spring beauty, and others. Shrubby cinquefoil and prickly rose are the most common shrubs but low prairie rose and western snowberry are also present in some stands.

Characteristic Species

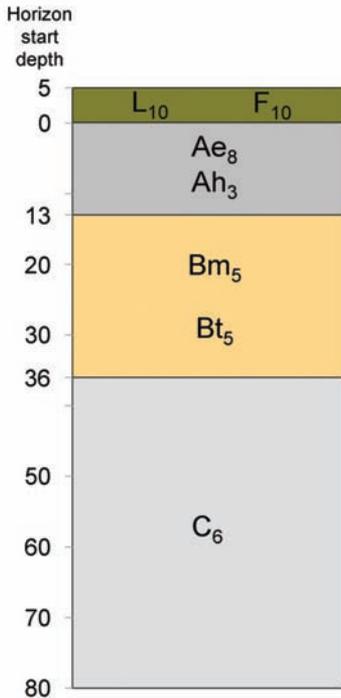
Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (0.0)				
shrub (1.8)	shrubby cinquefoil	60	5	<i>Dasiphora fruticosa</i>
	prickly rose	40	2	<i>Rosa acicularis</i>
herb (19.6)	plains rough fescue	100	57	<i>Festuca altaica</i>
	timber oat-grass	100	11	<i>Danthonia intermedia</i>
	bluebell	100	5	<i>Campanula rotundifolia</i>
	common yarrow	100	2	<i>Achillea millefolium</i>
	sedges	90	2.8	<i>Carex</i> spp.
	golden-bean	80	2	<i>Thermopsis rhombifolia</i>
	awned wheatgrass	80	0.7	<i>Elymus trachycaulus</i>
	northern bedstraw	70	2	<i>Galium boreale</i>
	northern wheatgrass	70	1	<i>Elymus lanceolatus</i>
	nodding onion	60	0.3	<i>Allium cernuum</i>
	great-flowered gaillardia	60	0.3	<i>Gaillardia aristata</i>
	cut-leaved anemone	50	1	<i>Anemone multifida</i>
	asters	50	0.7	<i>Aster</i> spp.
Hooker's oat-grass	50	0.4	<i>Avenula hookeri</i>	
low whitlow-wort	40	5	<i>Paronychia sessiliflora</i>	

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.6)	three-flowered avens	40	2	<i>Geum triflorum</i>
	alpine <i>Hedysarum</i>	40	1	<i>Heysarum alpinum</i>
	small-leaved pussytoes	40	0.9	<i>Antennaria microphylla</i>
	American vetch	40	0.6	<i>Vicia americana</i>
	pasture sagewort	40	0.4	<i>Artemisia frigida</i>
	smooth fleabane	40	0.1	<i>Erigeron glabellus</i>

moss & lichen
(1.8)

ground cover

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₅ Eutric Brunisol ₃ Black Chernozem ₂
Parent Material	Glacio-fluvial ₈ Glacio-lacustrine ₂
Moisture Regime	Fresh ₁₀
Drainage	Well ₁₀
Slope	(0.5-2) ₄ (5-9) ₂ (9-15) ₂ (0-0.5) ₁ (>30) ₁
Topographic Position	Upper Slope ₅ Mid-Slope ₃ Lower Slope ₁ Level ₁
Aspect	North ₄ South ₃ West ₂ East ₁
Surface Texture	Loam ₃ Silty Loam ₃ Silty Sand ₁ Silt ₁ Silty Clay Loam ₁ Clay Loam ₁
Effective Texture	Silty Clay Loam ₃ Clay Loam ₂ Silty Loam ₂

Ecozonal Synonyms

Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
BP1	-

Site Features

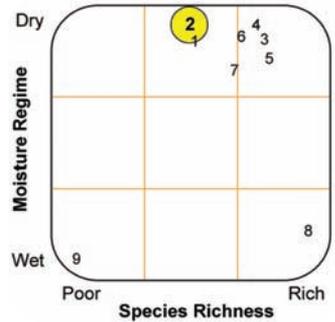
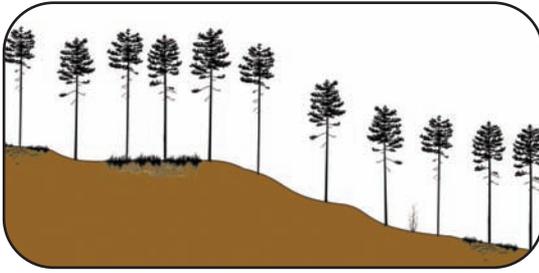
Effective Texture	Silt ₁
	Silty Clay ₁
	Sandy Clay ₁
	Sand ₁

Forest Productivity

none

Ecological Interpretation

These ecosites are well drained, fresh sites and not conducive to the maintenance of tree growth. Historically, they probably burned every 25 to 50 years - fire effectively precluding the succession to woody cover. However, in the absence of fire or mowing, trembling aspen, lodgepole pine, and white spruce will tend to ingress and slowly convert the grassland into a savannah or low-density forest stand (either PR4 or PR6). These sites also become progressively shrubbier in the absence of periodic burning or mowing. Most of the sampled soils were indicative of soil development under tree canopies (e.g., Luvisols and Brunisols), indicating that the grassland vegetation has come to occupy formerly treed sites over the last few centuries. The presence of true grassland soils (i.e., Chernozems), on a minority of these sites, demonstrates that grassland vegetation has occupied some of these sites for a very long time.



Ecosite Description ($n = 13$)

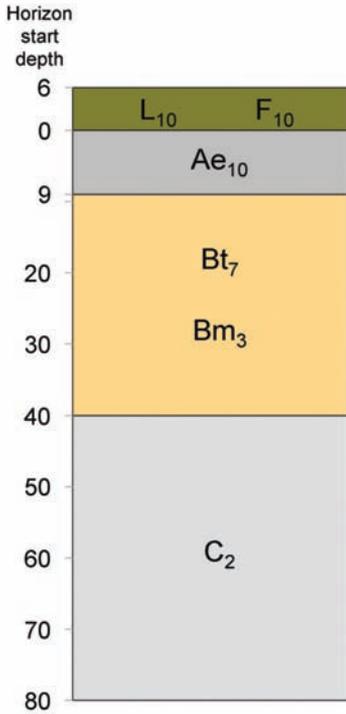
Lodgepole pine does not naturally occur anywhere else in Saskatchewan but the west and centre blocks of the Cypress Hills (and to a very small extent in the east block of the hills). The trees grow well on these fresh but often cobble-rich Gray Luvisol or less frequently, Eutric Brunisol soils. White spruce and trembling aspen are minor canopy components that increase in importance in the absence of stand-replacing fires. The last extensive forest fire in the hills was in the 1880s, so most stands of pine are over 120 years old, though difficult to age because of rot in the heartwood. Grasses are often an important understory element but some stands, especially on north-facing slopes, may have little but pine needles on the forest floor. Bearberry and Saskatoon are the most common shrubs. This ecosite has close floristic similarities with the montane lodgepole pine forests of the Canadian Rockies. Some of the characteristically montane species are sporadic or rare in occurrence - mountain lady's-slipper and spike trisetum - but others, such as pine-drops and pine-sap, are locally common.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.5)	lodgepole pine	100	60	<i>Pinus contorta</i>
shrub (5.0)	bearberry	69	9	<i>Arctostaphylos uva-ursi</i>
	prickly rose	69	1	<i>Rosa acicularis</i>
	Saskatoon	54	7	<i>Amelanchier alnifolia</i>
	common juniper	54	2	<i>Juniperus communis</i>
	common snowberry	46	2	<i>Symphoricarpos albus</i>
herb (14.5)	northern bedstraw	84	0.8	<i>Galium boreale</i>
	grasses	69	34	Graminoid spp.
	wild strawberry	54	7	<i>Fragaria virginiana</i>
	small-leaved	54	2	<i>Antennaria microphylla</i>
	pussytoes			
	bluebell	54	0.9	<i>Campanula rotundifolia</i>
	western Canada violet	46	3	<i>Viola canadensis</i>
smooth sweet-cicely	46	0.8	<i>Osmorhiza longistylis</i>	
moss & lichen (8.1)	other mosses	54	0.8	-
	other lichens	100	1	-

Layer (Richness)	Common name	% constancy	% cover	Latin name
ground cover	needle litter	100	70	-
	woody debris	92	7	-
	leaf litter	54	8	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₇ Eutric Brunisols
Parent Material	Glacio-fluvial ₉ Morainah ₁
Moisture Regime	Fresh ₇ Moderately Fresh ₁ Moderately Dry ₁
Drainage	Well ₉ Rapid ₁
Slope	(15-30) ₃ (9-15) ₃ (>30) ₁ (5-9) ₁ (2-5) ₁ (0.5-2) ₁ (0-0.5) ₁
Topographic Position	Upper Slope ₃ Mid-Slope ₄ Lower Slope ₁
Aspect	South ₃ West ₃ North ₂ East ₂
Surface Texture	Silty Loam ₃ Loam ₃ Loamy Sand ₂ Sandy Loam ₁
Effective Texture	Sandy Clay ₄ Clay Loam ₃ Silty Clay ₂ Loam ₁ Sandy Clay Loam ₁

Ecozonal Synonyms

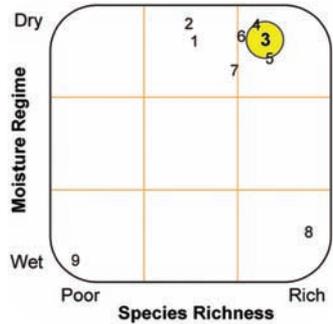
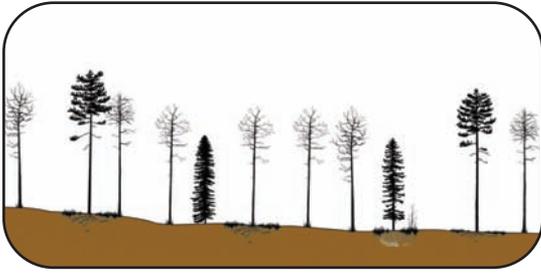
Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
NA	-

Forest Productivity

	Tree Species	
	IP	wS
Site Index (m at 50 years)	14.6 ± 2.3	14.1 ± x
Volume (m ³ /ha)	281.5 ± 80.5	8.4 ± x
MAI (m ³ /ha/yr)	3.6 ± x	0.11 ± x
Basal Area (m ² /ha)	39.5 ± 11.6	2.1 ± x
Age (years)	-	78 ± 6
Height (m)	15.6 ± 1.7	11 ± x
D.B.H. (cm)	27.1 ± 3.9	16.3 ± x
Density (stems/ha)	708 ± 291	100 ± x

Ecological Interpretation

These ecosites show vigorous regeneration to lodgepole pine after stand-replacing fires or clear-cut logging followed by timely scarification. The sites are very problematic to plant because of the dense packing of large cobbles in the A and B horizons. Mature stands of lodgepole pine on these sites are likely to be replaced by white spruce or trembling aspen in the absence of stand-regenerating crown fire or logging. Stand density and stand height at maturity are largely functions of stocking following fire, and subsequent stand development, and are not principally due to underlying differences in site quality. Some of the most common understory species of these sites are similar in character to the lesser vegetation common in jack pine or jack pine-trembling aspen stands of the Boreal Plains ecozone but those forests cannot be considered synonymous to PR2 because of the absence of lodgepole pine and the lack of montane floristic elements.



Ecosite Description (n = 3)

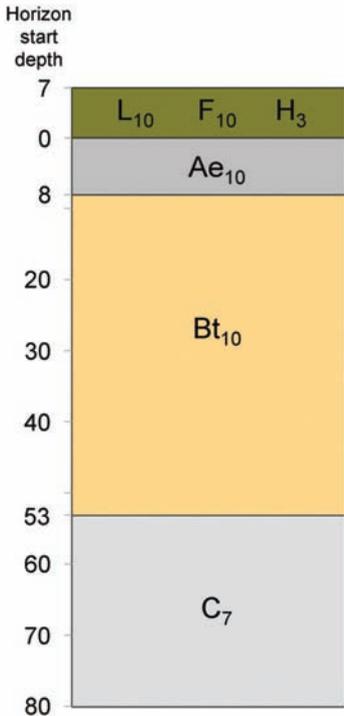
This mixedwood ecosite is dominated by trembling aspen with a smaller, but ubiquitous coniferous component usually led by lodgepole pine and followed by white spruce. Bearberry, common snowberry, and prickly rose are the leading shrubs. Herb and shrub species richness is relatively high. While wild strawberry, American vetch, and creamy peavine are the most prominent forbs, a variety of grass species often dominate the ground cover. The montane influence in this component of the Cypress Hills vegetation is reflected in the presence of sticky purple geranium and silvery lupine. The heavy leaf litter confines moss and lichen growth to tree trunks and branches and downed wood and stumps. Tree growth is good on the predominantly silty-loam, Gray Luvisol soils of these relatively level sites.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.0)	trembling aspen	100	40	<i>Populus tremuloides</i>
	lodgepole pine	100	14	<i>Pinus contorta</i>
	white spruce	100	5	<i>Picea glauca</i>
shrub (7.0)	bearberry	100	14	<i>Arctostaphylos uva-ursi</i>
	western snowberry	100	5	<i>Symphoricarpos accidentalis</i>
	prickly rose	100	3	<i>Rosa acicularis</i>
	trembling aspen	100	0.7	<i>Populus tremuloides</i>
	Canada buffaloberry	67	12	<i>Shepherdia canadensis</i>
	white spruce	67	0.9	<i>Picea glauca</i>
herb (20.3)	wild strawberry	100	5	<i>Fragaria virginiana</i>
	American vetch	100	4	<i>Vicia americana</i>
	creamy peavine	100	3	<i>Lathyrus ochroleucus</i>
	northern bedstraw	100	0.8	<i>Galium boreale</i>
	western Canada violet	100	0.7	<i>Viola canadensis</i>
	common yarrow	100	0.3	<i>Achillea millefolium</i>
	grasses	67	39	Graminoid spp.
	fairybells	67	6	<i>Prosartes trachycarpum</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (20.3)	purple oat grass	67	3	<i>Schizachne purpurascens</i>
	spreading sweet-cicely	67	0.9	<i>Osmorhiza depauperata</i>
	bluebell	67	0.3	<i>Campanula rotundifolia</i>
	star-flowered Solomon's-seal	67	0.3	<i>Maianthemum stellatum</i>
moss & lichen (6.7)	other mosses	67	0.3	-
	other lichens	100	1	-
ground cover	needle litter	100	22	-
	leaf litter	100	7	-
	woody debris	100	2	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₁₀
Parent Material	Glacio-fluvial ₁₀
Moisture Regime	Fresh ₁₀
Drainage	Well ₁₀
Slope	(0-0.5) ₃ (0.5-2) ₃ (2-5) ₃
Topographic Position	Upper Slope ₃ Mid-Slope ₃ Level ₃
Aspect	No Aspect ₃ East ₃ West ₃
Surface Texture	Silty Loam ₁₀
Effective Texture	Silty Loams ₃ Clay Loams ₃ Clay ₃

Ecozonal Synonyms

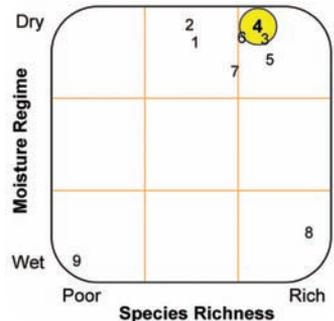
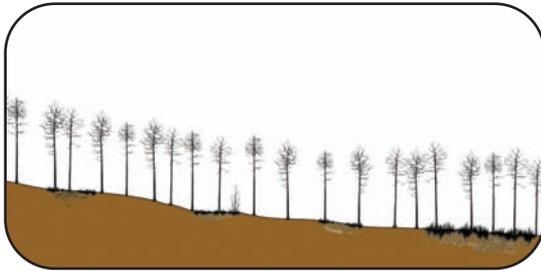
Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
NA	-

Forest Productivity

	Tree Species		
	IP	tA	wS
Site Index (m at 50 years)	15.3 ± 7.1	13.1 ± 4.3	11.8 ± x
Volume (m ³ /ha)	141 ± 85.5	66.7 ± 179.4	13.1 ± x
MAI (m ³ /ha/yr)	2.24 ± 0.96	0.94 ± 2.4	0.18 ± x
Basal Area (m ² /ha)	19 ± 4	12.7 ± 38.9	3.4 ± x
Age (years)	-	64 ± 16	65 ± 51
Height (m)	17.8 ± 10.9	14.9 ± 9.9	10.8 ± x
D.B.H. (cm)	41.8 ± 35.4	19.1 ± 17.2	20.7 ± x
Density (stems/ha)	167 ± 287	533 ± 1864	100 ± x

Ecological Interpretation

The successional relationships of this ecosite are complex, as are the successional relationships of all mixedwoods in Saskatchewan. The vegetation of the ecosite is reflective of the potential climax vegetation of the Hills in the absence of undue water stress or short fire return periods. This ecosite may succeed to all aspen if the weather following a burn is not favourable to conifer establishment. In the absence of fire or logging there will be a tendency for the sites to succeed to greater dominance of white spruce with a monospecific spruce stand being the endpoint of succession when these stand-replacing disturbances are absent for over 150 years. This trend to greater dominance of spruce is accomplished by introgression of the relatively shade tolerant spruce into the established stand and the presence of small-stature white spruce is evidence of the process of stand conversion by successional processes.



Ecosite Description ($n = 7$)

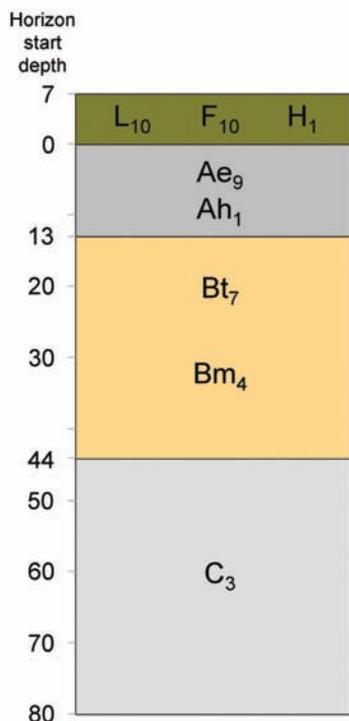
These ecosites support trembling aspen forests with a sparse shrubby understory of prickly rose, shrubby cinquefoil and bearberry. The herbaceous cover is mostly grasses, including ticklegrass, timber oat-grass, smooth wild-rye, Idaho fescue, with wild strawberry and a diverse array of other forbs. As with PR3, the quantity of leaf litter prevents any extensive growth of lichens and bryophytes, except on trunks, branches and downed woody debris and stumps. Tree growth is good on sandy clay to clay loam Gray Luvisol soils. Slopes tend to be quite level but some examples of this ecosite do show steeper slopes.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.7)	trembling aspen	100	79	<i>Populus tremuloides</i>
shrub (4.9)	prickly rose	86	6	<i>Rosa acicularis</i>
	trembling aspen	86	5	<i>Populus tremuloides</i>
	shrubby cinquefoil	86	2	<i>Dasiphora fruticosa</i>
	bearberry	57	20	<i>Arctostaphylos uva-ursi</i>
	western snowberry	43	12	<i>Symphoricarpos accidentalis</i>
	Saskatoon	43	5	<i>Amelanchier alnifolia</i>
herb (23.0)	northern bedstraw	100	1	<i>Galium boreale</i>
	wild strawberry	86	10	<i>Fragaria virginiana</i>
	western Canada violet	86	3	<i>Viola canadensis</i>
	common yarrow	86	0.5	<i>Achillea millefolium</i>
	bluebell	86	0.4	<i>Campanula rotundifolia</i>
	grasses	71	47	Graminoid spp.
	creamy peavine	71	3	<i>Lathyrus ochroleucus</i>
	American vetch	71	1	<i>Vicia americana</i>
	spreading sweet-cicely	57	4	<i>Osmorhiza depauperata</i>
	perennial sow-thistle	57	0.9	<i>Sonchus arvensis</i>
	golden-bean	57	0.9	<i>Thermopsis rhombifolia</i>
	Richardson's alumroot	57	0.9	<i>Heuchera richardsonii</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (23.0)	common dandelion	43	3	<i>Taraxacum officinale</i>
	fairybells	43	2	<i>Prosartes trachycarpum</i>
	veiny meadow rue	43	1	<i>Thalictrum venulosum</i>
	smooth sweet-cicely	43	1	<i>Osmorhiza longistylis</i>
	star-flowered	43	1	<i>Maianthemum stellatum</i>
	Solomon's-seal			
	asters	43	0.5	<i>Aster</i> spp.
	graceful cinquefoil	43	0.3	<i>Potentilla gracilis</i>
	cut-leaved anemone	43	0.3	<i>Anemone multifida</i>
	three-flowered avens	43	0.3	<i>Geum triflorum</i>
moss & lichen (3.9)	other lichens	58	1	-
ground cover	leaf litter	100	53	-
	woody debris	86	4	-
	needle litter	43	10	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₇ Eutric Brunisol ₃
Parent Material	Glacio-fluvial ₉ Lacustrine ₁
Moisture Regime	Fresh ₉ Moderately Fresh ₁
Drainage	Well ₇ Moderately Well ₁ Rapid ₁
Slope	(2-5) ₄ (0-0.5) ₁ (5-9) ₁ (9-15) ₁ (15-30) ₁
Topographic Position	Upper Slope ₆ Mid-Slope ₃ Lower Slope ₁
Aspect	East ₆ West ₃ North ₁
Surface Texture	Loams ₅ Sandy Loam ₂ Silty Loam ₂ Clay Loam ₂

Site Features

Effective Texture	Sandy Clay ₃
	Clay Loam ₃
	Sandy Clay Loam ₁
	Silty Clay Loam ₁
	Silty Clay ₁

Ecozonal Synonyms

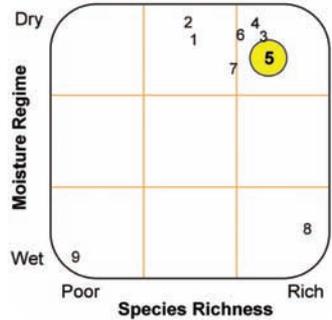
Taiga Shield	Boreal Shield
TS5	NA
Boreal Plain	Prairie
BP5	-

Forest Productivity

	Tree Species		
	bP	tA	wS
Site Index (m at 50 years)	17.2 ± x	10.2 ± 3.8	13.5 ± x
Volume (m ³ /ha)	237.1 ± x	70.5 ± 60.8	15.5 ± x
MAI (m ³ /ha/yr)	4.51 ± x	1.07 ± 0.82	0.29 ± x
Basal Area (m ² /ha)	41.1 ± x	26.4 ± 19	3.9 ± x
Age (years)	50 ± 64	70 ± 13	49 ± 64
Height (m)	15.7 ± x	9.3 ± 2	10.9 ± x
D.B.H. (cm)	23.7 ± x	13.2 ± 3.3	22.4 ± x
Density (stems/ha)	900 ± x	1850 ± 1342	100 ± x

Ecological Interpretation

These ecosites regenerate to trembling aspen after stand-replacement fire or logging. However, in the absence of fire, the aspen stands of these ecosites will age and eventually enter a phase of stand breakdown without proper stand-level regeneration. In some cases, white spruce ingress may convert the sites to mixedwoods with low aspen stocking, or, over a longer time span, into pure white spruce stands.



Ecosite Description (n = 16)

This ecosite supports the chief upland forest type of the Moose Mountain ecodistrict. Trembling aspen is the dominant tree with lesser amounts of green ash and occasionally some growth of white birch. Although the samples used to describe this ecosite all contained green ash or white birch, forests of pure aspen are sometimes encountered across the Moose Mountains. This ecosite has a diverse, multi-layered shrubby understory. The tall shrub layer is dominated by beaked hazel with smaller components of Saskatoon and red-osier dogwood. The lower shrub layers contain prickly rose, common snowberry, twining honeysuckle, raspberry, and low bush cranberry. The herbaceous community is species rich, but has low cover due to the shading effect of the canopy and the typically dense shrubby understory. Common herbs include wild sarsaparilla, smooth blue and Lindley’s asters, wild lily-of-the-valley, star-flowered Solomon’s seal, bedstraws, and others. The heavy fall of leaf litter prevents bryophyte and lichen growth on the forest floor. Tree growth is good on these fresh, silty clay- or loam-textured Gray Luvisols on level ground, or sometimes steeper slopes.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.7)	trembling aspen	100	46	<i>Populus tremuloides</i>
	green ash	100	19	<i>Fraxinus pennsylvanica</i>
shrub (9.4)	beaked hazel	100	38	<i>Corylus cornuta</i>
	prickly rose	100	3	<i>Rosa acicularis</i>
	common snowberry	94	3	<i>Symphoricarpos albus</i>
	twining honeysuckle	81	3	<i>Lonicera dioica</i>
	red-osier dogwood	75	3	<i>Cornus sericea</i>
	northern gooseberry	69	0.8	<i>Ribes oxycanthoides</i>
	green ash	63	7	<i>Fraxinus pennsylvanica</i>
	raspberry	63	4	<i>Rubus idaeus</i>
	Saskatoon	63	2	<i>Amelanchier alnifolia</i>
	low bush-cranberry	63	2	<i>Viburnum edule</i>
	red currant	50	0.9	<i>Ribes triste</i>
	willows	44	1	<i>Salix</i> spp.
	trembling aspen	44	0.7	<i>Populus tremuloides</i>
herb (19.1)	asters	100	2	<i>Aster</i> spp.

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (19.1)	wild lily-of-the-valley	100	1	<i>Maianthemum canadense</i>
	dewberry	100	1	<i>Rubus pubescens</i>
	star-flowered	100	0.5	<i>Maianthemum stellatum</i>
	Solomon's-seal			
	wild sarsaparilla	94	15	<i>Aralia nudicaulis</i>
	grasses	94	1	Graminoid spp.
	snakeroot	88	2	<i>Sanicula marilandica</i>
	sweet-scented bedstraw	88	0.5	<i>Galium triflorum</i>
	northern bedstraw	88	0.4	<i>Galium boreale</i>
	fairybells	81	0.3	<i>Prosartes trachycarpum</i>
	wild strawberry	75	1	<i>Fragaria virginiana</i>
	common dandelion	75	0.4	<i>Taraxacum officinale</i>
	one-sided wintergreen	63	0.6	<i>Orthilia secunda</i>
	western Canada violet	63	0.6	<i>Viola canadensis</i>
	pink wintergreen	50	1	<i>Pyrola asarifolia</i>
	meadow rues	50	1	<i>Thalictrum</i> spp.
	red and white baneberry	50	0.3	<i>Actaea rubra</i>
	sedges	44	1	<i>Carex</i> spp.
	purple peavine	44	0.9	<i>Lathyrus venosus</i>
	moss & lichen (11.3)	other mosses	100	2
other lichens		100	1	-
ground cover	leaf litter	100	87	-
	woody debris	100	14	-

Ecozonal Synonyms

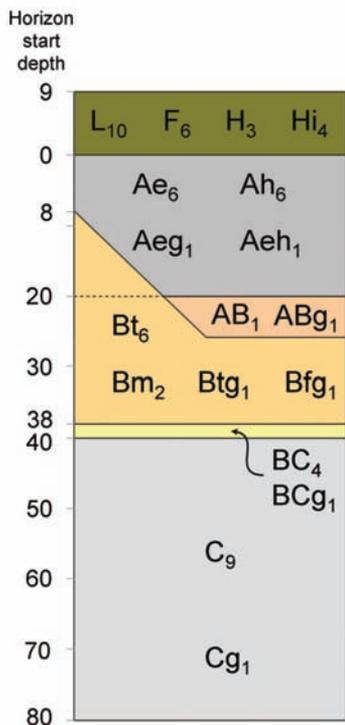
Taiga Shield
NA

Boreal Shield
NA

Boreal Plain
BP6

Prairie
-

Soil Profile



Site Features

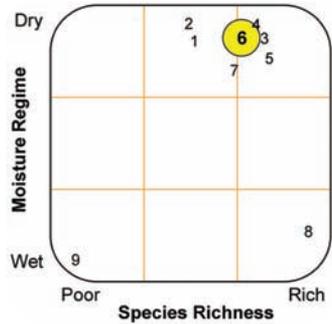
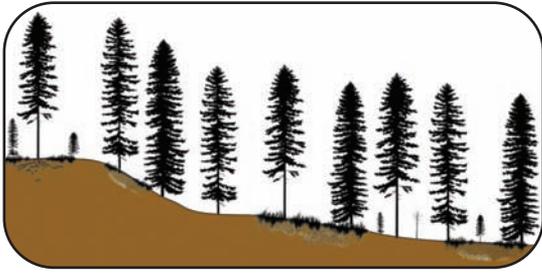
Soil Great Group - Order	Gray Luvisol ⁷ Dark Gray Chernozem ² Luvic Gleysol ¹
Parent Material	Lacustrine ⁶ Morainals ³ Fluvial ¹
Moisture Regime	Fresh ⁹ Very Moist ¹
Drainage	Moderately Well ⁶ Well ⁴ Imperfect ¹
Slope	(0-0.5) ⁶ (0.5-2) ² (5-9) ¹ (15-30) ¹
Topographic Position	Level ⁶ Upper Slope ² Mid-Slope ¹ Crest ¹
Aspect	No Aspect ⁶ East ² North ¹ South ¹
Surface Texture	Silty Clay Loams ³ Loam ² Silty Loam ² Sandy Loam ¹ Clay Loam ¹ Clay ¹
Effective Texture	Silty Clays ⁵ Clays ⁵ Clay Loam ²

Forest Productivity

	Tree Species			
	bP	gA	tA	wB
Site Index (m at 50 years)	12.2 ± x	9.3 ± 1.8	15.8 ± 1.6	12.3 ± 2
Volume (m ³ /ha)	161.5 ± x	20.8 ± 24.9	97.6 ± 28.4	17.3 ± 34.6
MAI (m ³ /ha/yr)	1.8 ± x	0.41 ± 0.46	1.83 ± 0.67	0.28 ± 0.39
Basal Area (m ² /ha)	32.5 ± x	5.1 ± 4.8	16.1 ± 4	5 ± 9.3
Age (years)	94 ± 222	66 ± 11	53 ± 9	67 ± 29
Height (m)	14.1 ± x	10.1 ± 1.2	14.4 ± 1.8	9.8 ± 2.3
D.B.H. (cm)	28.7 ± x	13.2 ± 3.8	17.4 ± 4.1	15 ± 9.2
Density (stems/ha)	500 ± x	267 ± 115	785 ± 342	200 ± 130

Ecological Interpretation

Forests on these ecosites historically were regenerated by fire. The advent of European settlement began an era of fire suppression that has dramatically lengthened the fire cycle. Consequently, the trembling aspen over much of the Moose Mountains has become old and the canopy of many stands is beginning to collapse. The importance of green ash, a more shade tolerant tree than trembling aspen or white birch, is an indicator of the shift towards a gap-replacement type forest that is occurring on this ecosite. In the absence of fire or logging, much of this forest will come to be dominated by green ash with, perhaps, an admixture of Manitoba maple. Without fire, white birch will largely disappear from these forests. The occurrence of Chernozem soils on a minority of these sites indicates that some of this ecosite now occupies areas once dominated by grassland vegetation. This is a common phenomenon in the Prairie ecozone, where the absence of fire has allowed trees to invade and displace native grassland vegetation in many places in the south half of Saskatchewan.



Ecosite Description (*n* = 3)

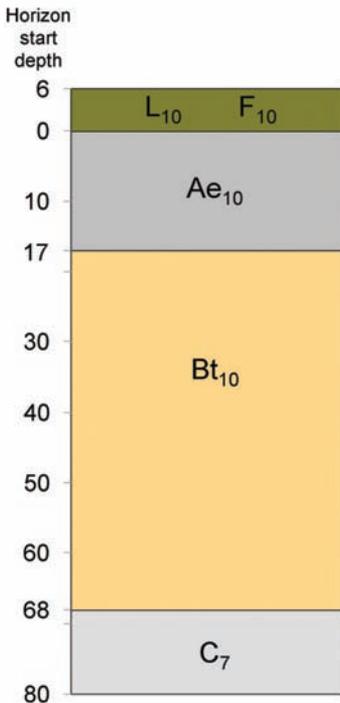
This Cypress Hills ecosite is forested with a pure white spruce canopy. White spruce also dominates the shrubby understory but trembling aspen seedlings are also present. Prickly rose, raspberry, Canada buffaloberry, western snowberry, and northern gooseberry are common. The presence of shiny-leaved meadowsweet reflects the montane affinities of the flora. Grasses (wood-reed, slender wheatgrass, tall brome, and others) dominate the herbaceous layer. Fairybells, spreading sweet-cicely, and many other forbs complement the grasses but have less cover. Feather mosses are the most conspicuous bryophytes but have low cover, probably due to the heavy fall of needle litter from the spruce. The ecosite is relatively rich in bryophytes and lichens but they have low cover, overall. Tree growth is good on these fresh Gray Luvisol, fairly heavy-textured soils.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.3)	white spruce	100	61	<i>Picea glauca</i>
shrub (6.7)	trembling aspen	100	4	<i>Populus tremuloides</i>
	prickly rose	100	2	<i>Rosa acicularis</i>
	raspberry	100	0.9	<i>Rubus idaeus</i>
	white spruce	67	12	<i>Picea glauca</i>
	Canada buffaloberry	67	5	<i>Shepherdia canadensis</i>
	western snowberry	67	4	<i>Symphoricarpos occidentalis</i>
herb (18.3)	northern gooseberry	67	0.8	<i>Ribes oxycanthoides</i>
	grasses	100	24	Graminoid spp.
	fairybells	100	11	<i>Prosartes trachycarpum</i>
	spreading sweet-cicely	100	0.8	<i>Osmorhiza depauperata</i>
	American vetch	100	0.8	<i>Vicia americana</i>
	northern bedstraw	100	0.7	<i>Galium boreale</i>
	creamy peavine	100	0.7	<i>Lathyrus ochroleucus</i>
	wild strawberry	67	5	<i>Fragaria virginiana</i>
	western Canada violet	67	2	<i>Viola canadensis</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (18.3)	sweet-scented bedstraw	67	1	<i>Galium triflorum</i>
	perennial sow-thistle	67	1	<i>Sonchus arvensis</i>
	nodding stickseed	67	0.9	<i>Hackelia deflexa</i>
	tall lungwort	67	0.4	<i>Mertensia paniculata</i>
	star-flowered Solomon's-seal	67	0.1	<i>Maianthemum stellatum</i>
	moss & lichen (13.3)	stair-step moss	67	0.5
Schreber's moss		67	0.4	<i>Pleurozium schreberi</i>
other mosses		100	12	-
other lichens		100	0.5	-
ground cover	needle litter	100	50	-
	woody debris	100	23	-
	leaf litter	100	6	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisol ₁₀
Parent Material	Glacio-fluvial ₁₀
Moisture Regime	Fresh ₁₀
Drainage	Well ₁₀
Slope	(0.5-2) ₃ (5-9) ₃ (9-15) ₃
Topographic Position	Upper Slope ₇ Crest ₃
Aspect	West ₇ North ₃
Surface Texture	Silty Loam ₁₀
Effective Texture	Silty Clay ₇ Silty Clay Loam ₃

Ecozonal Synonyms

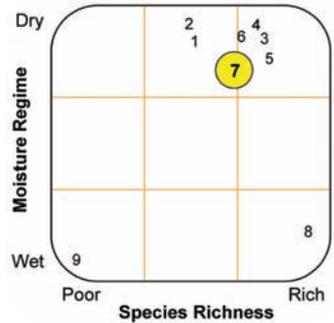
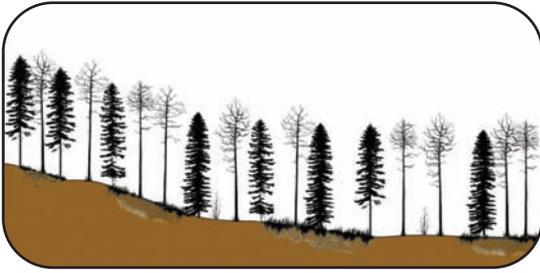
Taiga Shield	Boreal Shield
NA	NA
Boreal Plain	Prairie
NA	-

Forest Productivity

	Tree Species		
	IP	tA	wS
Site Index (m at 50 years)	15.1 ± x	13.4 ± x	14.2 ± 5
Volume (m ³ /ha)	84 ± x	267.7 ± 65.3	98.4 ± 89
MAI (m ³ /ha/yr)	1.52 ± x	0.46 ± x	3.87 ± 3.36
Basal Area (m ² /ha)	9.8 ± x	4.5 ± x	37.1 ± 25.3
Age (years)	-	84 ± 413	73 ± 23
Height (m)	19.9 ± x	14.6 ± x	17.6 ± 11.9
D.B.H. (cm)	35.3 ± x	17 ± x	27.6 ± 12.7
Density (stems/ha)	100 ± x	200 ± x	600 ± 745

Ecological Interpretation

Based on the dominance of white spruce, these sites may be in less fire-prone landscape positions than the more common pine and mixedwood ecosites of the Cypress Hills. However, the presence of trembling aspen seedlings and suckers in the understory indicates that this site could easily succeed to mixedwood or hardwood cover in the event of a stand-replacing disturbance such as fire or logging. The presence of shining-leaved meadowsweet and mountain ash, (at constancy values < 40%) are signs of the montane floristic affinities of this ecosite.



Ecosite Description ($n = 8$)

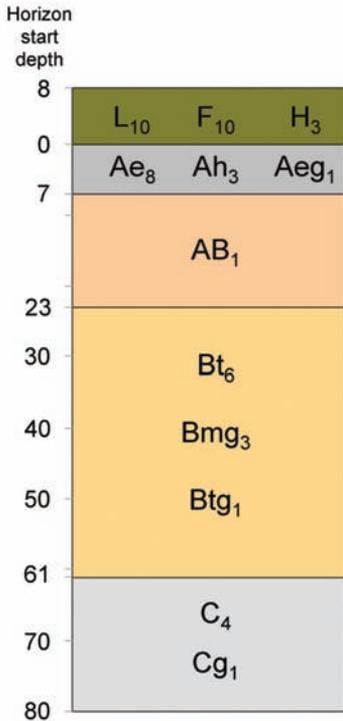
This mixedwood ecosite of the Cypress Hills usually shows an even sharing of the canopy cover between white spruce and trembling aspen. White spruce and trembling aspen also appear in the shrub understory, along with prickly rose, Saskatoon, western snowberry, chokecherry, and raspberry. Douglas hawthorn is present in some stands and is a species only found on the western side of the province. Western purple virgin's-bower is restricted to the Cypress Hills in Saskatchewan and is an example of the montane affinities of the flora of the hills. Wild strawberry, star-flowered Solomon's seal, and northern bedstraw are the leading forbs but a variety of grasses (white-grained mountain rice-grass, pine reed-grass, slender wheatgrass, hairy wild-rye, smooth wild-rye, and others) dominate the herbaceous understory. Tree growth is fair to good on the fresh silty clay or loamy Gray Luvisols of mid- to upper slopes. These ecosites are typically found on level to medium slopes in north or west aspects.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (2.0)	trembling aspen	100	52	<i>Populus tremuloides</i>
	white spruce	100	40	<i>Picea glauca</i>
shrub (6.5)	prickly rose	100	4	<i>Rosa acicularis</i>
	Saskatoon	100	2	<i>Amelanchier alnifolia</i>
	western snowberry	88	8	<i>Symphoricarpos occidentalis</i>
	white spruce	88	3	<i>Picea glauca</i>
	choke cherry	75	4	<i>Prunus virginiana</i>
	trembling aspen	75	1	<i>Populus tremuloides</i>
herb (18.1)	raspberry	50	2	<i>Rubus idaeus</i>
	wild strawberry	100	2	<i>Fragaria virginiana</i>
	star-flowered Solomon's-seal	100	1	<i>Maianthemum stellatum</i>
	northern bedstraw	100	0.6	<i>Galium boreale</i>
	grasses	88	13	Graminoid spp.
	western Canada violet	88	2	<i>Viola canadensis</i>
	common dandelion	88	1	<i>Taraxacum officinale</i>
	creamy peavine	88	0.9	<i>Lathyrus ochroleucus</i>

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (18.1)	spreading sweet-cicely	75	2	<i>Osmorhiza depauperata</i>
	tall lungwort	75	2	<i>Mertensia paniculata</i>
	veiny meadow rue	75	1	<i>Thalictrum venulosum</i>
	fairybells	63	3	<i>Prosartes trachycarpum</i>
	Canada anemone	50	4	<i>Anemone canadensis</i>
	one-sided wintergreen	50	2	<i>Orthilia secunda</i>
moss & lichen (13.3)	other mosses	88	10	-
	other lichens	100	1	-
ground cover	leaf litter	100	23	-
	needle litter	100	20	-
	woody debris	100	16	-

Soil Profile



Site Features

Soil Great Group - Order	Gray Luvisols Black Chernozem ₁ Eutric Brunisol ₁
Parent Material	Glacio-fluvials Glacio-lacustrine ₂
Moisture Regime	Fresh ₈ Moderately Moist ₁ Very Moist ₁
Drainage	Well ₈ Imperfect ₂
Slope	(0.5-2) ₂ (5-9) ₂ (0-0.5) ₁ (2-5) ₁ (9-15) ₁ (>30) ₁
Topographic Position	Mid-Slope ₄ Upper Slope ₄ Toe Slope ₁ Depression ₁
Aspect	North ₅ West ₂ No Aspect ₁ East ₁
Surface Texture	Sandy Loam ₄ Silty Loam ₃

Site Features

Surface Texture	Silty Clay Loam ₂ Loam ₁
Effective Texture	Silty Clay ₄ Silty Loam ₃ Sandy Loam ₁ Clay Loam ₁ Clay ₁

Ecozonal Synonyms

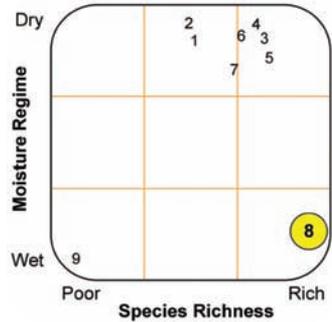
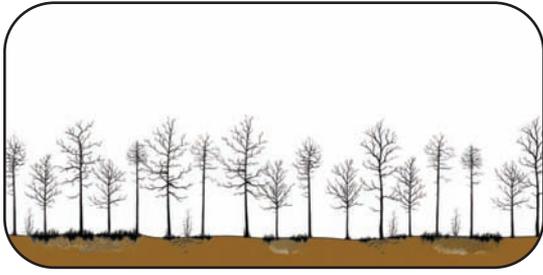
Taiga Shield	Boreal Shield
NA	BS11
Boreal Plain	Prairie
BP9 + BP10	-

Forest Productivity

	Tree Species	
	tA	wS
Site Index (m at 50 years)	11.4 ± 3.4	14.9 ± 2.6
Volume (m ³ /ha)	98.4 ± 89	124 ± 122.8
MAI (m ³ /ha/yr)	1.52 ± 1.12	2.04 ± 1.9
Basal Area (m ² /ha)	14.3 ± 10.9	20.9 ± 16.3
Age (years)	92 ± 22	66 ± 9
Height (m)	15.4 ± 5.9	12.5 ± 3.7
D.B.H. (cm)	24.9 ± 7.8	20.3 ± 10.2
Density (stems/ha)	329 ± 286	571 ± 361

Ecological Interpretation

These ecosites are classic mixedwoods that may show dominance of either aspen or spruce, through time, dependent on: 1) the availability of spruce seed in forest stands adjacent to the new burn or cutover, 2) the average time between successive fires (the fire interval or fire return period) or harvest rotation. The shorter the fire interval or harvest rotation, the more likely trembling aspen is to dominate the stand. If the fire interval becomes short enough, tree growth is prohibited and the ecosite succeeds to a grass-dominated vegetation type. The occasional appearance of this ecosite on Chernozem grassland soils demonstrates the ongoing process of grassland invasion by forest vegetation, in the Cypress Hills. This is one of the more likely scenarios if the climate becomes warmer and dryer in the hills - as fires become more frequent, much of the existing forest is converted to grassland by a much-shortened fire return period.



Ecosite Description ($n = 4$)

This ecosite describes the moist to wet forests of the Moose Mountains. Balsam poplar reflects the imperfect nature of the drainage on these sites. Trembling aspen and green ash share canopy dominance with balsam poplar in most cases. The two-layered shrubby understory is very species rich with raspberry, Saskatoon, common snowberry, and prickly rose being the most common species but a long list of other shrubs make significant appearances. The herbaceous understory is also relatively species rich with wild sarsaparilla, several grasses, snakeroot, dewberry, wild-lily-of-the-valley, and a long list of other forbs and sedges being frequently encountered. Lichens and bryophytes are few in number and abundance because of the heavy leaf litter fall. Tree growth is good on the moist silty clay loam Gray Luvisols or Humic Gleysols of these level sites in lower slopes positions.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (3.8)	balsam poplar	100	26	<i>Populus balsamifera</i>
	trembling aspen	100	25	<i>Populus tremuloides</i>
	green ash	75	23	<i>Fraxinus pennsylvanica</i>
shrub (9.3)	raspberry	100	10	<i>Rubus idaeus</i>
	Saskatoon	100	4	<i>Amelanchier alnifolia</i>
	common snowberry	100	3	<i>Symphoricarpos albus</i>
	prickly rose	100	1	<i>Rosa acicularis</i>
	beaked hazel	75	26	<i>Corylus cornuta</i>
	willows	75	3	<i>Salix</i> spp.
	red-osier dogwood	75	1	<i>Cornus sericea</i>
	balsam poplar	75	0.9	<i>Populus balsamifera</i>
	twining honeysuckle	75	0.3	<i>Lonicera dioica</i>
	choke cherry	50	2	<i>Prunus virginiana</i>
	green ash	50	1	<i>Fraxinus pennsylvanica</i>
	low bush-cranberry	50	1	<i>Viburnum edule</i>
	northern gooseberry	50	0.7	<i>Ribes oxycanthoides</i>
white birch	50	0.4	<i>Betula papyrifera</i>	
herb (23.3)	wild sarsaparilla	100	22	<i>Aralia nudicaulis</i>
	grasses	100	2	Graminoid spp.

Layer (Richness)	Common name	% constancy	% cover	Latin name
herb (23.3)	snakeroot	100	1	<i>Sanicula marilandica</i>
	sedges	100	1	<i>Carex</i> spp.
	asters	100	0.9	<i>Aster</i> spp.
	one-sided wintergreen	100	0.6	<i>Orthilia secunda</i>
	common dandelion	100	0.6	<i>Taraxacum officinale</i>
	purple peavine	100	0.4	<i>Lathyrus venosus</i>
	northern bedstraw	100	0.3	<i>Galium boreale</i>
	dewberry	75	1	<i>Rubus pubescens</i>
	wild lily-of-the-valley	75	1	<i>Maianthemum canadense</i>
	western Canada violet	75	0.7	<i>Viola canadensis</i>
	red and white	75	0.4	<i>Actaea rubra</i>
	baneberry			
	star-flowered	75	0.4	<i>Maianthemum stellatum</i>
	Solomon's-seal			
	American vetch	75	0.4	<i>Vicia americana</i>
	spreading sweet-cicely	75	0.3	<i>Osmorhiza depauperata</i>
	sweet-scented bedstraw	75	0.3	<i>Galium triflorum</i>
	veiny meadow rue	75	0.3	<i>Thalictrum venulosum</i>
	wild strawberry	75	0.3	<i>Fragaria virginiana</i>
	fringed loosestrife	50	2	<i>Lysimachia ciliata</i>
woodland strawberry	50	0.9	<i>Fragaria vesca</i>	
common horsetail	50	0.8	<i>Equisetum arvense</i>	
fairybells	50	0.4	<i>Prosartes trachycarpum</i>	
cow parsnip	50	0.1	<i>Heracleum maximum</i>	
moss & lichen (10.5)	other mosses	100	0.8	-
	other lichens	100	0.4	-
ground cover	leaf litter	100	88	-
	woody debris	100	13	-

Ecozonal Synonyms

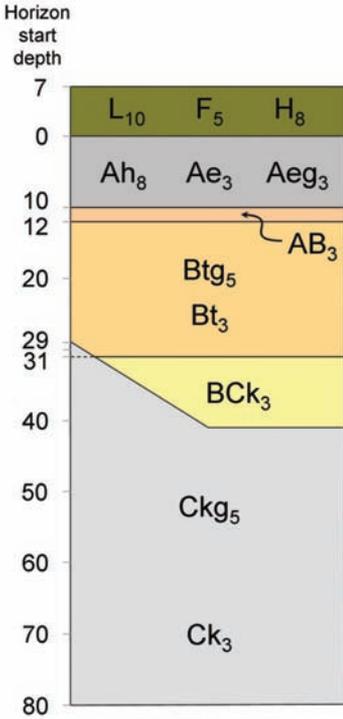
Taiga Shield
NA

Boreal Shield
NA

Boreal Plain
BP17

Prairie
-

Soil Profile



Site Features

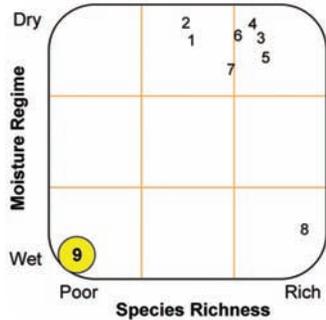
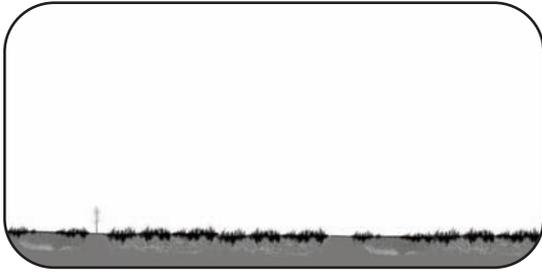
Soil Great Group - Order	Luvic Gleysols ₈ Humic Gleysol ₂
Parent Material	Morainals Lacustrine ₂
Moisture Regime	Moist ₅ Very Moist ₅
Drainage	Imperfect ₈ Poor ₂
Slope	(0-0.5) ₅ (0.5-2) ₂ (2-5) ₂
Topographic Position	Lower Slope ₈ Level ₂
Aspect	No Aspect ₅ North ₂ West ₂
Surface Texture	Silty Loam ₅ Sandy Clay Loam ₂ Loam ₂
Effective Texture	Silty Clay ₂ Silty Clay Loam ₂ Sandy Clay Loam ₂ Clay ₂

Forest Productivity

	Tree Species		
	bP	gA	tA
Site Index (m at 50 years)	15.3 ± 6.1	12 ± 4.7	15.5 ± 4.3
Volume (m ³ /ha)	71.1 ± 108.2	7.2 ± 24.9	66.7 ± 155.8
MAI (m ³ /ha/yr)	1.65 ± 2.92	0.21 ± 2.06	1.27 ± 3.12
Basal Area (m ² /ha)	14 ± 22.8	2 ± 6.2	11.3 ± 24.9
Age (years)	55 ± 13	45 ± 17	47 ± 10
Height (m)	13.6 ± 1.1	10.1 ± 3.9	11.9 ± 7.7
D.B.H. (cm)	15.4 ± 6.5	9.1 ± 3	15 ± 14.5
Density (stems/ha)	700 ± 1393	267 ± 717	400 ± 657

Ecological Interpretation

These ecosites have some understory growth of balsam poplar, green ash, and white birch, showing that stand-level regeneration by fire, storm, or logging would likely lead to a similar multi-species hardwood stand on most sites. Stand replacement wildfire was probably less common on these sites than more upland locations but this ecosite still probably burned periodically. The appearance of this ecosite on a Chernozem soil demonstrates that some degree of invasion of wet prairies has occurred in the Moose Mountains, likely since the suppression of wildfire after the advent of European settlement. One very curious phenomenon observed in a few of these sites is the regeneration of both green ash and Manitoba maple by growth of branches, into trunks, after the fall of a mother tree to the soil surface. The branches oriented upwards on the fallen, but living, mother trunk elongate and become new trunks in their own right, still dependent on the living root system of the mother tree.



Ecosite Description ($n = 1$)

Although only one graminoid fen (slough edge) ecosite was sampled in the Moose Mountains, this ecosite is relatively common in the knoll and kettle moraine landscape. These ecosites have been well described in the literature and it is from those sources (Coupland, 1950) and the personal observations of Dr. Robert Wright that most of the following description derives. Trees do not occur in this ecosite but shrub-sized examples of green ash, balsam poplar, and occasionally trembling aspen, are common. Willows are the most common shrub species. The herbaceous community is dominated by sedges and grasses, led by beaked and water sedge. Bluejoint, tufted hair, and slough grass are common, as are manna grasses and spangetop in the wetter sites with standing water. Small bedstraw, wild mint and Canada thistle, sow thistles, and cow parsnip are common forbs as is a long list of asters and other well-known wet site forbs from the sloughs of southern Saskatchewan. The clay-textured Humic Gleysols are poorly drained and generally wet all year round. The saturated condition of the soil leads to anaerobic conditions in which sulphur bacteria produce the hydrogen sulphide or rotten egg gas which gives these soils their sulphurous smell.

Characteristic Species

Layer (Richness)	Common name	% constancy	% cover	Latin name
tree (1.0)				
shrub (0.0)	green ash	100	0.1	<i>Fraxinus pennsylvanica</i>
herb (5.0)	sedges	100	50	<i>Carex</i> spp.
	grasses	100	15	Graminoid spp.
	small bedstraw	100	0.3	<i>Galium trifidum</i>
moss & lichen (2.0)	other mosses	100	2	-
ground cover	leaf litter	100	38	-
	exposed soil	100	24	-

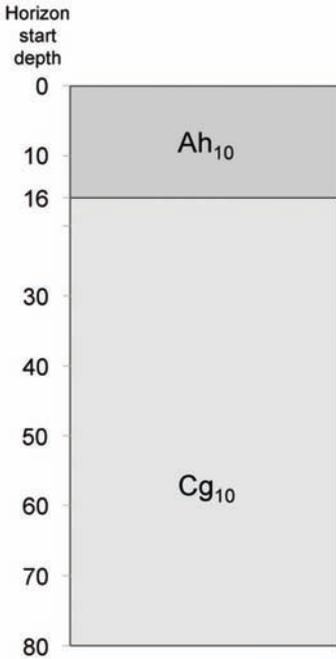
Ecozonal Synonyms

Taiga Shield
NA

Boreal Shield
NA

Boreal Plain
BP17

Prairie
-

Soil Profile**Site Features**

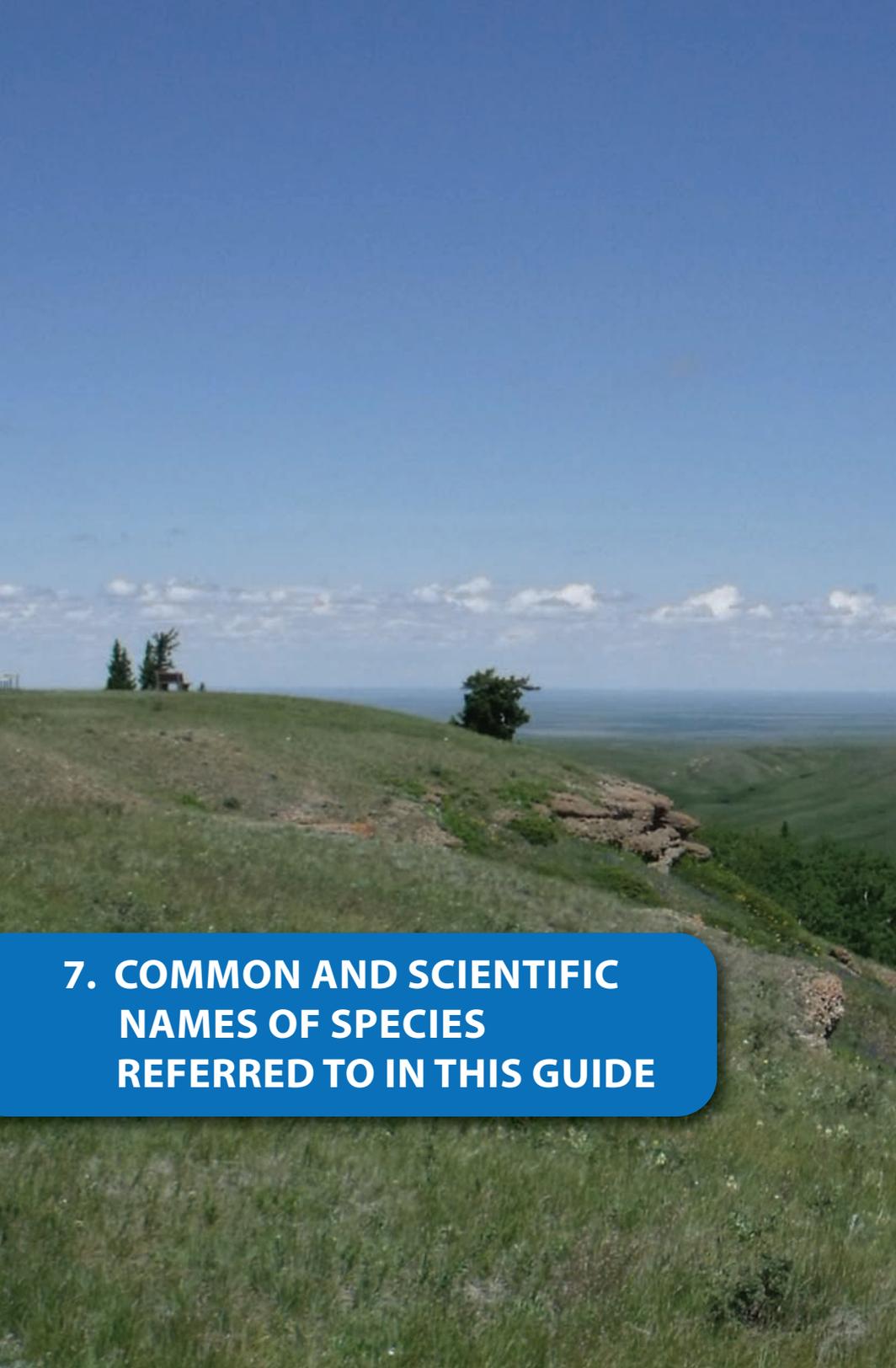
Soil Great Group - Order	Humic Gleysol ₁₀
Parent Material	Lacustrine ₁₀
Moisture Regime	Very Moist ₁₀
Drainage	Very Poor ₁₀
Slope	(0-0.5) ₁₀
Topographic Position	Level ₁₀
Aspect	No Aspect ₁₀
Surface Texture	Clay ₁₀
Effective Texture	Clay ₁₀

Forest Productivity

none

Ecological Interpretation

These ecosites are strongly influenced by the significant fluctuations in water level that marsh (slough) edge vegetation experiences in the Prairie Ecozone of Saskatchewan. The high water levels of the spring, (or of the summer and fall in exceptionally wet years), prevent the growth of tree species. In longer periods of drought, trees, and shrubs such as willows, will invade the herbaceous zone adjacent to water, but these trees and shrubs are always killed by flooding when normal water levels return. There is a distinct zonation in vegetation around these marshes, with species of progressively greater flooding tolerance increasing in prevalence as one approaches the long-term high water mark. The potential effect of climate warming and drying may be to convert this marsh vegetation zone into a treed or even upland grass ecosystem. Under this scenario, most of the sloughs of the Moose Mountains could dry up and the marsh vegetation, would disappear, replaced by forest or upland grassland vegetation.



**7. COMMON AND SCIENTIFIC
NAMES OF SPECIES
REFERRED TO IN THIS GUIDE**

Common and Scientific Names of Species Referred to in this Guide

A

alder-leaved buckthorn	<i>Rhamnus alnifolia</i> L'Hér
alpine <i>Hedysarum</i>	<i>Hedysarum alpinum</i> L. ssp. <i>americanum</i> (Michx.) Fedtsch.
alpine rush	<i>Juncus alpinoarticulatus</i> Chaix
American vetch	<i>Vicia americana</i> Muhl. ex Willd.
arrow-leaved coltsfoot	<i>Petasites sagittatus</i> (Banks ex Pursh) Gray
aster	<i>Aster</i> Lindl.
Athabasca thrift	<i>Armeria maritima</i> (P.Mill.) Willd. ssp. <i>interior</i> (Raup) Porsild
awned sedge	<i>Carex atherodes</i> Spreng.
awned wheatgrass	<i>Elymus trachycaulus</i> (Link) Gould ssp. <i>subsecundus</i> (Link) A.&D. Love

B

balsam fir	<i>Abies balsamea</i> (L.) Mill.
balsam poplar	<i>Populus balsamifera</i> L.
beaked sedge	<i>Carex rostrata</i> Stokes
beaked hazel	<i>Corylus cornuta</i> Marsh.
bearberry	<i>Arctostaphylos uva-ursi</i> (L.) Spreng.
bishop's cap	<i>Mitella nuda</i> L.
black spruce	<i>Picea mariana</i> (Mill) B.S.P.
bladderworts	<i>Utricularia</i> L.
bluebell	<i>Campanula rotundifolia</i> L.
blueberry	<i>Vaccinium myrtilloides</i> Michx.
bluejoint grass	<i>Calamagrostis canadensis</i> (Michx.) Beauv.
bog bilberry	<i>Vaccinium uliginosum</i> L.
bog birch	<i>Betula glandulosa</i> Michx.
bog violet	<i>Viola nephrophylla</i> Greene.
bog willow	<i>Salix pedicellaris</i> Pursh
bog sedge	<i>Carex magellanica</i> Lam.
bristly buttercup	<i>Ranunculus pensylvanicus</i> L.f.
buck-bean	<i>Menyanthes trifoliata</i> L.
bunchberry	<i>Cornus canadensis</i> L.

C

Canada anemone	<i>Anemone canadensis</i> L.
Canada buffaloberry	<i>Shepherdia canadensis</i> (L.) Nutt.
Canada thistle	<i>Cirsium arvense</i> (L.) Scop.
cattail	<i>Typha latifolia</i> L.
choke cherry	<i>Prunus virginiana</i> L.
cloudberry	<i>Rubus chamaemorus</i> L.
common horsetail	<i>Equisetum arvense</i> L.
common juniper	<i>Juniperus communis</i> L.
common pink wintergreen	<i>Pyrola asarifolia</i> Michx.

Common and Scientific Names of Species Referred to in this Guide

common snowberry	<i>Symphoricarpos albus</i> (L.) Blake
common yarrow	<i>Achillea millefolium</i> L.
cow parsnip	<i>Heracleum maximum</i> Bartr.
creamy peavine	<i>Lathyrus ochroleucus</i> Hooker
creeping spearwort	<i>Ranunculus flammula</i> L.
creeping snowberry	<i>Gaultheria hispidula</i> (L.) Muhl. ex Bigelow
crowberry	<i>Empetrum nigrum</i> L.
currant species	<i>Ribes</i> L.
cup and spike lichens	<i>Cladonia</i> P. Browne
cut-leaved anemone	<i>Anemone multifida</i> Poir.

D

dandelion	<i>Taraxacum officinale</i> Wigg.
dewberry	<i>Rubus pubescens</i> Raf.
dicranum moss	<i>Dicranum</i> Hedw.
Douglas hawthorn	<i>Crataegus douglasii</i> Lindl.
dwarf birch	<i>Betula pumila</i> L.
dwarf bog rosemary	<i>Andromeda polifolia</i> L.
dwarf raspberry	<i>Rubus arcticus</i> L. ssp. <i>acaulis</i> (Michx.) Focke
dwarf scouring rush	<i>Equisetum scirpoides</i> Michx.

E

early blue violet	<i>Viola adunca</i> J.E.Smith
electric eels	<i>Dicranum polysetum</i> Sw.

F

fairybells	<i>Prosartes trachycarpum</i> S.Wats.
flat-leaved bladderwort	<i>Utricularia intermedia</i> Hayne
flat-leaved willow	<i>Salix planifolia</i> Pursh
floccose tansy	<i>Tanacetum huronense</i> Nutt. var. <i>floccosum</i> Raup
fly honeysuckle	<i>Lonicera villosa</i> (Michx.) Schultes
fowl manna grass	<i>Glyceria striata</i> (Lam.) Hitchc.
foxtail barley	<i>Hordeum jubatum</i> L.
fireweed	<i>Chamerion angustifolium</i> *(<i>Epilobium</i>) (L.) Holub.
fringed aster	<i>Symphotrichum ciliolatum</i> (Lindl.) A. & D. Löve
fringed loosestrife	<i>Lysimachia ciliata</i> L.
fragile cushion moss	<i>Dicranum fragilifolium</i> Lindb.

G

golden-bean	<i>Thermopsis rhombifolia</i> (Nutt. ex Pursh) Nutt. ex Richardson
golden fuzzy fen moss	<i>Tomentypnum nitens</i> (Hedw.) Loeske
goldenrod	<i>Solidago</i> L.

Common and Scientific Names of Species Referred to in this Guide

graceful cinquefoil *Potentilla gracilis* Dougl. ex hooker
great-flowered gaillardia *Gaillardia aristata* Pursh.
green alder *Alnus viridis* (Vill.) Lam. & DC. subsp. *crispa* (Ait.) Turrill
green ash *Fraxinus pensylvanica* Marsh.
green reindeer lichen *Cladina mitis* (Sandst.) Hustich
grey reindeer lichen *Cladina rangiferina* (L.) Nyl.

H

hair-cap mosses *Polytrichum* Hedw.
hairy butterwort *Pinguicula villosa* L.
hairy-fruited sedge *Carex lasiocarpa* Ehrh.
hay sedge *Carex siccata* Dewey
hemlock *Cicuta* L.
high bush-cranberry *Viburnum opulus* L.
hooded ladies'-tresses *Spiranthes romanzoffiana* Cham.
Hooker's oat-grass *Avenula hookeri* (Scribn.) Holub.

I

Idaho fescue *Festuca idahoensis* Elmer.
Indian-pipe *Monotropa uniflora* L.

J

jack pine *Pinus banksiana* Lamb.
June-grass *Koeleria macrantha* (Ledeb.) Schultes
juniper hair-cap moss *Polytrichum juniperinum* Hedw.

K

Kalm's lobelia *Lobelia kalmii* L.
Kentucky bluegrass *Poa pratensis* L.
knight's plume *Ptilium crista-castrensis* (Hedw.) De Not.
kidney-leaved violet *Viola renifolia* Gray

L

Lapland buttercup *Ranunculus lapponicus* L.
Labrador tea *Ledum groenlandicum* Oeder
leatherleaf *Chamaedaphne calyculata* (L.) Moench
lesser rattlesnake-plantain *Goodyera repens* (L.) R. Br. ex Ait. f.
lingonberry *Vaccinium vitis-idaea* L.
lodgepole pine *Pinus contorta* Dougl ex Loud.
low bush-cranberry *Viburnum edule* (Michx.) Raf.
low prairie rose *Rosa arkansana* Porter
low whitlow-wort *Paronychia sessiliflora* Nutt.

Common and Scientific Names of Species Referred to in this Guide

M

Mackenzie hair-grass	<i>Deschampsia mackenzieana</i> Raup
Manitoba maple	<i>Acer negundo</i> L.
manna grasses	<i>Glyceria</i> R. Br.
marsh cinquefoil	<i>Comarum palustre</i> L.
marsh marigold	<i>Caltha palustris</i> L.
marsh speedwell	<i>Veronica scutellata</i> L.
marsh reed grass	<i>Calamagrostis canadensis</i> (Michx.) Beauv.
marsh skullcap	<i>Scutellaria galericulata</i> L.
marsh violet	<i>Viola palustris</i> L.
marsh willowherb	<i>Epilobium palustre</i> L.
mountain goldenrod	<i>Solidago simplex</i> Kunth
mountain lady's-slipper	<i>Cypripedium montanum</i> Dougl. ex Lindl.
mountain maple	<i>Acer spicatum</i> Lam.

N

narrow-leaved meadowsweet	<i>Spiraea alba</i> Du Roi
narrow reed grass	<i>Calamagrostis stricta</i> (Timm) Koeler
nodding onion	<i>Allium cernuum</i> Roth
nodding stickseed	<i>Hackelia deflexa</i> (Wahl.) Opiz. var. <i>americana</i> (Gray) Fern. & I.M. Johnston
northern bastard toadflax	<i>Geocaulon lividum</i> (Richards.) Fern.
northern bedstraw	<i>Galium boreale</i> L.
northern bog laurel	<i>Kalmia polifolia</i> Wang.
northern brome	<i>Bromus pumpellianus</i> Scribn.
northern gooseberry	<i>Ribes oxyacanthoides</i> L.
northern grass-of-Parnassus	<i>Parnassia palustris</i> L.
northern Labrador tea	<i>Ledum palustre</i> L. ssp. <i>decumbens</i> (Aiton) Hultén
northern reindeer lichen	<i>Cladina stellaris</i> (Opiz) Brodo
northern wheatgrass	<i>Elymus lanceolatus</i> (Scribn. & Sm.) Gould var. <i>lanceolatus</i>

O

one-sided wintergreen	<i>Orthilia secunda</i> (L.) House
ostrich fern	<i>Matteuccia struthiopteris</i> (L.) Todaro

P

pale coralroot	<i>Corallorhiza trifida</i> Chat.
palmate-leaved coltsfoot	<i>Petasites palmatus</i> (Ait.) Gray
parsley fern	<i>Cryptogramma acrostichoides</i> R. Br.
pasture sagewort	<i>Artemisia frigida</i> Willd.
pelt lichens	<i>Peltigera</i> Willd.

Common and Scientific Names of Species Referred to in this Guide

pin cherry	<i>Prunus pensylvanica</i> L.f.
perennial sow-thistle	<i>Sonchus arvensis</i> L. ssp. <i>arvensis</i>
pine-drops	<i>Pterospora andromedea</i> Nutt.
pine-sap	<i>Monotropa hypopitys</i> L.
pink corydalis	<i>Corydalis sempervirens</i> (L.) Pers.
pink wintergreen	<i>Pyrola asarifolia</i> Michx.
plains rough fescue	<i>Festuca altaica</i> Trin.
plains wormwood	<i>Artemisia campestris</i> L.
pitcher-plant	<i>Sarracenia purpurea</i> L.
prickly rose	<i>Rosa acicularis</i> Lindl.
purple oat grass	<i>Schizachne purpurascens</i> (Torr.) Swall.
purple peavine	<i>Lathyrus venosus</i> Muhl. ex Willd.
pussy willow	<i>Salix discolor</i> Muhl.

R

raspberry	<i>Rubus idaeus</i> L.
red and white baneberry	<i>Actaea rubra</i> (Ait.) Willd.
red currant	<i>Ribes triste</i> Pallas
red fescue	<i>Festuca rubra</i> L.
red-osier dogwood	<i>Cornus sericea</i> L. ssp. <i>stolonifera</i> (Michx.) Fosb.
reindeer lichens	<i>Cladina</i> (Nyl.) Nyl.
Richardson's alumroot	<i>Heuchera richardsonii</i> R. Br.
river alder	<i>Alnus incana</i> (L.) Moench
rocky mountain fescue	<i>Festuca saximontana</i> Rydb.
rough cinquefoil	<i>Potentilla norvegica</i> L.
round-leaved sundew	<i>Drosera rotundifolia</i> L.
rushes	<i>Juncus</i> L.

S

sand felt-leaf willow	<i>Salix silvicola</i> Raup
sand-dune small-fruited willow	<i>Salix brachycarpa</i> Nutt. var. <i>psammophila</i> Raup
sand-heather	<i>Hudsonia tomentosa</i> Nutt. var. <i>tomentosa</i>
sand stitchwort	<i>Stellaria arenicola</i> Raup
Saskatoon	<i>Amelanchier alnifolia</i> Nutt.
Scheuchzeria	<i>Scheuchzeria palustris</i> L.
Schreber's moss	<i>Pleurozium schreberi</i> (Brid.) Mitt.
seaside arrow-grass	<i>Triglochin maritimum</i> L.
sedges	<i>Carex</i> L.
sheathed cotton-grass	<i>Eriophorum vaginatum</i> L.
short-awned foxtail	<i>Alopecurus aequalis</i> Sobol.
shrubby cinquefoil	<i>Dasiphora fruticosa</i> (L.) Rydb.
silvery lupine	<i>Lupinus argenteus</i> Pursh.

Common and Scientific Names of Species Referred to in this Guide

slender arrow-grass	<i>Triglochin palustre</i> L.
slender hair-cap moss	<i>Polytrichum strictum</i> Brid.
slender wheatgrass	<i>Elymus trachycaulus</i> (Link) Gould ssp. <i>trachycaulus</i>
slough grass	<i>Beckmannia syzigachne</i> (Steud.) Fern.
small bedstraw	<i>Galium trifidum</i> L.
small bog cranberry	<i>Vaccinium oxycoccos</i> L.
small enchanter's-nightshade	<i>Circaea alpina</i> L.
small-leaved pussytoes	<i>Antennaria microphylla</i> Rydb.
smooth brome	<i>Bromus inermis</i> Leyss.
smooth fleabane	<i>Erigeron glabellus</i> Nutt.
smooth sweet-cicely	<i>Osmorhiza longistylis</i> (Torr.) DC.
snakeroot	<i>Sanicula marilandica</i> L.
sow thistles	<i>Sonchus</i> L.
spangletop	<i>Scolochloa festucacea</i> (Willd.) Link
<i>Sphagnum</i> moss	<i>Sphagnum</i> L.
spike trisetum	<i>Trisetum spicatum</i> (L.) Richt.
stair-step moss	<i>Hylocomium splendens</i> (Hedw.) Schimp.
starflower	<i>Trientalis borealis</i> Raf.
star-flowered Solomon's-seal	<i>Maianthemum stellatum</i> (L.) Link
stemless lady's-slipper	<i>Cypripedium acaule</i> Ait.
spreading dogbane	<i>Apocynum androsaemifolium</i> L.
sticky false asphodel	<i>Triantha glutinosa</i> (Michx.) Baker
sticky purple geranium	<i>Geranium viscosissimum</i> Fisch. & C.A. Mey.
stiff club-moss	<i>Lycopodium annotinum</i> L.
striate knotweed	<i>Polygonum achoreum</i> Blake
swamp lousewort	<i>Pedicularis parviflora</i> Smith ex rees
swamp horsetail	<i>Equisetum fluviatile</i> L.
sweet gale	<i>Myrica gale</i> L.
sweet-scented bedstraw	<i>Galium triflorum</i> Michx.

T

tall cotton-grass	<i>Eriophorum angustifolium</i> Honck.
tall lungwort	<i>Mertensia paniculata</i> (Ait.) G. Don.
tamarack	<i>Larix laricina</i> (Du Roi) Koch
three-flowered avens	<i>Geum triflorum</i> Pursh.
three-leaved false Solomon's seal	<i>Maianthemum trifolium</i> (L.) Sloboda
three-toothed saxifrage	<i>Saxifraga tricuspidata</i> Rottb.
tickle grass	<i>Agrostis scabra</i> Willd.
timber oat-grass	<i>Danthonia intermedia</i> Vasey
trembling aspen	<i>Populus tremuloides</i> Michx
tufted hair-grass	<i>Deschampsia cespitosa</i> (L.) Beauv. ssp. <i>cespitosa</i>

Common and Scientific Names of Species Referred to in this Guide

tufted loosestrife	<i>Lysimachia thyrsiflora</i> L.
tufted moss	<i>Aulacomnium palustre</i> (Hedw.) Schwägr.
Turnor's willow	<i>Salix turnorii</i> Raup
twining honeysuckle	<i>Lonicera dioica</i> L.
twinflower	<i>Linnaea borealis</i> L.
two-seeded sedge	<i>Carex disperma</i> Dewey
Tyrrell's willow	<i>Salix tyrrellii</i> Raup

V

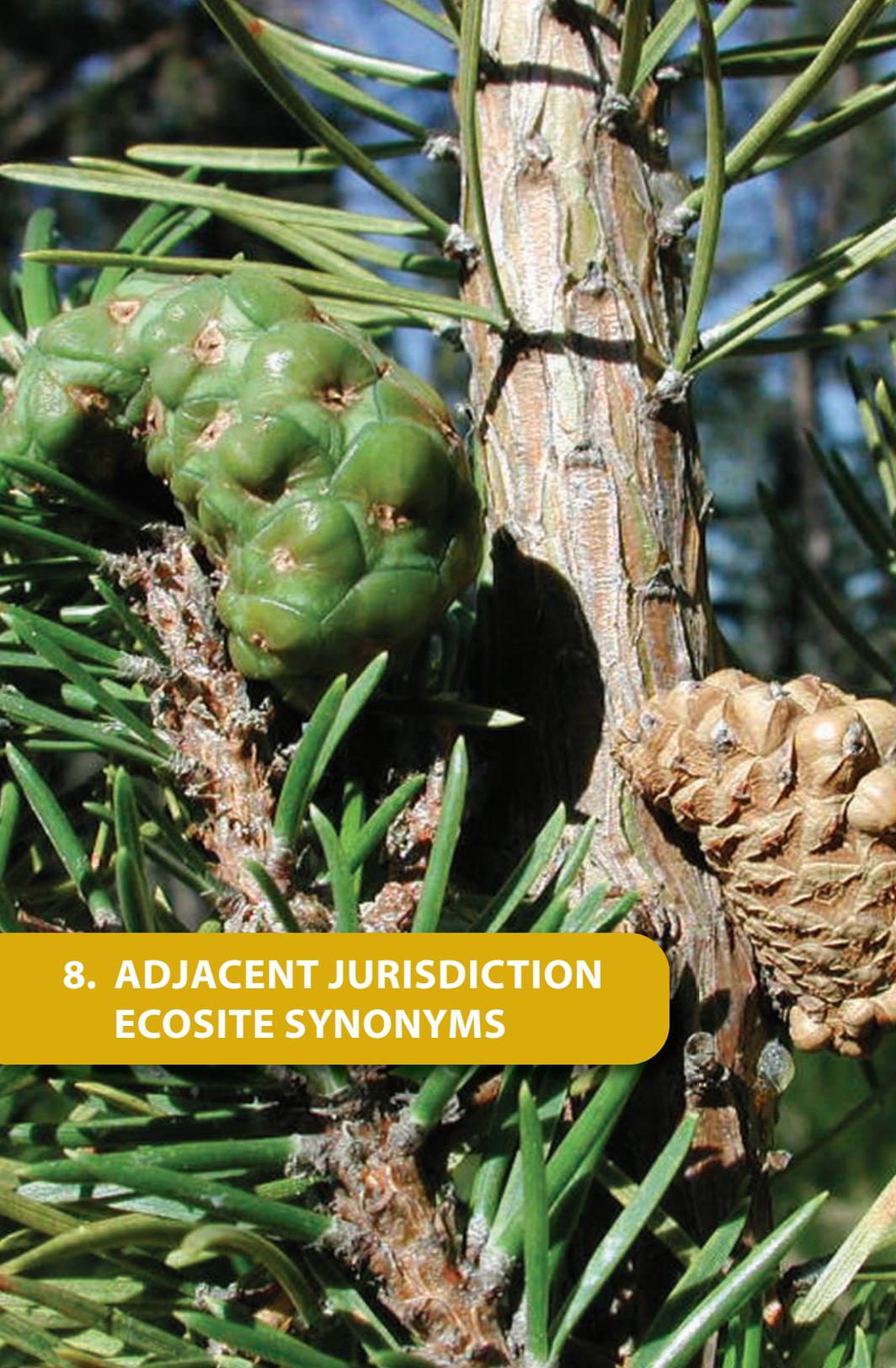
veiny meadow rue	<i>Thalictrum venulosum</i> Trel.
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W

water hemlock	<i>Cicuta maculata</i> L.
water parsnip	<i>Sium suave</i> Walter
water sedge	<i>Carex aquatilis</i> Wahl.
wavy dicranum	<i>Dicranum undulatum</i> Ehrh. ex Web. & Mohr. non Brid.
western Canada violet	<i>Viola canadensis</i> L.
western dock	<i>Rumex occidentalis</i> S. Wats.
western purple virgin's-bower	<i>Clematis occidentalis</i> (Hornem.) DC.
western red lily	<i>Lilium philadelphicum</i> L.
western snowberry	<i>Symphoricarpos occidentalis</i> Hook.
western spring beauty	<i>Claytonia lanceolata</i> Pursh
white birch	<i>Betula papyrifera</i> Marsh.
white elm	<i>Ulmus americana</i> Marsh.
white spruce	<i>Picea glauca</i> (Moench) Voss.
wild lily-of-the-valley	<i>Maianthemum canadense</i> Desf.
wild mint	<i>Mentha arvensis</i> L.
wild sarsaparilla	<i>Aralia nudicaulis</i> L.
willow	<i>Salix</i> L.
wild strawberry	<i>Fragaria virginiana</i> Duch.
wire rush	<i>Juncus arcticus</i> Willd.
woodland horsetail	<i>Equisetum sylvaticum</i> L.
woodland strawberry	<i>Fragaria vesca</i> L.
Wyoming kitten-tails	<i>Besseyia wyomingensis</i> (A. Nels.) Rydb.

Y

yarrow	<i>Achillea millefolium</i> L.
yellow marsh-marigold	<i>Caltha palustris</i> L.



**8. ADJACENT JURISDICTION
ECOSITE SYNONYMS**

Adjacent Jurisdiction Ecosite Synonyms

Identifying ecosite synonyms in adjacent jurisdictions is not a straightforward process. When ecosystem classifications are built, they are based on numerous and specific assumptions, intentions, approaches, and objectives. Because these may be different in adjacent jurisdictions, there may not necessarily be a simple one-to-one ecosite translation. The simple process of running an ecosite description from one system through another's dichotomous key may yield numerous possible outcomes. Ideally, individual plot data should be run through the key to determine the most probable comparable ecosite.

Cross-walking (*i.e.*, determining the equivalent ecosystem conditions between ecological classifications) is being conducted as part of the development of the Canadian National Vegetation Classification (CNVC). The CNVC provides a nationally standardized ecological classification of vegetation conditions for Canada. Wherever provincial or territorial classifications exist, the CNVC crosswalks units at the plant community scale across jurisdictional boundaries to identify synonymies between the national and provincial classification systems. For more information about the Canadian National Vegetation Classification, please refer to: <http://cnvc-cnvc.ca>.

It is the intention of the authors to provide the inter-jurisdictional cross-walks with the Saskatchewan ecosites in a web-accessible version of this guide once the process has been completed. Updates of this guide can be found at: <http://www.environment.gov.sk.ca/forests>.

Examples of adjacent jurisdiction ecosystem classifications include:

Field Guide to Ecosites of Northern Alberta. (1996). Beckingham, J.D.; Archibald, J.H. Canadian Forest Service, Northwest Region, Northern Forestry Centre. Special Report 5.

Forest Ecosystem Classification for Manitoba. Field Guide. (1995). Zoladeski, C.A.; Wickware, G.M.; Delorme, R.J.; Sims, R.A.; Corns, I.G.W. Canadian Forest Service, Northwest Region, Northern Forestry Centre. Special Report 2.

Cross-walking assists forest practitioners in developing a better understanding about the relationships between ecosystem classifications.

9. GLOSSARY



Abiotic - the non-living components of an ecosystem.

Biotic - the living components of an ecosystem.

Biodiversity - contraction of biological diversity; reflecting the variety of genetic, species, or ecosystem conditions and their associated composition, structure, and function within an area.

Bog - a wetland (peatland) condition marked by an accumulation of peat which receives its moisture almost exclusively from precipitation and is dominated by *Sphagnum* mosses and ericaceous shrubs and may be treed or treeless.

Brunisol - a soil order characterized by having a brownish or reddish brown B horizon of accumulated iron or aluminium > 5 cm thick.

Bryophyte - non-flowering simple plants that lack vascular tissue and includes mosses, liverworts and hornworts.

Calcareous - composed of or containing calcium carbonate.

Canopy - the cover provided by plants made up of branches and foliage.

Chernozem - an upland soil order characterized by having a mineral 'A' horizon > 10 cm thick that has been enriched with organic matter.

Cryosol - a soil order characterized by having permafrost within 1 m of the surface.

Dichotomous key - a series of paired questions or descriptions used to distinguish and identify a unique or specific condition (*e.g.*, plant or ecosystem)

Drumlin - a teardrop shaped and elongated hill of glacial till or other drift (*i.e.*, unsorted sand and rock) left by the retreating glaciers.

Ecodistrict - a subdivision of an ecoregion characterized by similar assemblages of relief, geology, landform, soils, vegetation, and hydrology. In Saskatchewan these are also known as 'landscape areas'.

Ecoelement - a subdivision of an ecosite, having uniform vegetation or soil conditions. This level of classification often separates biotic and abiotic classes and includes 'plant community types', 'v-types', and 's-types'.

Ecological integrity - the quality of an ecosystem in which the composition and structure are maintained to the degree such that natural processes and functions are unimpaired.

Ecological land classification - the process of stratifying and/organizing landscapes on the basis of similar biotic and abiotic qualities or conditions.

Ecoprovince - a subdivision of an ecozone characterized by similar assemblages of landform, hydrology, soil, climate, vegetation, and faunal realms (Wiken, 1986).

Glossary

Ecoregion - a subdivision of an ecozone, normally mapped at 1:250000 scale and characterized by distinctive large order landforms or assemblages of regional landforms as expressed by vegetation, soils, water, and sometimes human activity.

Ecosite - a recurring site or stand level representation of ecosystems having a relatively homogeneous combination of soil, site, and vegetation characteristics.

Ecosystem-based management - a conservation approach to managing the environment which maintains ecological integrity over the long term by recognizing and integrating scientific knowledge of ecological conditions and relationships with social values and the political framework (Grumbine 1994).

Ecotone - the boundary or transition between two or more distinct ecological communities.

Ecozone - a large area (*i.e.*, usually mapped at 1:1000000 scale) that represents broad features of relatively uniform climate, geology, soils, landforms, vegetation and human activity.

Ericaceous (shrub) - plants of the heath family (Ericaceae) that are tolerant of acidic soil conditions.

Esker - a narrow steep sided ridge of sorted sands and gravel deposited by retreating glaciers in sub-glacial melt water channels.

Feathermoss - a collective term for three common moss species: Schreber's moss (*Pleurozium schreberi*), stair-step moss (*Hylocomium splendens*), and knight's plume moss (*Ptilium crista-castrensis*).

Felsenmeer- literally 'rock sea'; a collection or expanse of exposed angular rocks.

Fen - a wetland (peatland) condition which receives its moisture from (sometimes fluctuating) mineral-rich groundwater and precipitation and is dominated by *Sphagnum* mosses, shrubs, and graminoids; they may be treed or treeless.

Floristics - the distribution and relationship of plant species among sites and regions.

Forest ecosystem classification - a system or process that organizes classifies and describes groupings of forest conditions based on similar abiotic and biotic site attributes.

Glaciolacustrine - pertaining to glacial lakes and in terms of soils referring to the accumulation of fine-grained sediments from lakes formed by melting glaciers.

Gleysol - a soil order characterized by having prominently gleyed conditions within 50 cm of the surface or the presence of organic horizons that do not meet the criteria for an organic soil.

Graminoid - grass or grass-like plants including the grasses (Gramineae), sedges (Cyperaceae) and the rushes (Juncaceae).

Hummocky - uneven terrain composed of mounds or ridges.

Luvisol - a soil order characterized by having a brownish horizon that has been enriched with clay that has moved from the horizon above.

Morainal - pertaining to depositional landforms created from glacial till.

Organic - a soil order characterized by having a layer of fibric organic matter > 60 cm thick or humic organic material > 40 cm thick.

pH - 'potential of hydrogen'; a measure of acidity or alkalinity; 7 on the pH scale is neutral, < 7 is acidic; > 7 is basic.

Physiognomy - the growth form or structure of plants (*e.g.*, trees, shrubs, herbs).

Podzol - a soil order characterized by having a reddish brown to black 'B' horizon > 10cm thick with significant accumulated organic and/or iron or aluminium.

Precambrian shield - part of the continental nuclei of very old rock (up to 4 billion years old) on the earth's crust. Exposed on the landscape as well rounded, eroded, and often exposed bedrock with a relatively thin veneer of soils and supporting conifer and mixedwood forests.

Project charter - a document describing a project's rationale, objectives, customers, customer needs and requirements, and final and/or organization deliverables.

Regosol - a soil order with a weakly defined (*i.e.*, < 5 cm thick) or absent B horizon.

Relevé - a sample plot used to characterize plant communities and site conditions.

Species richness - a measure of species diversity calculated as the number of species per sample.

Stratification - the process of dividing groups into finer units on the basis of some uniform characteristics.

Veneer - a thin surface material.



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