Natural Regions & Subregions of Alberta

A Framework for Alberta's Parks

Alberta

Alberta Parks

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Alberta enjoys a wealth of natural features that can be seen in the diversity of our landscapes. They vary from hot, dry badlands to vast, unbroken forests, to alpine tundra and massive ice fields. Within the Boreal Forest, Grassland, Rocky Mountains, Canadian Shield, Parkland and Foothills natural regions, protected areas have been set aside to conserve examples of this natural diversity. Today and into the future, our challenge is not only to maintain the integrity of these protected areas but also to continue to designate and secure land that will represent the variety of these landscapes within the province. By acting now to identify and protect these areas, we can help to ensure that Alberta's natural diversity will continue to exist for the benefit of future generations.

This report provides an overview of the land classification system that we use to describe our natural landscapes and that also serves as a tool to help us measure our progress towards completing a network of protected areas.

Spectacular Kakwa Wildland Provincial Park

Natural Regions: A Top-Down Classification

Land classification for protected areas is based on natural or biogeographic features such as geology, landform, soils and hydrology. Other factors affecting classification include an area's climate, vegetation and wildlife (see Fig. 1). The classification system is set up so that larger, more general categories of land are identified and then divided into smaller units on the basis of their natural characteristics. Because this kind of classification system divides larger units into smaller ones, we refer to it as hierarchical or "top down."

Under this system, each unit of land, large or small, is recognized for the pattern of features that distinguishes it from other units. Larger units are more heterogeneous in that they incorporate a greater variety of features, and smaller units are more homogeneous, with a reduced variety of features. The largest units, the natural regions, are divided into subregions, which in turn encompass a series of natural history themes. These themes are further broken down into a number of more specific categories.

Mountain Goats are common in Willmore Wilderness Park
© Kevin Crockett

Figure 1: Factors that contribute to land classification.

Factors that contribute to land classification	Examples
Landform	Mountains, Dunes, Outwash Plain
Hydrology	Rivers, Streams, Lakes
Climate	Prevailing Winds, Mean Annual Temperature
Geology	Limestone Karst, Precambrian Bedrock
Soils	Organics, Dark Brown Chernozem, Dark Grey Luvisol
Animals	Birds, Mammals, Fish, Insects
Vegetation	Conifers, Shrubs, Forbs

Natural Regions: Regionally Speaking

Natural regions provide the big picture of Alberta's landscapes and they are the largest mapped ecological units in our classification system. An individual region contains landscape patterns with a mix of vegetation, soils and landform features that differ from the other natural regions. For example, mountains and prairies are clearly different from each other in landscape and in the flora and fauna that inhabit them. Six natural regions are recognized in Alberta (see Fig. 2): Grassland, Parkland, Foothills, Boreal Forest, Rocky Mountains and Canadian Shield. Alberta's largest natural region is the Boreal Forest; the smallest is the Canadian Shield.

Alberta's natural regions are divided into 21 subregions (see Map 1). Subregions are composed of areas with similar landscape patterns within a natural region that are distinct from other subregions in that natural region. Different criteria, matched to the range and scale of natural features that occur within the natural region, are used to separate the subregions. For example, grassland subregions are distinguished primarily based on climate, soils and vegetation factors, whereas boreal forest subregions are separated by their vegetation, geology and landforms. Rocky Mountain subregions are distinguished by differences in environmental conditions largely associated with changes in elevation.

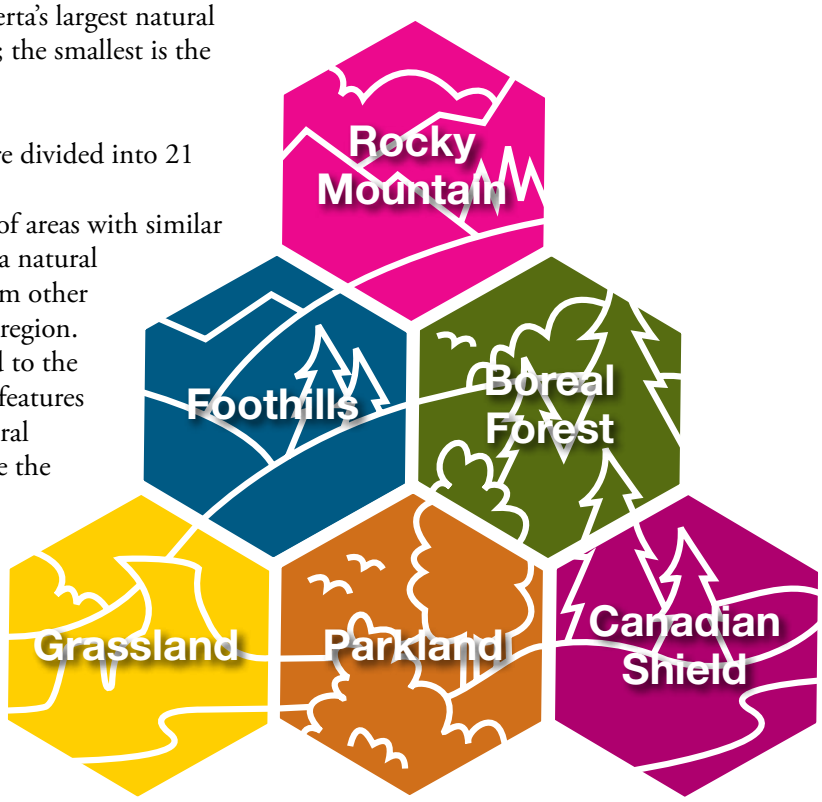
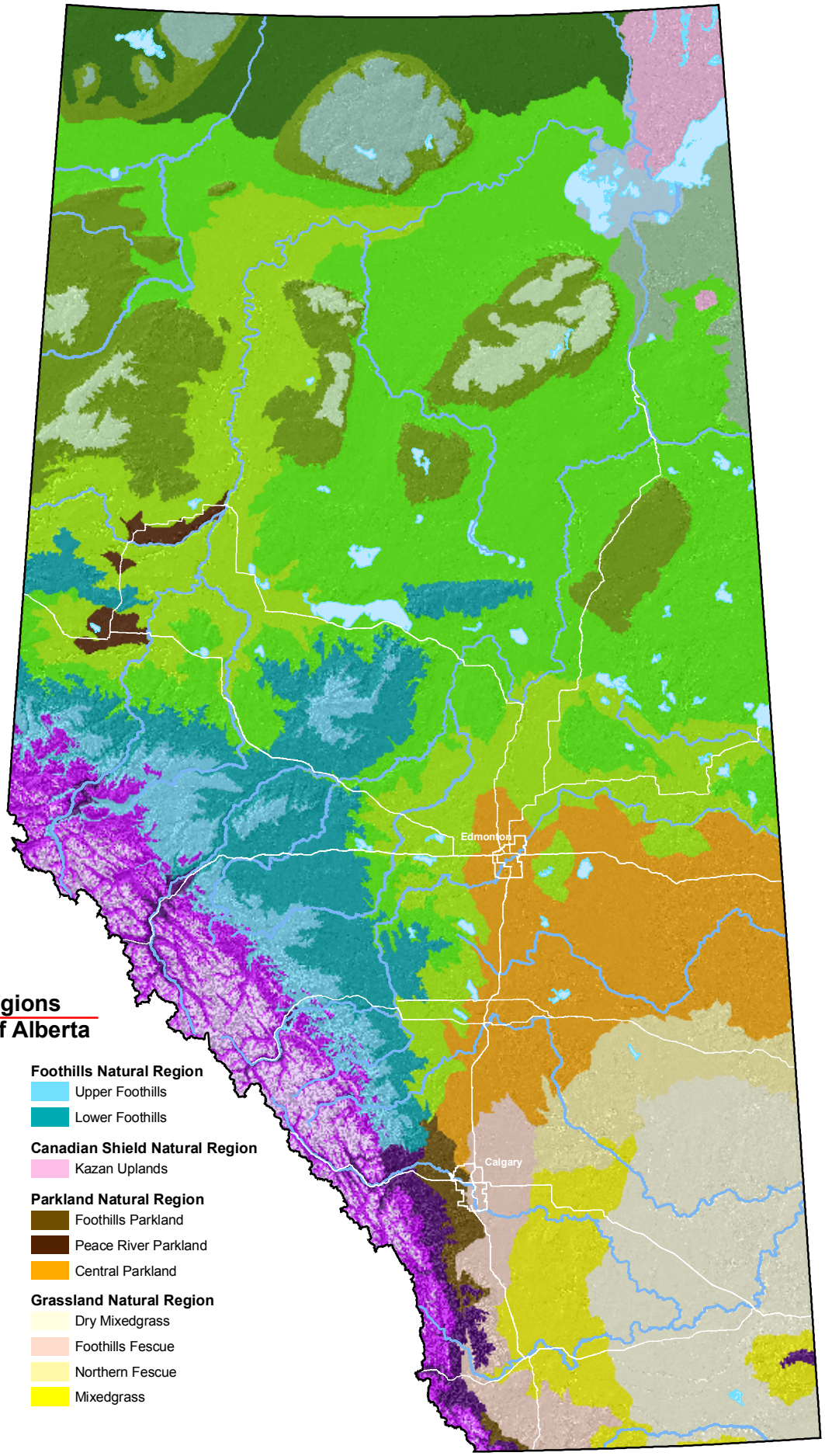


Figure 2: Six natural regions in Alberta.

Area of Alberta: 662,583 km^2

Alberta's Parks and Protected Areas network covers roughly 27,500 km^2 and includes nearly 500 sites. [i.e., 4% of total area of province]

Map 1: Natural Regions and Subregions of Alberta



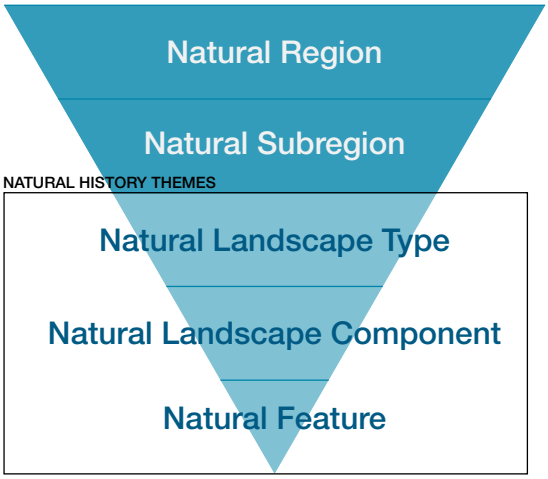
The Themes are Key

Preserving, in perpetuity, a network of areas that represents the natural diversity of the province is a core goal of the Alberta government's Parks system. Towards achieving this goal, we use a classification of Alberta's landscapes as a tool to describe the province's diversity and to assist us in measuring our progress towards protecting examples of that diversity within the network.

Natural history themes are the key working levels of the classification. They provide a practical scale for describing the full range of Alberta's natural diversity. There are three levels of natural history themes. Natural Landscape Types are broadly recognizable landscapes within a subregion. Natural Landscape Components are still relatively broad features: usually a vegetation type, wetland type or landform grouped within a Natural Landscape Type. Natural Features identify a specific aspect such as a geologic feature, ecological community or species commonly associated with the Natural Landscape Component. Together with natural regions and subregions, natural history themes make up a five-level hierarchical classification system. (As an example, see Figure 3, opposite, and for details see pages 8 and 9).

Northern Pygmy Owl
© Mark Sturk

Figure 3: Hierarchy of Landscape Classification



Taking it to the Next Level

There are three increasingly finer levels of Natural History Themes. The first, **Natural Landscape Types**, portrays the natural diversity within the various natural regions and subregions. They are important for protected areas planning because they are closely linked to landforms and the variety of life associated with these landforms. Sixteen Natural Landscape Types have been identified for the province as a whole and appear in different combinations across the 21 subregions.

Which Natural Landscape Types occur in a given area can be readily determined, often by using existing maps, and so can be used as an indicator of the diversity represented within our existing protected areas system. Themes that are missing or under-represented indicate gaps in the system. In this way, Natural Landscape Types can be used to indicate how well biodiversity is represented in the protected areas system, and can also help to identify deficiencies in the system.

Unless a protected area makes up a large portion of a subregion, more than one area is needed to achieve adequate representation of a given theme. Five widely separated areas of 10 km^2 each (minimum size) are recommended for most of these themes. Two widely separated large units that greatly exceed the minimum size would also provide suitable representation.

The next two finer levels of Natural History Themes; **Natural Landscape Components** and **Natural Features** are not as readily measured using existing inventories and maps. The presence or absence of specific Landscape Components and Natural Features is most useful for comparing candidate protected areas. For example, two candidate sites of approximately the same size may have similar Natural Landscape Types but very different Landscape Components. In this case, either site would make the same contribution to achieving the Natural Landscape Type target. However, the site containing the most Landscape Components that are not yet well represented in the system would make a greater contribution to protecting the Alberta's diversity.

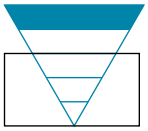
Alberta's system of classification for natural history themes is valuable in helping to establish targets, identify gaps and compare candidate areas using existing information. The system also makes it more straightforward to report on progress toward completing a comprehensive network of protected areas.

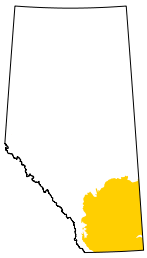
Some Things are Just Special!

This system of classification, from Natural Regions down to Natural Features, is designed to document the geographical and biological diversity of the province and provide an understanding of how well our protected areas system represents that diversity. Using this coarse-filter, top-down approach identifies most of the components of environmental diversity. But some things are just *special*. Less common elements with significant conservation value are likely to be missed by relying solely on this approach. To complement the hierarchical approach then, special features, including elements that are restricted in extent or distribution, occur only in small numbers, or are considered outstanding examples of a given feature, are also documented and included in protected areas planning where possible.

The following pages contain brief summaries that outline the characteristics of each of the regions and subregions in Alberta, with some notes on the natural history themes they encompass. Only the highlights and typical features of each subregion are discussed.

Natural Region and Natural History Theme Examples

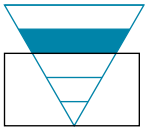


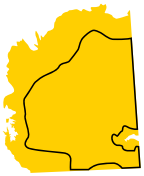


Natural Regions

The big picture of Alberta's landscapes.

Example: The **Grassland Natural Region** is the level to gently rolling plains of southern Alberta.

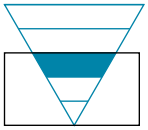




Natural Subregions

More narrowly defined geographic regions within a Natural Region.

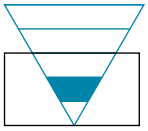
Example: The **Dry Mixedgrass Natural Subregion** are level to gently rolling landscapes, cut by coulees and river valleys where there may be exposures of bedrock. The warm, dry climate supports drought-tolerant grasses and shrubs, with trees being uncommon and restricted to valley bottoms.



Natural Landscape Types

Are broad, significant, easily recognizable landscapes within a subregion, defined in detail on page 10.

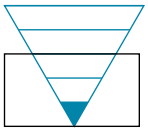
Example: Four of the Natural Landscape Types in the Dry Mixedgrass Subregion can be seen here: Stagnant Ice Moraine (the rolling upland), Colluvial Deposits (the slopes of the river valley) Fluvial Deposits (the flatter areas in the river valley) and River.



Natural Landscape Components

Are distinctive vegetation assemblages, soils, bedrock, wetland types or highly visible geological components.

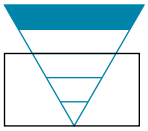
Example: Natural Landscape Components within the Colluvial Deposits Natural Landscape Type include shrublands, grasslands and sandstone bedrock outcrops of the Milk River Formation.



Natural Features

Are finer breakdowns of Landscape Components. They include plant and animal species and specific bedrock and landform types. Natural Features will be added as detailed field studies increase our knowledge of Alberta's natural diversity.

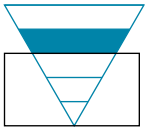
Example: There are a variety of plants, animals and landforms associated with the Sandstone Bedrock Outcrops of Writing-on-Stone Provincial Park, such as capstones, bladderpod and turkey vultures pictured above.



Natural Regions

The big picture of Alberta's landscapes.

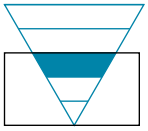
Example: the Boreal Forest Natural Region: a landscape of vast deciduous, mixedwood and coniferous forests interspersed with extensive wetlands.



Natural Subregions

More narrowly defined geographic regions within a Natural Region.

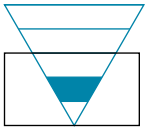
Example: The **Boreal Subarctic Natural Subregion** is found on the tops of elevated plateaus in the far north. Extensive areas of open bogs with frozen organic soils and a harsh climate of short cool summers and long cold winters.



Natural Landscape Types

Broad, significant, easily recognizable landscapes within a subregion, defined in detail on page 10.

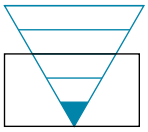
Example: Two of the Natural Landscape Types of the Boreal Subarctic Subregion can be seen in this photograph of Caribou Mountains Wildland Provincial Park – Lake and Organic Wetland.



Natural Landscape Components

Are distinctive vegetation assemblages, soils, bedrock, wetland types or highly visible geological components.

Example: Open bogs on organic soils are often associated with permafrost and are dominated by low shrubs. Areas of scattered black spruce are occur is areas with better drainage, often associated with permafrost.



Natural Features

Are finer breakdowns of Landscape Components. They include plant and animal species and specific bedrock and landform types.

Example: There are a variety of plants and animals associated with open black spruce bogs that are common in Caribou Mountains Wildland Provincial Park, including thermokarst pools, sphagnum mosses and woodland caribou seen here..

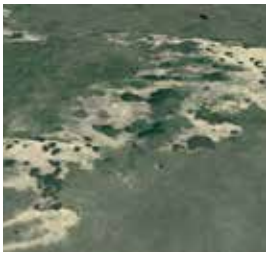
Natural Landscape Types Defined

Upland and Valley / Ridge Systems

Upland systems include a variety of landscapes that originated from sediments associated with glaciation, or are characterized by thick deposits of coarse sand. This includes sandy and non-sandy moraines, lake deposits, as well as dune fields, kames and outwash plains. Valley/Ridge systems include a variety of landscapes that are made up of valley slopes, ridge tops, valley floors, flood plains, river channels and river terraces.

Bedrock: Outcrops of consolidated rock. This theme is mapped primarily in northeastern Alberta (igneous and conglomerate, sandstone, siltstone, and shale) and in the Rocky Mountains (clastic rocks, limestone, and dolostone), with minor exposures on the plains (clastic rocks). Although it is considered part of Upland Systems in most of the province, it is considered part of Valley/Ridge Systems where it occurs in the Rocky Mountains and Foothills Natural Regions.

Colluvial Deposits: Materials that have reached their present position as a result of direct, gravity-induced movement. These commonly occur as slope and slump deposits confined to valley sides and floors, and often include bedrock and surficial materials and may be vegetated or exposed slopes. Badlands are typically included here. In places, these include a significant component of fluvial deposits, as these two units are inseparable at this scale.



Eolian Deposits: Wind-deposited sediments comprising well-sorted sands and minor silt. This theme includes both active and vegetated dunes, blowout and remnant sand dune ridges and fairly level sand plains.

Fluted Moraine: Streamlined glacial terrain shaped by erosion, deposition and squeezing of sediment beneath moving glacial ice. Composed mainly of till, the terrain varies from alternating furrows and ridges to elongated smoothed hills which parallel the likely ice-flow direction; includes features such as flutes, drumlins, and drumlinoids.

Fluvial Deposits: Sediments deposited by streams and rivers that include poorly to well sorted, layered to un-layered sand, gravel, silt, clay, and organic sediments occurring in channel and overbank or floodplain deposits. In places, these include a significant component of colluvial deposits as these two units are inseparable at this scale.

Glaciofluvial Deposits: Sediments deposited by glacial meltwater in contact with or near a glacier. Generally a flat to gently undulating plain which may be marked by meltwater channel scars and kettle holes or have features like slumped structures that show evidence of ice melting. These occur as part of the Valley/Ridge Systems in the Rocky Mountains and Foothills Natural Regions.

Glaciolacustrine Deposits: Sediments deposited in or along the margins of glacial lakes often reworked by wave action. This includes a) offshore sediment composed of deposits of fine sand, silt, and clay, locally containing debris released by the melting of floating ice; and b) nearshore (littoral) sediments of well-sorted silty sand, pebbly sand, and minor gravel that have sometimes been deposited as distinct layers. Commonly a flat to gently rolling plain, but often includes irregular hummocks, circular hummocks with a central depression, plateau mounds and/or ridges, beaches, bars, and deltas/spits.

Ice-Thrust Moraine: Bedrock, till and water-sorted materials that have been carried by ice as a more or less intact entity or block, but that have been folded and pushed by glacial pressure. The blocks of bedrock are often thrust over one another on shear planes like shingles. The resulting terrain is generally high- to moderate relief, and includes ice-thrust moraine ridges, hill-hole pairs, rubble moraine, and thrust-block moraine. *Photo © Mark Fenton.*

Moraine: Terrain composed of very poorly sorted or unsorted sediments (till) deposited directly by glacial ice. Usually made up of a mixture of clay, silt, and sand, as well as minor pebbles, cobbles, and boulders and characterized by a lack of distinctive topography. Locally, this unit may contain blocks of bedrock, layered sediments, or lenses of glaciolacustrine and/or glaciofluvial sediment. These occur as part of the Valley/Ridge Systems in the Rocky Mountains and Foothills Natural Regions.

Stagnant Ice Moraine: Terrain resulting from the collapse and slumping of debris that was trapped inside glacial ice, or that had collected on top of a glacier as the buried glacial ice melted. Sediment is mainly till but locally includes layered glaciolacustrine or glaciofluvial sediments. Terrain is characterized by low- to high-relief hummocky topography and features include end and recessional moraines and also crevasse fillings.

Natural Landscape Types Defined

Freshwater Systems

Freshwater habitats that include both still water (lentic) and running water (lotic) systems. These systems are associated with water-altered soils, the growth of water-tolerant to water-loving vegetation and biological processes of a wet environment. These include wetlands, lakes and rivers with their associated riparian vegetation as well as modern glaciers.

Organic Wetlands: Wetlands with significant peat accumulation (around or more than 40cm of poorly decomposed plant material predominantly from moss or sedge) and relatively stable water levels. In the Boreal Forest Natural Region, this unit also includes organic deposits of undifferentiated peat (woody to fibrous muck), and at this scale may include areas at the edge of wetlands or areas that may not easily be recognizable as a classic wetland. This unit is commonly underlain by fine-grained, poorly drained glaciolacustrine or lacustrine deposits or by till in some places. This theme includes swamps, bogs and fens.

Mineral Wetlands: Wetlands with mineral or mixed mineral and organic soils with minimal peat accumulation. Water levels may fluctuate. Includes marshes and shallow open water vegetation and sometimes has woody vegetation in northern Alberta.

Alkali Wetlands: Wetlands with minimal or no peat accumulation, with high levels of salinity or alkalinity (more than 3ppm), dominated by vegetation that thrives in saline environments (halophytic). Tend to remain free of ice cover longer than freshwater wetlands. These may become dry alkali flats, playas or dry lake basins later in the summer or during drought years.

Lake: Any naturally occurring, sizeable, permanent, relatively deep body of water, whether fresh or alkaline with well-defined beds and banks. Man-made waterbodies are excluded from this theme.

Major River: A large, natural and perennial flow of water that follows a definite course or channel or series of diverging and converging channels. At this scale, only major river systems associated with fluvial deposits are included. Smaller and intermittent streams are included under the Upland and Valley/Ridge Systems.

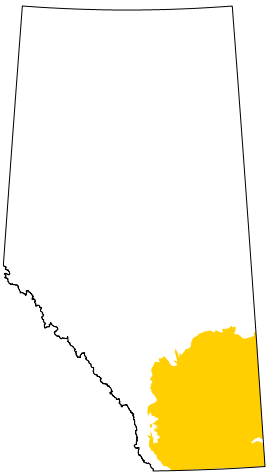
Modern Glaciers: Permanent snow and ice (mapped from data circa 1994); includes icefields, valley and cirque glaciers. This unit occurs only the Alpine Subregion of the Rocky Mountains Natural Region.

Map 2: Superficial geology of Alberta

The surficial geology of Alberta is the data layer that provides the basis for identifying natural landscape types in the Upland and Valley/Ridge systems for each Natural Subregion. Natural Landscape Types for Freshwater systems are identified using freshwater data layers.

Grassland Natural Region

Total Area: 95,565 km² (14.4% of province)



Overview

This natural region contains the level to rolling landscapes of Alberta that are often referred to as prairie. Much of the natural region has been turned into cropland, and provides some of the most productive land in Alberta for farming and ranching.

Chernozemic soils are characteristic of the Grassland Natural Region. These soils are typical of grassland environments, and are generally a very dark topsoil, rich in humus. Variations in soil types play a prominent role in defining the subregions of the Grasslands.

Elevations within the natural region range from about 550 m in the Dry Mixedgrass Natural Subregion near the Saskatchewan border to over 1500 m in the Foothills Fescue Natural Subregion. The Cypress Hills include the highest land in the Mixedgrass Natural Subregion, reaching an elevation of about 1450 m.

The Grassland Natural Region is the warmest, driest natural region in Alberta. The average annual precipitation of the Dry Mixedgrass Subregion, which is the driest subregion, is only a third of that received in the wettest subregion, the Alpine. Summers are very warm and the

Bee plant

Richardson Ground Squirrel

growing season is longer in the Grassland than in any other natural region.

The warmest and driest part of the grasslands lies in the very southeast corner of Alberta. Moving west towards the mountains, or moving north, temperature decreases and the amount of rain and snow increases. Most of the precipitation occurs in June, with very little precipitation occurring during the later part of the growing season.

In the northern part of the natural region, the amount of precipitation is higher and the summer and winter temperatures are slightly lower than in the south. This precipitation/ temperature pattern is similar in the westernmost part of the natural region, but winters there are milder owing to the greater number of warm Chinook winds along the Front Ranges of the Rocky Mountains.

Only 1-2% of the natural region is covered by water in the form of major rivers and shallow lakes.

The Grassland Natural Region includes many habitats that have distinct wildlife populations.

Woodlands grow as narrow strips along rivers, taking advantage of the increased moisture for tree growth. In the north and west parts of the natural region, there is a higher level of precipitation and less evaporation. This has allowed permanent marshes to develop in the area.

About 125 (25%) of Alberta's rare vascular plant species occur in the Grassland Natural Region, and about 55 of these are restricted to this region. About half of the rare species grow in grasslands, and half in habitats such as wetlands, saline areas, sandy sites and eroded slopes. The Grassland Natural Region contains many animal species that are found nowhere else in

American Avocet
© Gerald Romachuk

Alberta, such as swift fox, greater sage-grouse, mountain plover, painted turtle, short-horned lizard and western rattlesnake. The sand plains and dune fields contain a number of rare and local species restricted to these habitats, including the Ord's kangaroo rat and western hog-nosed snake.

The Richardson's ground squirrel, sometimes called "gopher", is an important food source for a number of predators, such as the ferruginous hawk and American badger. The ground squirrel's burrows are used by other mammals, as well as by burrowing owls, insects, amphibians and snakes. Although the ground squirrel was once plentiful throughout much of the natural region, its numbers have declined and in some areas it has become rare or non-existent. This decline affects the other species that rely on it for food or to provide burrows.

The rocky outcrops and badlands provide important nesting habitats for several bird species: golden eagle, ferruginous hawk, prairie falcon, rock wren, mountain bluebird and Say's phoebe. Various bat species, yellow-bellied marmot, and other mammals find shelter and den sites here. Snakes may have their hibernacula here.

Pronghorn can be found throughout the grassland in the summer, migrating south over winter © Gerald Romachuk

Springs at Twin River Heritage Rangeland Natural Area

Lakes and wetlands are uncommon and tend to be shallow and saline. American avocet, Wilson's phalarope, northern shoveler and cinnamon teal are some of the few species able to tolerate the highly saline conditions.

Stream valleys in the extreme southern part of the natural region offer unique habitats that support populations of bushy-tailed wood rat, yellow-bellied marmot, black-headed grosbeak, lazuli bunting, and Bullock's oriole. These species are rare in other parts of Alberta.

Several rare or locally occurring fish species are restricted to the Milk River drainage, including the western silvery minnow and stonecat.

Native prairies and cultivated croplands on vast plains, grassy foothills, warm dry summers and cool, dry winters define the Grassland Natural Region. This is the warmest, driest natural region in Alberta.

The semi-arid native prairies of southeastern Alberta merge gradually with taller grasslands and extensively cultivated lands to the north and west, reflecting increasing precipitation; trees grow only along rivers or in moist, protected locations.

The Grassland Natural Region is made up of the Dry Mixedgrass, Mixedgrass, Foothills Fescue and Northern Fescue natural subregions.

Dry Mixedgrass Natural Subregion

Total Area: 46,937 km² (49% of Grassland Natural Region)

The Dry Mixedgrass Natural Subregion is an expanse of level to gently undulating semi-arid prairie, broken in places by coulees, valleys, badlands and dune fields.

The subregion occupies the southeastern corner of Alberta at elevations from 550 m near Empress to 1100 m on the lower slopes of the Cypress Hills.

Average elevation: 800 m (range 575–1100 m).

Main land uses: Grazing occurs over about 55% of the area; 35% of the subregion is under dry-land farming (mainly wheat/fallow); nearly 10% is under irrigation; oil and gas exploration and development is extensive throughout.

Key Features

- This is the largest of the four natural subregions that make up the Grassland Natural Region.
- The main soils in the Dry Mixedgrass are Solonetz and Brown Chernozems. Cultivated fields are found on moister sites or irrigated areas.
- Extensive areas of native prairie can still be found in the south-east, central and northern parts of the subregion.
- Drying winds, low summer precipitation, high summer temperatures and intense sunshine cause significant moisture deficits in mid summer, and many native plants show adaptation to these conditions by being deep-rooted or having a short life cycle, completed while conditions are favourable for their growth, or by becoming dormant in dry periods.
- The vegetation reflects these dry warm summers. The grasslands are dominated by drought-tolerant grasses like blue grama and needle-and-thread grass with June grass and western wheat grass also common. Associated with the grasses is a variety of herbs like moss phlox, pasture sage and dotted blazingstar, and, in moist years, the blooms in these mixed grasslands can be spectacular.
- Areas with solonetzic soils are very common in the Dry Mixedgrass Subregion, and often show a distinctive landscape characterized by mixed grasslands of blue grama and western wheat grass interrupted by eroded, largely unvegetated pits called blowouts. Prickly-pear cactus can be very common on these sites.

- On sandy soils the mix of species changes, with sand grass becoming prominent, although needle-and-thread grass and June grass still occur. Clammyweed as well as several rare species like low milk vetch and annual

skeletonweed, tend to occur only in dune areas. Sand plains usually have a variety of low shrubs, including silver sagebrush, silverberry, buckbrush and common wild rose.

- Silver sagebrush communities are most common in the Dry Mixedgrass Subregion, on uplands as well as river flats. They provide habitat for rare species including Sage Grouse.
- Plains cottonwood forests as well as tall shrublands dominated by thorny buffaloberry and willows are found in coulees and along rivers. Peach-leaved willow stands are occasional along watercourses and are found only in this subregion.
- Trees generally grow only along rivers or in deep coulees where subsurface water is available.
- The Subregion has hot summers, intense sunshine, high evaporation and long, cold winters with low snow cover.
- The Subregion provides habitat for numerous species of plant and animal that live nowhere else in Alberta; a few species that occur elsewhere in Canada are restricted to fewer than five sites such as yucca and western spiderwort.

Prairie Rattlesnake
© Doug Macaulay

Plains Cottonwood in the valley at Dinosaur Provincial Park

Greater Sage-Grouse
© Terry Krause

Mixedgrass Natural Subregion

Total Area: 20,072 km² (21% of Grassland Natural Region)

The Mixedgrass Natural Subregion occupies a broad, fertile band of intensively cultivated prairie in south-central Alberta. It receives slightly higher precipitation than the Dry Mixedgrass Subregion to the east and this has allowed intensive cultivation over most of the area.

The Subregion curves north from the Alberta–Montana border to the Red Deer River in a 50 to 100 km wide band. Most of this band is made up of relatively level plains, but includes the Milk River Upland at the southern end. Two outliers are considered part of this subregion—the Cypress Hills at middle elevations and the Sweetgrass Upland along the Montana border. The plains areas have largely been converted to cropland, while the uplands remain primarily in native vegetation.

Average elevation: 975 m (range 650–1450 m).

Main land uses: This is the most intensively cultivated subregion in Alberta, with about 85% of the area planted in annual crops (mainly wheat, but barley and canola production are also important). About 5% of the land is under irrigation, and oil and gas exploration and development are common throughout.

Key Features

Twin River Heritage Rangeland Natural Area

Brewer's Blackbird at Writing-on-Stone Provincial Park

- Most of the natural subregion is cultivated, but there are scattered small areas of prairie. More extensive native rangelands occur at higher elevations.
- This subregion is slightly moister, with somewhat cooler summers and milder winters, than the Dry Mixedgrass Natural Subregion to the east.
- Lack of moisture during the summer months can limit crop production, for which irrigation may be necessary.
- Dominant soils are Dark Brown Chernozems.
- The vegetation of the Mixedgrass Natural Subregion is transitional between that of the Dry Mixedgrass and Foothills Fescue subregions. The grasslands are lusher than those of the Dry Mixedgrass and have a greater abundance of species that favour cooler and moister sites, such as western porcupine grass and northern wheat grass.
- Needle-and-thread grass continues to be prominent, but usually occurs with northern and western wheat grasses (rather than blue grama as in the Dry Mixedgrass, although blue grama does occur on some of the driest sites).
- Two uplands in this subregion show different characteristics. Idaho fescue is a significant component of the grasslands of the Milk River Upland on the flanks of the Milk River Ridge, but is absent from the Cypress Hills, where plains rough fescue is prominent instead.

Red-shanked Grasshopper is an important food source for birds

- Typical vegetation of sandy areas includes spear grass, sand grass, June grass and a variety of low shrubs including silverberry, buckbrush and common wild rose. Silver sagebrush flats also occur in this subregion, but are not as extensive as those in the Dry Mixedgrass.
- As in the Dry Mixedgrass Subregion, plains cottonwood forests and tall shrublands dominated by thorny buffaloberry and willows are found in coulees and along rivers. Narrow-leaf cottonwood stands grow on the river terraces of the Oldman, Belly, Waterton and St. Mary rivers. These stands are almost entirely within the Mixedgrass Subregion, and are the most extensive in Canada.
- Only about 1% of the subregion is open water, and it is confined to a few irrigation ditches and the St Mary, Oldman and Bow Rivers.
- Wetlands cover about 5% of the subregion.

Smooth Blue Beardtongue

Northern Fescue Natural Subregion

Total Area: 14,933 km² (16% of Grassland Natural Region)

Blooms in the Grassland

The Northern Fescue Natural Subregion is characterized by a mixture of cultivated fields and moist native prairie on rolling to hummocky terrain. It represents a climate-related transition between the Dry Mixedgrass Natural Subregion and the more northern Central Parkland Natural Subregion.

The subregion occupies a 50 to 80 km-wide crescent.

Average elevation: 800 m (range 650–1100 m).

Main land uses: Agriculture is the primary land use. About 50% of the area is annually cultivated, with wheat being the main crop, although barley and canola are also important. Domestic grazing occurs across the remainder of the area. Oil and gas activity is significant, and surface coal mining occurs as well. The relatively long summer season provides recreational opportunities such as camping and nature appreciation.

Key Features

- Much of the subregion is cultivated for crops and the rest is grazed native prairie.
- The main types of soils are Dark Brown Chernozems and Dark Brown Solonetz.
- Dense plains rough fescue with few other associated species forms the type of native grassland found on moist sites in this subregion. On slightly drier sites, porcupine grass, western porcupine grass and northern wheat grass mix with the plains rough fescue.
- On drier sites, or on those with increased levels of grazing, plains rough fescue is still an important component of the grasslands, but occurs with an increased variety of grasses including western porcupine grass, slender wheat grass and Hooker's oat grass. Diverse perennial herbs include prairie crocus, prairie sagewort, wild blue flax, northern bedstraw and three-flowered avens.
- The grasslands on the driest sites resemble those of the Mixedgrass and Dry Mixedgrass subregions, with blue grama grass, northern wheat grass, sand grass and June grass all prominent.
- On sites with Solonetzic soils, western wheat grass, June grass and various upland sedges are common.
- Buckbrush, silverberry, common wild rose and saskatoon shrublands occur in moist pockets in the uplands or along coulees.
- Stands of plains cottonwood can still be found in coulees and along rivers, as occur in the Dry Mixedgrass and Mixedgrass subregions, but here there are also balsam poplar stands, and in some areas the two species form hybrids. Indicative of the transition to the Parkland Natural Region, aspen stands also occur occasionally.
- In some low areas, wetlands hold enough water during the growing season to support marshes of common cattails and bulrushes.
- A ring of willows often forms around the wetlands, or in bands along creeks and rivers.
- This subregion is cooler and moister than the Dry Mixedgrass Natural Subregion. This is the result of the lower intensity of the sun at higher latitudes, as well as the mid-Alberta summer storm track and the influence of the winter polar air mass.

Yellow-headed Blackbird

- Winter snowfalls are low, but the snow is likely to stay on the ground and add to the spring soil moisture.
- Only 3% of the total area is covered by water, mainly as small lakes. The largest lakes are Sullivan Lake, Chain Lakes and Gough Lake.
- The Red Deer River is the only major river to flow through the area.
- Wetlands cover about 5% of the area.

Saskatoon berries

Plains Rough Fescue grassland at Antelope Hill Provincial Park

Foothills Fescue Natural Subregion

Total Area: 13,623 km² (14% of Grassland Natural Region)

The Foothills Fescue Natural Subregion is characterized by nearly level cultivated plains in the north and cool, high-elevation grassy uplands along the mountain flanks to the south.

The subregion occupies an irregular south-north belt between 15 to 100 km wide, extending from the Alberta–Montana border to northwest of Drumheller.

Average elevation: 1100 m (range 800–1525 m).

Main land uses: Agriculture is the principal land use, with the amount of cultivation ranging from 80% in the plains to less than 20% in the hilly uplands where grazing predominates. At higher elevations, the growing season is too short for wheat, so barley and forage crops are more common. There is significant oil and gas activity in the foothills, and the Subregion is popular for recreation, especially in the south.

Key Features

- This is the most moist of the Grassland subregions, with cooler summers and shorter growing seasons than the others. It also has warmer winters, more precipitation and a greater number of Chinooks.
- Orthic Black Chernozems are the dominant soils.
- The dominant grassland vegetation is tall and lush, made up of mountain rough fescue, Parry oat grass and Idaho fescue.
- Showy patches of wildflowers are usually dominated by sticky purple geranium or silvery perennial lupine but included other southwestern species such as woolly gromwell and western wild parsley.
- Drier sites have less well-developed vegetation, and are dominated by creeping juniper June grass, Parry oat grass and Idaho fescue.
- Forest and shrub areas are limited by frequent Chinooks and summer drying, but sheltered areas will often have shrub communities of buckbrush, silverberry, wild roses or saskatoon. Shrubby cinquefoil may be locally abundant.
- Along rivers and streams, balsam poplar, aspen and plains cottonwood stands occur on lower terraces or sometimes in protected coulees. Willow shrublands are also typical.

- About half the subregion is cultivated for crops. In its southern part, about 80% of the remaining native prairie occurs on higher elevation lands.
- Only about 1% of the Subregion is occupied by water, chiefly that of the Waterton, Oldman, Bow and St. Mary Rivers. St. Mary Reservoir is the largest lake.
- Wetlands are uncommon, covering only about 3% of the subregion.

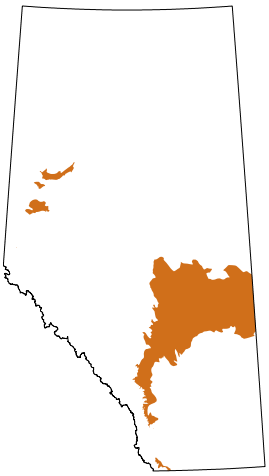
Wildflowers are abundant at Ross Lake Natural Area

Lichens on rocks at O.H. Ranch Heritage Rangeland

Balsamroot

Parkland Natural Region

Total Area: 60,747 km² (9% of province)



Overview

The Parkland Natural Region is the most densely populated natural region in Alberta, and has been farmed/ranched extensively since the late 1800s. Areas of extensive agriculture have altered it, making its boundaries difficult to define, so soil characteristics have been used to delineate the subregion, since these change more slowly than surface land cover.

The character of the natural region changes from north to south. Grasslands are the main native vegetation type in the southern part. Islands of aspen forest or patches of willow shrubland exist in moist depressions or on northerly slopes. To the north, aspen stands are more common, and closed aspen and balsam poplar stands with intermixed grasslands are typical, forming a parkland-like mosaic.

Few species are exclusive to the Parkland Natural Region, but the varied composition of the plant communities creates characteristic habitats with their associated wildlife.

Winters are cooler in the more northerly Peace River Natural Subregion owing to the stronger polar influences, and warmer in the Foothills Parkland Natural Subregion because of Chinooks. Average annual precipitation levels lie between those of the Grassland Natural Region to the south and the Rocky Mountain or Boreal natural regions to the west and north.

About 100 (20%) of Alberta's rare vascular plant species are found in the Parkland Natural Region. Some are found only in this natural region, such as the marsh gentian.

The Ribstone Plain, which includes the Wainwright Sand Dunes Ecological Reserve, is a large group of dunes whose steep slopes can reach a height of 30 m. Sand dune blowouts (bowl-shaped depressions in active dunes) are common throughout. In the Edgerton area, the rare Nevada buck-moth is found on sand dunes stabilized with trembling aspen.

The Peace, Smoky, North Saskatchewan, Red Deer and Bow Rivers are the major watercourses within the Parkland Natural Region.

Wetlands are uncommon in the Foothills Parkland Natural Subregion, but cover 5-10% of the Central Parkland and Peace River Parkland natural subregions.

The rivers, lakes and wetlands support a variety of wildlife populations throughout the natural region. Lakes and wetlands are important nesting areas for species such as diving ducks, grebes, American bittern, marsh wren and black tern. The boreal chorus frog, wood frog and Canadian toad are typical amphibians of the wetlands.

The wildlife species of the Parkland reflect this natural region's transitional nature. Species usually thought of as boreal, such as snowshoe hare, moose or northern flying squirrel make use of the woodlands and shrublands, alongside species of the grasslands such as Richardson's ground squirrel and plains spadefoot toad, which use the adjacent meadows.

In the Central Parkland Natural Subregion, grassland birds such as the upland sandpiper,

Long-tailed Weasel
© Gerald Romanchuk

Boreal Owl

Sprague's pipit and Baird's sparrow are common in the south but less common to the north and west where boreal species like the broad-winged hawk and rose-breasted grosbeak are more often found.

The prairie vole seems to be the only mammal that is restricted primarily to the Central Parkland Natural Subregion. Two species whose primary range is also the Central Parkland are Franklin's ground squirrel and piping plover.

The Foothills Parkland Natural Subregion contains wildlife that lives mainly in the Rocky Mountain Natural Region. This includes birds such as dusky flycatcher, MacGillivray's warbler, lazuli bunting and white-crowned sparrow. Birds that live in the tall willow shrubs include clay-colored sparrow, orange-crowned warbler, yellow warbler, alder flycatcher and white-crowned sparrow. In aspen woodlands in the southern part of this subregion, black-headed grosbeak and blue grouse can be found.

Aspen Canopy

As might be expected, wildlife living in the Peace River Parkland Natural Subregion is most similar to that found in the neighbouring Boreal Forest Natural Region. But areas of native grasslands in the Peace River Parkland often support populations of species that are otherwise associated with prairie habitats far to the south. Such widely separated populations of the same species are referred to as disjunct.

Lakes and ponds in the Peace River Parkland form one of the major nesting areas for the trumpeter swan. The redside shiner, northern

Great Blue Heron
© Gerald Romanchuk

squawfish and largescale sucker are fish species restricted to the Peace River system.

The present-day Parkland Natural Region is characterized by patches of aspen and willow shrublands mixed with native grasslands. These are underlain by black soils and surrounded by productive agricultural lands and urban landscapes.

Cool, moist, mountainous climates along the foothills of the Front Ranges, and transitional boreal climates in the plains of central and northwestern Alberta, produce three distinct divisions of this natural region.

The Parkland Natural Region is unique to North America. It occurs mainly in the Prairie Provinces, with some minor extensions into the northern United States.

This natural region includes the Foothills Parkland, Central Parkland and Peace River Parkland natural subregions.

Foothills Parkland Natural Subregion

Total Area: 3,921 km² (6.5% of Parkland Natural Region)

The Foothills Parkland Natural Subregion is defined by rolling to hilly native grasslands on southerly slopes, aspen woodlands or willow shrublands in low-lying areas or on northerly slopes, and hay lands on undulating to rolling land.

The subregion occupies a broken belt along the foothills, ranging from about 5- to 50-km wide. It consists of two separate units. The southern unit extends from the Alberta–Montana border north to Drywood Creek; the northern unit extends approximately from Willow Creek to about 50 km north of Calgary.

Average elevation: 1250 m (range 1025–1525 m).

Main land uses: Short, cool summers at higher elevations in the subregion are not conducive to intensive agriculture; hay or feed grains are the main crops. Over 60% of the subregion is used for grazing. Oil and gas exploration and development are significant.

Key Features

- The subregion has cooler summers and shorter growing seasons but warmer winters and more precipitation than other subregions within the Parkland Natural Region.
- Owing to the fairly short growing season, the subregion has less intensive cultivation. Thus of the three parkland natural subregions, this one has the highest proportion of area remaining in native vegetation.
- Foothills Parkland generally forms a narrow, transitional band between the grasslands of the Foothills Fescue Subregion and the forests of the Montane Subregion.
- There is a continuum from grassland with groves of trees or shrubs to park-like forest with grassy openings to closed deciduous forest. Because topographic and therefore climatic change occur over short distances, the transition in vegetation community may be evident over distances as small as one kilometre usually over distances of less than 5 km.
- Plants such as lupines, oatgrass and Idaho fescue occur commonly in the Foothills

Glenbow Ranch Provincial Park
© Al Robertson

OH Ranch Heritage Rangeland

Parkland but are absent from the Central Parkland.

- Conversely, some Central Parkland species are conspicuously absent here, including beaked hazelnut, high-bush cranberry, sarsaparilla, bunchberry, and wild lily-of-the-valley.
- The grassland of the Foothills Parkland Subregion is the same as in the Foothills Fescue Subregion, namely, a fescue-oatgrass community with a large diversity of forb and grass species.
- Aspen is generally dominant in the upland forests with balsam poplar occurring on moister sites.
- A distinctive community of the Foothills Parkland is the Bebb's willow-dominated groveland. Understory species include tall larkspur and white geranium.
- Less than 1% open water is found in this subregion. The Bow River is the largest watercourse.
- Wetlands are uncommon, covering about 4% of the total area, but seepage on lower slopes is a common phenomenon.

Palla Checkerspot Butterfly
© Doug Macaulay

Central Parkland Natural Subregion

Total Area: 53,706 km² (88.5% of Parkland Natural Region)

The Central Parkland Natural Subregion occupies a broad, intensively cultivated and heavily populated fertile crescent in central Alberta. It lies between the cold, snowy northern forests and the warm, dry southern prairies.

The subregion encompasses over 50,000 km², much of it under cultivation. It includes all or parts of Alberta's three largest cities, and arches north from Calgary through Edmonton and east to the Alberta–Saskatchewan border. In addition to being the most densely populated subregion in Alberta, it is also the most productive agricultural region in the province.

Black-crowned Night-Heron

Average elevation: 750 m (range 500–1250 m).

Main land uses: Cropland covers about 80% of the plains and about 65% of the hummocky uplands; the remaining area is grazing land. Wheat, barley and canola are the main crops although some specialty crops such as pulses and flax are grown. At higher elevations in the southwestern part of the subregion a shorter frost-free period limits crops to cool-season barley and forages. Conventional petroleum exploration and development activities occur throughout. Heavy oil, strip coal mining and gravel extraction activities also occur.

Key Features

- The subregion is mostly cultivated with only about 5% of it remaining in native vegetation.
- Adequate summer rainfall combined with rich soils and a sufficiently warm, long growing season means that annual crops are grown in the subregion.
- Temperature, precipitation and growing season characteristics lie between those of the warm, dry grasslands to the south and the cooler, moister boreal forests to the west and north.
- A continuum of grassland with groves of aspen to aspen parkland to closed aspen forest occurs from south to north.
- Native vegetation is scarce in the Central Parkland because of the high productivity of the soils for agriculture. Consequently, most of the remaining natural parkland sites

Extensive marshland can be found at Lois Hole Centennial Provincial Park

are found on rougher terrain or sites with Solonetzic soils.

- The two major forest types are aspen on upland sites and balsam poplar on moister sites in depressions and in the northern part of the subregion. Both are characterized by a dense, lush, species-rich understory.
- Plant species characteristic of the aspen forest type include snowberry, saskatoon, beaked hazel, choke cherry, bunchberry and wild lily-of-the-valley.
- Species characteristic of the moister balsam poplar forests include red osier dogwood, pussy willow, northern gooseberry, green alder, bracted honeysuckle, tall lungwort, mitrewort and baneberry.
- The natural grassland vegetation of the "parks" is essentially the same as that of the Northern Fescue Subregion. Plains rough fescue dominates most sites with western porcupine grass being important on south-facing slopes in the southern part of the subregion and on solonetzic soil areas. Other grasses of Solonetzic areas are June grass and western wheat grass.
- The native grasslands, however, are increasingly rare. Even those that have not been converted to cropland may be losing their native character as introduced invasive species move in. In many areas, grasslands dominated by smooth brome or Kentucky bluegrass may be more common than the native types.
- Shrub communities are more extensive in the northern portion of the subregion and often extend in belts outward from the forest communities. Major species are buckbrush, wild roses, chokecherry, pin cherry, saskatoon and silverberry.
- Many small waterbodies are scattered throughout the subregion and cover about 2% of the area. The largest of these are Beaverhill, Gull, Buffalo and Sounding Lakes. The major watercourses are the Red Deer, Battle and North Saskatchewan Rivers.
- Wetlands cover about 10% of the subregion and are very productive. They are referred to as constituting the "duck factory" of North America.
- Marshes, willow shrublands and seasonal ponds are typical types of wetlands found in the southern part of the subregion.

Young Northern Saw-whet Owl
© Terry Krause

Peace River Parkland Natural Subregion

Total Area: 3,120 km² (5% of Parkland Natural Region)

Wildflowers of the Peace River Parkland
© M. Hervieux

Steep banks of the Peace River at Highland Park Natural Area
© Rod Negrave

The Peace River Parkland Natural Subregion lies well north of the other subregions in the Parkland Natural Region. It is defined by gently rolling plains and steep, south-facing grassy and forested slopes along the Peace River. It is the smallest natural subregion in Alberta, and is mapped as three small sub-areas in northwestern Alberta.

The most northerly sub-area runs parallel to the Peace River from the City of Peace River to Dunvegan. It includes the south-facing, steep Peace River valley slopes and glaciolacustrine plains on the north side of the river to a distance of about 20 km back from the river valley edge. The second sub-area includes a small level to gently undulating plain centred on the Spirit River. The third and most southerly sub-area is an undulating to rolling plain abutting the town of Grande Prairie.

Average elevation: 625 m (range 300–800 m).

Main land uses: Agriculture is the major land use and about 70% of the area is cultivated. Canola, wheat and barley are the main crops. Petroleum exploration and development are extensive throughout this subregion.

Key Features

- The first explorers to the Peace River Parkland remarked on the extensive parcels of "native prairie" within the largely forested landscape; however, agricultural development started in the early 1900s, and little of the original native prairie remains today.
- The upland forests of the Peace River Parkland occur mostly on till deposits and are virtually indistinguishable from those of the surrounding Mixedwood Boreal Forest.
- They are dominated by aspen and white spruce with lesser amounts of balsam poplar, especially on wetter sites.
- The grasslands tend to be on Solonetzic soils, and are dominated by sedges, intermediate oat grass, western porcupine grass, bearded wheat grass, inland bluegrass, three-flowered avens, and low goldenrod. The grasslands of the Peace River Parkland are most closely related to those of the Northern Fescue Subregion. The absence of plains rough fescue is perhaps not surprising since it is often absent from Solonetzic soils in the Central Parkland and Northern Fescue subregions.

Native grassland in the Kleskun Hill Natural Area
© R. Arbuckle

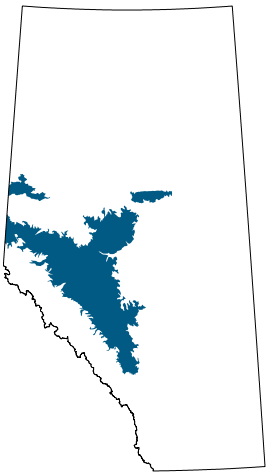
- Grasslands also occur on steep, south-facing slopes. These are dominated by western porcupine grass, sedges and pasture sage. Other common species include Columbia needle grass, June grass, green needle grass, pale comandra and mountain goldenrod.
- More northerly grasslands occur on both river and lake deposits and are best characterized as a wheat grass–sedge type. These grasslands are dotted with willow groves and dense thickets of buckbrush and common wild rose.
- These disjunct grasslands are also notable for the presence of species which otherwise have a more southerly or westerly distribution, such as brittle prickly pear cactus, Richardson's needle grass, Columbia needle grass and short-stemmed thistle.
- The redside shiner, northern squawfish and largescale sucker are three fish species that are restricted to the Peace River system.
- The Peace River, Bear Lake and a few other small water bodies and watercourses cover about 2% of the total area.
- Wetlands, including willow fens, black spruce fens and seasonal ponds, cover about 6% of the area.

Grassland and forest mosaic of Hines Creek
© M. Hervieux

Badlands of the Kleskun Hill Natural Area

Foothills Natural Region

Total Area: 66,436 km² (10% of province)



Overview

The topography of this natural region varies from sharp, bedrock-dominated ridges near the mountains to rolling terrain in the north and east. Elevations range from 700 m in the most northerly areas to about 1700 m in the south.

Mixed forests of aspen, lodgepole pine, white spruce and balsam poplar with understories containing a variety of vegetation are commonly found at lower elevations.

Lodgepole pine forests with less diverse understory vegetation and well developed feathermoss layers are typical at higher elevations.

Both subregions in this natural region, the Upper and Lower Foothills subregions, receive a relatively high annual precipitation. Their average July precipitation is higher than in any other subregion in the province.

Water bodies cover less than 1% of the total area within the natural region, with the Athabasca and North Saskatchewan being the primary rivers.

Wetlands occur throughout the region, but are less common in the steep-sided valleys typical of the Upper Foothills than in the gentler terrain of the Lower Foothills.

This natural region contains no vertebrate species that occur only there. However, it represents a transition between the Rocky Mountain and Boreal Forest natural regions, which accounts for its relatively high diversity of animal species. Species such as wapiti (also called elk) range between the Rocky Mountains and the Foothills natural regions while others such as rose-breasted grosbeak are essentially boreal species that also occur in the foothills.

About 80 rare vascular plant species occur in the Foothills Natural Region, most of which are also found in the adjacent Rocky Mountain and Foothills natural regions.

The natural region provides habitat for wolverine and also contains significant areas of suitable habitat for grizzly bears, Critical habitat for woodland caribou (both mountain and boreal caribou) is also found here.

This natural region contains a wide range of habitat types owing to its varying topography, surface and groundwater flow patterns, and diverse plant communities. Beaver populations play an important role in creating habitat for other species, including Barrow's goldeneye and

Great Gray Owl
© Gord Court

Rock Lake – Solomon Creek Wildland Provincial Park

Clasping leaved twisted stalk berries

trumpeter swan. The long-toed salamander also uses these types of habitats.

In the southern and eastern parts of the natural region, wetland habitats are more diverse and have a richer variety of species. Fishes include Rocky Mountain whitefish, bull trout, arctic grayling, burbot and white sucker.

Lodgepole pine stands are considered a good marker of the Foothills Natural Region/Boreal Forest Natural Region boundary as they are abundant in the former but scarce in the latter. As well, the shift in climate between the two natural regions is marked by a change in the abundance and type of wildlife species.

Highly diverse wildlife communities are found within the rich, moist deciduous forests, mainly in the eastern and southern parts of the Lower Foothills Natural Subregion. Common birds in these areas are ruffed grouse, warbling vireo, black-capped chickadee and Tennessee warbler. Localized areas of abundant leafy vegetation are of special importance for maintaining a variety of songbirds and mammals. These areas are usually on slopes or in valley bottoms that receive higher precipitation and/or groundwater discharge that is rich in nutrients.

The Foothills Natural Region has a generally moist, cool climate. Gently undulating to rolling hills and plateaus with deciduous and mixedwood forests are typical at lower elevations. Strongly rolling to steeply sloping hills with coniferous forests are widespread at higher elevations.

This natural region extends along the eastern side of the Rocky Mountains north from the Bow River Valley to just south of Grande Prairie. It also includes the Swan Hills and Pelican Mountain outliers to the east and the Saddle Hills outlier north of Grande Prairie.

The Foothills Natural Region contains the Lower and Upper Foothills natural subregions.

Upper Foothills Natural Subregion

Total Area: 21,537 km² (32% of Foothills Natural Region)

The Upper Foothills Natural Subregion is influenced by short, wet summers and snowy, cold winters. Thick stands of lodgepole pine, black spruce and white spruce are found on rolling to steeply sloping ground.

Rock Lake – Solomon Creek Wildland Provincial Park

This subregion occupies a narrow belt between the Lower Foothills Natural Subregion at lower elevations and the Subalpine Natural Subregion at higher elevations. It contains one outlier on the highest elevations of the Swan Hills.

Average elevation: 1300 m (950–1750 m).

Main land uses: The Upper Foothills Natural Subregion includes large areas supporting productive timber. Its shorter growing season makes cropping and most tame forage production difficult. Grazing occurs on native rangelands, on disturbed areas that have been reclaimed, and on areas of recently harvested forests.

Coal seams lie under much of the area. Open-pit mines exploit coal where these seams are close to the surface. These coal seams are also a potential source of coal-bed methane. Intensive oil and gas exploration and development have occurred over the last several decades, and the resulting network of seismic lines has created access throughout the subregion.

Key Features

- The climate, soils and vegetation patterns of the Upper Foothills Natural Subregion indicate a shift from the drier, somewhat warmer conditions of the Lower Foothills Natural Subregion to the cooler, wetter conditions of the Subalpine Natural Subregion of the Rocky Mountain Natural Region.

Devil's-club grows in the moist forests at Grizzly Ridge Wildland Provincial Park

- The landscape is dominated by strongly rolling to steep higher-elevation foothills, typically with a cover of coniferous forests.
- Lodgepole pine dominates the forests in the south but, in the north, the forests are usually a mix of lodgepole pine and black spruce.
- Forest understory shrubs on mesic sites include Labrador tea, bog cranberry, green alder and tall bilberry.
- Drier lodgepole pine forests typically have Canada buffaloberry, juniper, bearberry or hairy wild rye in the understory.
- White and black spruce are the dominant trees of older stands, often with subalpine fir in the understory and a ground cover of feathermosses.
- Wetlands in lower valley locations are dominated by open and closed black spruce communities with Labrador tea, cloudberry and peat mosses in the understory.
- White spruce stands occur along river valleys and on lower slopes.
- One of the main differences between the Upper and the Lower Foothills is that lodgepole pine forms the dominant pioneer forest rather than aspen.
- The Upper Foothills is distinguished from the Subalpine subregion by its lack of subalpine understory species such as white rhododendron, false azalea and grouseberry.
- There is very little standing water, although several major rivers, including the North Saskatchewan, Macleod, Athabasca, Smoky and Wapiti Rivers run eastward and northward through the subregion.
- Wetlands occur in the major valleys and cover about 10% of the subregion.

William A. Switzer Provincial Park

Lower Foothills Natural Subregion

Total Area: 44,899 km² (68% of Foothills Natural Region)

The Lower Foothills Natural Subregion is a transition area, with cold winters typical of boreal climates and high winter snowfalls typical of more mountainous climates.

The rolling plateaus are forested with dense mixed stands of aspen, lodgepole pine, white spruce and balsam poplar.

The Lower Foothills Natural Subregion covers a broad northwest-to-southeast belt between the Bow River Valley to the south and Grande Prairie to the north, with outliers in the Swan Hills and Pelican Mountains to the east, and the Saddle Hills to the north.

Northern Pygmy Owl
© Mark Sturk

Average elevation: 950 m (650-1625 m).

Main land uses: This subregion contains some of the most productive timber lands in Alberta. Cropping and forage production are mainly located on the lower-elevation eastern fringe of the subregion while grazing occurs on native rangelands throughout it.

Much of the area is underlain by coal seams, and open-pit mines have been developed where seams are sufficiently close to the surface. Intensive oil and gas exploration and development have occurred over the past several decades. The resulting network of seismic lines has created access throughout the natural subregion.

Key Features

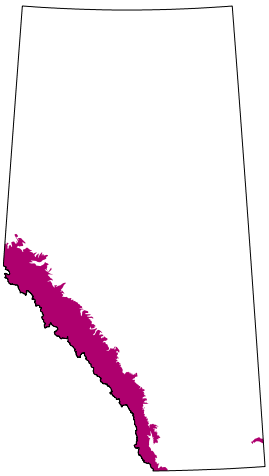
- The climate, soils and vegetation reflect a transition from a cold, dry continental climate to a milder, moister montane climate.
- This subregion is the most diverse in Alberta in terms of forest types and tree species. Aspen, balsam poplar, white birch, lodgepole pine, black spruce, white spruce, balsam fir and tamarack grow as pure stands or as mixtures on a variety of slopes and exposures.
- Lodgepole pine tends to dominate on drier sites, often with bearberry, bog cranberry or hairy wild rye in the understory.
- Aspen stands may be common on somewhat moister sites, usually with an understory of bearberry, blueberry or Canada buffaloberry.
- Forests on mesic sites are commonly a mixture of lodgepole pine, white spruce and aspen, although pure stands of any of these species also occur.

- These mesic forests commonly have understory species that are usually considered boreal such as low-bush cranberry, green alder, prickly rose, wild sarsaparilla, dewberry and marsh reedgrass.
- Stands of lodgepole pine and black spruce with Labrador tea are common on nutrient-poor sites.
- Moister sites support pure stands and mixtures of aspen, lodgepole pine and white spruce as well, but the understory species are often lush with bracted honeysuckle, willows, wild currants and, occasionally, devil's club. Fern species become more abundant.
- Black spruce and tamarack occur on poorly drained sites with bog and fen understory species.
- A significant presence of lodgepole pine on mesic sites helps distinguish this subregion from adjacent Central Mixedwood areas.
- A significant deciduous tree cover on mesic sites aids in differentiating this subregion from adjacent Upper Foothills areas.
- Little standing water is present aside from the man-made Brazeau Reservoir. Several major rivers, including the North Saskatchewan, Macleod, Athabasca, Smoky and Wapiti Rivers, run eastward and northward through the subregion.
- Wetlands are not usually found on the steep valley sides, although areas of seepage are common on the middle to lower slopes. Wetlands are, however, common in valley bottoms, and overall make up about 20% of the subregion. In this natural subregion, the wetlands are characterized by peat accumulations up to 3 m thick.

Sandstone hoodoos at Sundance Provincial Park

Rocky Mountain Natural Region

Total Area:
49,070 km² (7.4% of province)



Overview

This natural region is defined by mountains, high foothills and deep valleys carved out by glaciers. Topography and geology vary considerably.

On average, the Rocky Mountain Natural Region has the coolest summers, shortest growing season, highest average annual precipitation and snowiest winters of any Region.

Glaciers and snowfields at the highest elevations of the Central Ranges contribute greatly to year-round flows of major rivers that drain into the Mackenzie and Saskatchewan basins.

More than 300 rare plant species (about 65% of Alberta's rare vascular plants) occur in the Rocky Mountain Natural Region, and about 140 are found only in this natural region.

Willmore Wilderness Park

Wetlands are uncommon to rare in all three subregions of this natural region, the Alpine, Subalpine and Montane.

The Rocky Mountain Natural Region contains a great variety of habitats in which lives a wide range of wildlife. The habitats that are richest in species are at lower elevations in the eastern and southern parts of the natural region. An important part of the grizzly bear's range lies within all three subregions.

The Waterton–West Castle area in the southwestern part of the natural region has a remarkably high number of species that are at the edge of their range, such as the wandering shrew, Steller's jay and the butterfly clodius parnassian. The red-tailed chipmunk and several subspecies of birds and mammals are also found only in this area.

A few species live only in the northern and central parts of the natural region, including the willow ptarmigan and woodland caribou. The mountain subspecies of the woodland caribou typically stays in the alpine areas in summer, moving to the mature and old-forest habitats in the foothills in winter. Columbian ground squirrel, pika, hoary marmot, mountain goat and bighorn sheep use habitats in both the Alpine and Subalpine natural subregions.

The hermit thrush, white-crowned sparrow, Brewer's sparrow and golden-crowned sparrow are typical species often found at the upper elevations of the Subalpine Natural Subregion. The black swift nests on cliff faces that are kept moist by water that cascades over the cliffs.

Mountain Chickadee
© Gord Court

Bedrock is most common in the Rocky Mountains and Canadian Shield Natural Regions

Aspen stands provide habitat for a variety of birds including the MacGillivray's warbler, warbling vireo, white-crowned sparrow and lazuli bunting. The dense vegetation growing on avalanche slopes provides habitat for the fox sparrow, MacGillivray's warbler and Wilson's warbler.

The white-tailed ptarmigan, gray-crowned rosy finch, horned lark and American pipit are found only in alpine habitats during nesting season but have a broader range at other times. American dippers and harlequin ducks can be found along or in fast-flowing streams.

Wet meadows and streamside shrubbery throughout the natural region are productive small-mammal habitats. Here, species such as the long-tailed vole, northern bog lemming, heather vole and a rare species, Richardson's water vole, may be found. Spotted frog and long-toed salamander occurrences are mostly restricted to the Rocky Mountain Natural Region.

Native fish species include lake trout, bull trout, mountain sucker (in the south), and local populations of rainbow trout and cutthroat trout.

The Rocky Mountain Natural Region is defined by mountains, high foothills and deep glacial valleys. Short, cool summers and cold, snowy winters are typical.

At the highest elevations trees cannot survive, and shrubs and herbs grow only in protected places. At lower elevations, coniferous forests are dominant, with grasslands and mixedwood forests at lower elevations and in valley bottoms.

The Rocky Mountain Natural Region lies along the Continental Divide and consists of the Alpine, Subalpine and Montane natural subregions.

Harlequin Duck
© Gord Court

Alpine Natural Subregion

Total Area: 15,084 km² (31% of Rocky Mountain Natural Region)

The Alpine Natural Subregion is a rugged land of mountains, glaciers and snowfields. It extends north to south along the Continental Divide. Very steep rock faces, short, cold summers, strong winds and high snowfalls prevent tree growth. Plant growth is limited to low-growing shrubs and herbs in protected areas.

The Alpine Natural Subregion occupies the highest lands in Alberta, and includes all areas above tree line in the Rocky Mountain Front and Main Ranges.

Average elevation: 2350 m (range 1900–3650 m).

Main land uses: The Alpine Natural Subregion is largely protected within National Parks and Provincial Parks and Wilderness Areas. It is an extremely important watershed and provides valuable wildlife habitat and a variety of recreational opportunities.

White-tailed Ptarmigan
© Doug Macaulay

Arctic Lousewort decorates the alpine meadows of Willmore Wilderness Park

Alpine tarns in Kakwa Wildland Provincial Park

Key Features

- The Alpine Natural Subregion has the coldest summers, shortest growing season and highest snowfall of any subregion in Alberta.
- Largely because of the severe climate, vegetation tends to be found only in protected locations and changes markedly with small changes in microclimate and snow cover.
- Deep, late-melting snowbeds are often occupied by black alpine sedge communities.
- Moderate snowbed communities typically contain dwarf shrub heath tundra, which is dominated by heathers, mountain heathers and grouseberry.
- Shallow snow areas on ridge tops and other exposed sites typically contain communities dominated by white mountain avens, snow willow, moss campion, and Kobresia and other hardy members of the sedge family.
- Even on the steepest slopes and windswept ridges small patches of hardy plants such as Alaska harebell can be found in the shelter of rocks and in protected hollows.
- Diverse, colourful herb meadows occur in moist sites below melting snow banks or along streams.
- The highest-elevation communities are composed mainly of lichens growing on rocks and shallow soil.
- Tree cover, where it exists, is sparse and stunted and composed primarily of subalpine fir and Engelmann spruce.
- Glaciers, lakes and rivers account for about 4% of the subregion. Alpine lakes and the headwaters of major rivers are fed by glacial meltwaters. Wetlands are uncommon and typically very small.

Subalpine Natural Subregion

Total Area: 25,218 km² (51% of Rocky Mountain Natural Region)

Mountain Caribou at Willmore Wilderness Park

Kakwa Wildland Provincial Park's spectacular wildflower meadows © Doug Macaulay

The Subalpine Natural Subregion is found at high elevations but lower than those of the Alpine Natural Subregion. Open stands of Engelmann spruce and subalpine fir are dominant at higher elevations, with stunted individuals and krummholz islands of stunted trees near treeline. Dense lodgepole pine forests are common at lower elevations.

This subregion occurs on the midslopes of the Front Ranges and lower slopes of the western Central Ranges of the Rocky Mountains. It includes all areas below the Alpine Natural Subregion and above the Montane Natural Subregion south of the Bow River. North of the Bow River, it occurs at elevations above the Upper Foothills Natural Subregion. In the Rocky Mountain Main Ranges north of the Bow River it occupies the lower valley sides and bottoms.

Average elevation: 2350 m (range 1300–2300 m).

Main land uses: The Subalpine Natural Subregion provides valuable wildlife habitat and recreational opportunities. Timber harvesting is a significant activity but forest productivity is low, regeneration is slow, and harvesting and regeneration can be difficult because of steep slopes. Cattle grazing occurs on native rangelands and disturbed areas. Coal mining and intensive oil and gas exploration and development occur.

Key Features

- Coniferous forests are dominant throughout this subregion. Engelmann spruce, subalpine fir and subalpine larch forests mixed with herb-rich meadows occur at higher elevations. Young lodgepole pine stands that developed following fires are present at lower elevations.
- The climate is cold year-round and tree growth rates are generally slow.
- Shrublands such as dwarf birch- or willow-dominated communities are common on moister sites.
- Characteristic understory species of lodgepole pine and spruce-fir forests in the lower subalpine include false azalea, white-flowered rhododendron, grouseberry, tall bilberry and five-leaved bramble.
- Buffalo-berry is common in lodgepole pine forests at lower elevations.
- Whitebark pine is occasional at high elevations and subalpine larch occurs along tree line in the southern portion of the subregion.
- With increasing elevation tree cover becomes increasingly open and restricted to protected sites, and the trees become dwarfed and windblown (krummholz) in a zone of transition to the Alpine Natural Subregion.
- Heath species become more prevalent as a component of ground cover in the upper section in open forest and krummholz.
- False azalea, grouseberry, white-flowered rhododendron, tall bilberry or heathers singly or in combination have a significant presence in the subalpine.
- The lower boundary of the subregion is characterized by hybrids of white and Engelmann spruce.
- Short, cool, wet summers and long, cold winters with heavy snows are typical. This subregion receives more year-round precipitation on average than any natural subregion except the Alpine.

Columbia Spotted Frog
© Terry Thormin

- Subalpine forests are home to a number of bird species, some of which are restricted to the Rocky Mountain Natural Region such as the Steller's jay, varied thrush, Clark's nutcracker and Townsend's warbler.
- Through seed caching, the Clark's nutcracker plays an important role in the distribution and regeneration of whitebark pine.
- Rivers and small lakes cover 23% of the subregion. Small lakes occur infrequently throughout the subregion, but major rivers such as the Smoky, Athabasca, North Saskatchewan, Bow and Crowsnest Rivers flow through the valleys.
- Wetlands occur in valley bottoms, although they are uncommon and cover only 2% of the subregion. Seepage is common along lower valley slopes.

Grizzly bear grazing
© Gord Court

White-flowered
Rhododendron

Montane Natural Subregion

Total Area: 8,768 km² (18% of Rocky Mountain Natural Region)

The Montane Natural Subregion is a land of striking contrasts. It is composed of several separate units. The largest continuous unit spans lower elevations along the Front Ranges of the Rocky Mountains; it extends from just north of the Bow Valley to the Alberta–Montana border, and includes the Porcupine Hills. An outlier occurs on the highest elevations of the Cypress Hills in southeastern Alberta.

North of the Bow River Valley, the Montane Natural Subregion is a series of separate units. Each stretches from the foothills west into the Main Ranges along one of the major east-west river valleys which include the North Saskatchewan, Athabasca and Smoky Rivers. These montane units are associated with warm air masses that move through the mountain passes. There is a small isolated outlier on the Red Deer River at the Ya-Ha-Tinda Ranch. The subregion's upper boundary forms the lower limit of the Subalpine Natural Subregion.

Average elevation: 1400 m (range 825–1850 m).

Main land uses: The Montane Natural Subregion provides important wildlife habitat, and is highly valued for recreational activities and domestic grazing. Because of its mild climate and favorable location in relation to the mountains, this subregion is considered a desirable place to live and urban development is occurring at a rapid pace in some areas.

Timber harvesting is locally important and standing volumes can be high, especially in the mature Douglas fir forests of southern Alberta. Regeneration is a challenge, however, owing to periodic drought conditions and unsuitable soils. Mining is a locally important activity in the Bow Corridor, and ranching occurs throughout the subregion. Three main transportation corridors (the Yellowhead, Trans-Canada and Crowsnest highways) occupy valley bottoms in the subregion.

Key Features

- Chinooks occur frequently along the Front Ranges of the Rocky Mountains. Snow accumulation is low and winters are warmer than anywhere else in Alberta except the Foothills Fescue and Foothills Parkland natural subregions. This is the driest and warmest of the three Rocky Mountain natural subregions.
- Regional and local climate influences have led to a highly varied collection of plant groupings or communities and soil types that change rapidly over very short distances.
- Lodgepole pine and aspen stands occur on easterly and northerly exposures, with grasslands growing on southerly and westerly exposures at lower elevations. Closed mixedwood and coniferous forests dominated by lodgepole pine occur at higher elevations.
- The subregion is characterized by forest and grassland complexes with grasslands occurring on dry and exposed sites.
- Closed forest communities are a mixture of lodgepole pine, aspen and white spruce, although pure stands of any of these species can occur. From the Athabasca valley south, Douglas fir is also a member of this mix.
- Understory shrubs are variable, with Canada buffaloberry, white meadowsweet,

thimbleberry, snowberry and saskatoon all common on mesic sites. Grasses including pine grass and hairy wild rye are common in the understory as well.

- Creeping mahonia is a common understory species from the Crowsnest Pass south.
- Open limber pine stands occur on ridgetops and eroding valley slopes in the southern Montane and as far north as the North Saskatchewan River valley.
- Associated grasslands vary from north to south. Common components of the southern grasslands are oat grasses, mountain rough fescue, bluebunch wheat grass and June grass.
- June grass and other wheat grasses become the principal grass components northwards.
- Aspen forests occur on fluvial fans and terraces, while balsam poplar or black cottonwood stands occupy the floodplains.
- Ericaceous shrubs (except bearberry and some Vaccinium species) are notably absent, in contrast to the Subalpine, which is dominated by ericaceous species.
- About 3% of the total area of the subregion is covered by water, largely accounted for by major rivers including the Smoky, Athabasca, North Saskatchewan and Bow rivers and five standing water bodies (Waterton, Minnewanka, Abraham and Brule Lakes and the Ghost Reservoir).
- Wetlands are rare, occupying about 2% of the total subregion.
- On the Canadian landscape, the Cypress Hills are the highest geographic feature between Labrador and the Rocky Mountains. On their northerly slopes at higher elevations conditions are cool and moist enough to support forest and grassland communities like those found in the Rocky Mountains several hundred kilometres to the west. (This is why the Cypress Hills plateau is classified as an outlier of the Montane Natural Subregion.)

Whaleback ridge at Bob Creek Wildland Provincial Park

Limber pine at OH Ranch Heritage Rangeland

Boreal Forest Natural Region

Total Area: 381,046 km² (58% of province)

Overview

Aspen and balsam poplar are the most common deciduous species in this natural region, while white spruce, black spruce and jack pine are the main conifers.

Crops are grown only in areas that have a sufficiently long growing season. Only one to two months in the summer have an average daily temperature that is higher than 15ºC.

Peak rainfalls occur in July, and about 60-70% of the annual precipitation is received between April and August.

In winter, the average daily temperature is below -10ºC for four months or more in most Boreal subregions, and below -20ºC for two months or more in the most northerly subregions.

The Peace-Athabasca Delta is the largest boreal delta in the world. It is one of the most important nesting and staging areas for waterfowl in North America, and is recognized under the Ramsar Convention as an internationally important wetland.

The only remaining nesting ground for the rare whooping crane is Wood Buffalo National

Forests of Marguerite River Wildland Provincial Park

Lesser Slave Lake

Park which lies within both Alberta and the Northwest Territories.

Woodland caribou (boreal ecotype) depend on habitats in this natural region. These animals typically frequent treed fens and bogs dominated by black spruce and larch where there is an adequate supply of food, particularly lichens.

The wood bison (Bison bison athabascae) is a northern subspecies of the American bison (Bison bison), and occurs only in Canada. The herd in Wood Buffalo National Park contains one of the largest free-roaming, self-regulating herds in existence. Other areas within the natural region also support wood bison.

The largest active dune system in Alberta occurs in this natural region. There are several large lakes and many small ones, and wetlands are common throughout—especially in the far northern and central portions and on high plateaus. The size and location of this Natural Region, along with its varied climate, topography and vegetation, is responsible for a diversity of habitats and wildlife.

Wildlife species within the Natural Region include those that are typical of the northern coniferous forests and wetlands that stretch across Canada. About 110 (25%) of Alberta's rare vascular plant species occur in the Boreal Natural Region, of which about 25 are restricted to it.

Climate and topography influence species composition in this natural region. Species with a subarctic distribution, such as the red-

Mourning Warbler
© Gord Court

Gulls patrol the beach at Lesser Slave Lake Provincial Park

necked phalarope, sometimes nest here. Others, such as willow ptarmigan, migrate south from the Northwest Territories to spend winters in Alberta, and then migrate north in the spring to breeding sites. Species with a primarily eastern boreal distribution, such as yellow rail, sedge wren, great-crested flycatcher, chestnut-sided warbler and Blackburnian warbler, summer in the southeastern parts of the natural region. The most species-rich habitats are mixedwoods and tall shrub communities near swamps, beaver ponds, streams and lakes. Some species, such as the yellow, and black-and-white warblers, American redstart, song sparrow, northern waterthrush, fox sparrow and Philadelphia vireo are mostly restricted to these sites. The barred owl is found occasionally in mature mixedwoods along lakeshores and in river valleys.

Forests that contain mostly deciduous trees provide habitat for the least flycatcher, house wren, ovenbird, red-eyed and warbling vireos, Tennessee warbler, Baltimore oriole and rose-breasted grosbeak. Mixed coniferous-deciduous forests are frequented by the yellow-bellied sapsucker, Swainson's thrush, solitary vireo, magnolia warbler and white-throated sparrow. Pileated woodpecker and northern goshawk are most frequently seen in old-growth deciduous and coniferous stands.

The coniferous forests support wide-ranging bird species such as western wood pewee, gray jay, red-breasted nuthatch, golden and ruby-crowned kinglets, yellow-rumped warbler, pine siskin, red- and white-winged crossbills, dark-eyed junco and boreal chickadee. The bay-breasted, Cape May and black-throated green warblers are confined largely to mature conifer-dominated mixedwoods in the central and eastern parts of the natural region.

Balsam fir stands contain an especially varied group of woodland birds, including the Blackburnian warbler. At higher elevations and latitudes, the common bird residents of black spruce-dominated woodlands include gray jay, common raven, yellow-rumped warbler, blackpoll warbler, dark-eyed junco and chipping sparrow.

Fens are commonly inhabited by greater and lesser yellowlegs, solitary sandpiper, common snipe, palm warbler, rusty blackbird, Lincoln's sparrow and sandhill cranes. Black spruce bogs are home to spruce grouse, ruby-crowned kinglet, gray jay, chipping sparrow, dark-eyed junco, Lincoln's sparrow and swamp sparrow.

Animal species common to the forested areas include the red squirrel, snowshoe hare, southern red-backed vole, cinereous shrew, least chipmunk, deer mouse, black bear, moose and ermine. Other mammals such as the fisher, wolverine, river otter, Canada lynx and gray wolf are less common and are locally distributed. The American beaver is a very important resident as it creates and maintains ponds that provide important habitat for many species.

The boreal chorus frog and wood frog range throughout most of the area, but are less common in the north and west. Western toads live mostly in the southwestern portion of the natural region, while Canadian toads are more common in the eastern part. The most northerly populations of red-sided garter snakes in Alberta occur along the Slave River.

Fish populations are species-rich, particularly in the southeast portion of the Natural Region. Species include the arctic grayling, northern redbelly dace, Iowa darter, lake whitefish, burbot, walleye, goldeye, lake chub, longnose and white suckers, emerald and spottail shiners, slimy sculpin, ninespine stickleback, walleye, yellow perch and northern pike.

The Boreal Forest Natural Region is characterized by short summers, long, cold winters and vast deciduous, mixedwood and coniferous forests interspersed with extensive wetlands. This is Alberta's largest natural region, covering most of northern Alberta and extending south in a narrow band along the eastern edge of the foothills almost to Calgary.

The northern part of the Boreal Forest Natural Region drains into the Mackenzie Valley Basin by way of the Peace, Athabasca and Slave Rivers. The southern part drains into the Saskatchewan River system through the North Saskatchewan River.

The Boreal Forest Natural Region contains the Dry Mixedwood, Central Mixedwood, Lower Boreal Highlands, Upper Boreal Highlands, Athabasca Plain, Peace–Athabasca Delta, Northern Mixedwood, and Boreal Subarctic natural subregions.

Alberta's largest area of open sand make up Athabasca Dunes Ecological Reserve

Dry Mixedwood Natural Subregion

Total Area: 85,321 km² (22% of Boreal Forest Natural Region)

Large, meandering rivers are common in the Dry Mixedwood Subregion

The Dry Mixedwood Natural Subregion is defined by undulating plains, aspen-dominated forests and fens. This is the warmest Boreal natural subregion but is cooler than adjacent parkland subregions.

The subregion is the second largest natural subregion in Alberta and is mapped as three separate units.

The largest, most northerly unit parallels the Peace River in northwestern Alberta, stretching from Grande Prairie to Fort Vermilion.

The second unit lies to the south and occupies a crescent-shaped area in central Alberta between the Central Parkland and the Central Mixedwood natural subregions. The Lower Foothills Natural Subregion borders the Dry Mixedwood Natural Subregion in the extreme south.

The third and smallest unit covers the Cooking Lake area immediately east of Edmonton.

Average elevation: 600 m (range 225–1225 m).

Main land uses: Slightly over 50% of the Peace River and central Alberta portions of the subregion has been cultivated. The central Alberta portion has 40-70% of the cultivated area in barley and forage crops. The Peace River portion varies in terms of total cultivated area depending on location, and a greater variety of crops are grown (oilseeds, wheat, barley and forages).

Throughout the subregion, significant harvesting of aspen occurs for pulp and paper production, along with a lesser amount of conifer harvesting. Oil and gas activity is a major land use, with oilsands in the Cold Lake and Peace River areas and conventional oil and gas production in the west. Pit mining for thermal coal occurs in the Wabamun Lake area. Hunting and fishing are popular activities throughout the area.

Key Features

- The subregion has the warmest summers and longest growing season of the Boreal subregions. It is the most southerly and receives more solar energy than other Boreal subregions.
- The subregion is defined by aspen forests and cultivated landscapes, with wetlands commonly occurring in low-lying areas. On moist, rich sites, balsam poplar, aspen and white spruce exist as pure or mixed stands.
- A major portion of this subregion has been converted to agricultural use with a variety of annual and forage crops.
- Native vegetation consists of aspen forests with a shrub layer of rose, beaked hazelnut, low-bush cranberry and other species.
- Canada buffaloberry is dominant in the aspen forests in the Peace River part of the subregion.
- Balsam poplar, often with a shrub layer of red-osier dogwood, is common in moist areas.
- White spruce forests are present, but less common than in the Central Mixedwood, likely because the more frequent fires in the Dry Mixedwood prevent them from becoming established.
- Jackpine forests are common on dry sites, often with common blueberry and lichens in the understory.

Osprey
© Gerald Romachuk

- Peatlands are common but not as prevalent as in other mixedwood subregions.
- Grasslands on dry, south-facing slopes occur, particularity in the Peace River area. They often consist of porcupine grass, June grasses and sedges, with wheat grasses on shallower slopes.
- About 70% of the annual precipitation falls from April to August, with peak precipitation in June and July, often in the form of intense storms.
- Water covers about 3% of the subregion (excluding Lesser Slave Lake).
- Major rivers flowing north to the Mackenzie drainage include the Peace, Smoky and Athabasca Rivers. The North Saskatchewan River flows east to the Saskatchewan River drainage.
- Many small, shallow lakes are also present.
- About 15% of the subregion is covered by wetlands, with organic accumulations underlying 10% and shallow peats or wet mineral soils underlying the remaining 5%.

Miquelon Lake
Provincial Park

Greene Valley Provincial
Park follows the Heart River

Central Mixedwood Natural Subregion

Total Area: 167,856 km² (44% of Boreal Forest Natural Region)

The Central Mixedwood Natural Subregion is defined by vast expanses of upland forests and wetlands on level to gently undulating plains.

The beaver is one of the most common species in the boreal forest

This is the largest natural subregion in Alberta. It occupies 25% of the province, stretching south from the Caribou Mountains and Cameron Hills to just north of Red Deer and spanning the province from the British Columbia to Saskatchewan borders.

Average elevation: 525 m (range 200–1050 m).

Main land uses: Considerable aspen and conifer harvesting occurs throughout the subregion for pulp and softwood production. Intensive petroleum exploration and development ranges from oil sands extraction in the northeast to conventional oil and gas production in the central and northwest portions. Agricultural uses are limited to hay crops and tame or native pasture for domestic livestock grazing.

Hunting, fishing and trapping provide subsistence and income for some residents, and commercial hunting and fishing ventures operate throughout the subregion. Wood Buffalo National Park occupies a significant part of the northeast portion.

Red and yellow collar mosses

Key Features

- This subregion is differentiated by a mix of deciduous tree stands containing mostly aspen, aspen/white spruce forests, and white spruce and jack pine stands on upland areas.
- Summers are short and warm, while winters are long and cold. The average annual temperature and precipitation for the subregion decreases northwards. This is likely related to the increasingly strong influence of dry, cold polar and arctic weather systems.
- Grasslands are very rare and exist only as patches in jack pine or black spruce forests.
- Forest cover is commonly closed canopy mixedwood with aspen predominant in early successional stages and white spruce increasing with stand age.
- Aspen stands commonly have a diverse shrub understory of low-bush cranberry, prickly rose and green alder, with beaked hazelnut and Canada buffaloberry occurring as dominants in local areas. Prominent herbs include wild sarsaparilla, cream-colored vetchling, showy aster, tall lungwort and hairy wild rye.
- Balsam poplar is common on moister sites, with red-osier dogwood and bracted honeysuckle prominent in the shrub layer and marsh reedgrass in the herb layer.
- Feathermosses such as Schreber's moss and stairstep moss become dominant in the understory as white spruce stands mature.

Pitcher-plant

- Jackpine stands are common on dry sites and have understory species ranging from bearberry to *Vaccinium* species.
- Black spruce stands, often with a significant tamarack component, are common on peatlands.
- Many small lakes exist; along with Utikuma Lake and larger watercourses such as the Peace, Athabasca, Wabasca and Hay Rivers, they cover about 3% of the total area.
- Wetlands are a dominant feature, with wet, poorly drained fens and bogs overlying almost half the area.

Scenic Martin Mountain in Lesser Slave Lake Provincial Park

Sulphur springs and pools along the creek in Harper Creek Natural Area

Lower Boreal Highlands Natural Subregion

Total Area: 55,615 km² (15% of Boreal Forest Natural Region)

The Lower Boreal Highlands Natural Subregion is characterized as a zone of mixedwood forests on the lower slopes of northern hill systems. It has a greater diversity of tree species than the Central Mixedwood and has extensive wetlands at the base of slopes and on nearby lowlands. It is the third largest natural subregion in Alberta.

This subregion includes the lower slopes of the Cameron, Buffalo Head, Naylor and Clear Hills, Caribou and Birch Mountains, part of the Chinchaga Plain, and all the Stony Mountain and Peerless Uplands.

Average elevation: 700 m (range 400–1075 m).

Main land uses: Considerable aspen and conifer harvesting occurs throughout the subregion for pulp and softwood production. Intensive petroleum exploration and development have occurred in the Cameron Hills area. In addition, there is potential for oilsands extraction in northeastern Alberta. Hunting, fishing and trapping provide subsistence and income for some residents. Agriculture is severely limited by the short growing season.

Birch forests at Birch Mountains Wildland Provincial Park

Key Features

- This subregion is the major zone where hybridization between lodgepole pine and jack pine occurs. Stands may be dominated by pure lodgepole pine, pure jack pine or a full range of hybrids. Young forests of aspen, balsam poplar, black and white spruce, white birch and lodgepole pine–jack pine hybrids occur on slopes.
- Dominant understory shrub species include low-bush cranberry, prickly rose and green alder with Labrador tea and Vaccinium species common on poorer sites.
- Bunchberry, fireweed, wild sarsaparilla, tall lungwort, one-sided wintergreen and marsh reedgrass are common in the herb layer.
- Paper birch is often as common as poplars and at times forms extensive, pure stands.
- Mature forests are predominantly white spruce with an occasional component of balsam fir and commonly a well-developed ground cover of feathermosses.
- Peatlands are dominated by open black spruce with an understory of Labrador tea.
- Marshes are dominated by water sedge and/or small bottle sedge, and are often edged by mixed shrublands of various willow species; the herbaceous understory is predominantly marsh reed grass.
- Seepage areas are common.
- Winters are slightly colder and summers are warmer compared to the higher-elevation Upper Boreal Highlands Natural Subregion. This subregion is also moister and cooler than the nearby Central Mixedwood and Dry Mixedwood natural subregions.
- The number of days in the growing season is lower than in the lower-elevation

Snowshoe hare
© Gerald Romanchuk

neighbouring subregions, probably because of the Lower Boreal Highlands' higher elevations and more northerly latitudes.

- Peak precipitation occurs in July, and monthly precipitation patterns are much like those of neighbouring subregions.
- Other than a few small lakes in the Buffalo Head Hills, Peerless Upland and Birch Mountains, there is little open water. The Chinchaga and Birch Rivers are the largest watercourses. The total area covered by water is about 1%.
- Wetlands occur across about 35% of the area, and are mainly treed and shrubby fens with extensive bogs in some areas. Wet mineral soils occupy about 5-10% of the total area.

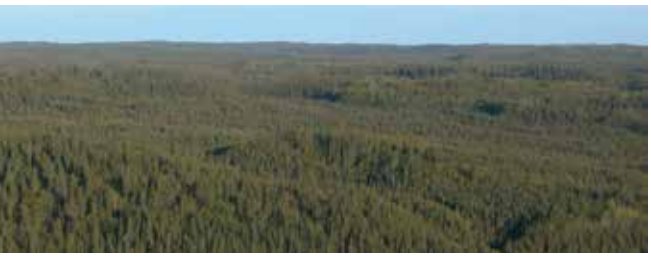
Chinchaga Wildland
Provincial Park

A freshwater sponge found
at Birch Mountains Wildland
Provincial Park

Upper Boreal Highlands Natural Subregion

Total Area: 11,858 km² (3% of Boreal Forest Natural Region)

The Upper Boreal Highlands Natural Subregion has coniferous forests on the upper slopes and rolling plateaus on the northern hills.



Birch Mountains Wildland Provincial Park

This subregion includes the upper slopes and plateaus of the Buffalo Head, Naylor and Clear Hills and the Birch Mountains. It is entirely surrounded by the Lower Boreal Highlands Natural Subregion.

Average elevation: 825 m (range 650–1150 m).

Main land uses: Limited softwood harvesting occurs in this subregion because of poor access and relatively low volumes of timber. Conventional oil and gas production is a minor activity, but oilsands potential exists in the Birch Mountains northwest of Fort McMurray. Hunting, fishing and trapping provide subsistence and income for some residents. The area has no agricultural potential.

Key Features

- Forest cover is dominated by conifer forests at all stages of succession.
- Lodgepole and lodgepole–jackpine hybrids are the primary pioneer species and often occur in even aged stands with black spruce.
- Common understory plants include green alder, Labrador tea, bog cranberry, bunchberry, dewberry, twinflower and fireweed.

Pelican nesting area at Birch Mountains Wildland Provincial Park

- Succession to spruce-fir forests is slow due to cool growing seasons and uncommon due to short fire-return intervals.
- Deciduous forests, where they occur, are commonly stunted and species-poor.
- Open black spruce stands are common on poorly drained soils and permafrost areas, usually with an understory dominated by Labrador tea.
- Much of this subregion is made up of sloping landforms with less of a wetland component than the Central Mixedwood.
- Summers are short, cool and showery, and winters are cold. Most precipitation occurs in July, and monthly precipitation patterns are very similar to those of the Lower Boreal Highlands Natural Subregion, although winter precipitation is slightly higher.
- Small lakes occur on top of the Buffalo Head Hills and Birch Mountains and cover 1-2% of the subregion.
- Wetlands cover about 30% of the subregion, but may occupy up to 50% of the landscape in some areas. Treed and shrubby bogs and fens are the main wetland types, and the underlying organic materials are often permanently frozen as permafrost. Seepage is locally important.

Birch Mountains
Wildland Provincial Park

Pelican nesting area at
Birch Mountains Wildland
Provincial Park

Athabasca Plain Natural Subregion

Total Area: 13,525 km² (4% of Boreal Forest Natural Region)

The Athabasca Plain Natural Subregion is a landscape dominated by extensive forests of jack pine, maintained by frequent fires. It is made up of dry, sandy plains, dune fields and gravel-cored hills. The largest active dune system in Alberta is found in this subregion.

This subregion is located south of Lake Athabasca along the Alberta–Saskatchewan border.

Cup Fungus

Average elevation: 300 m (range 200–650 m).

Main land uses: Softwood harvesting is limited in the Subregion because of poor access and relatively low tree volumes. Conventional oil and gas production is also limited, but there is potential for oilsands exploitation in the southern part of the area. Hunting, fishing and trapping provide income and subsistence for some residents. Despite a relatively long summer growing season, the area has no agricultural potential because of unfavourable soil conditions.

Key Features

- Along with the Peace–Athabasca Delta Natural Subregion to the north, this subregion has the warmest summers of any Boreal natural subregion. Winters are very cold, reflecting the influence of polar and arctic weather systems. Most of the precipitation falls in July.
- Extensive forests dominated by jack pine occur on upland sites. Typical understory species on dry sites include bearberry and reindeer lichens. On more mesic sites, species such as common blueberry and feathermosses are common and green alder becomes prominent on sites with some subsurface moisture.
- Dune areas are open sand or are dominated by unique plant communities that stabilize open sand such as sand heather.
- Wetlands are primarily sedge-dominated fens, often edged with willow-dominated shrublands.
- Water covers 3% of the subregion, although there are almost no open water bodies on the plains other than small pothole lakes. The Athabasca River runs through the western part of the area. Several smaller rivers (Richardson, Old Fort, Harrison, Marguerite and Firebag) also drain the area.

Field crescent butterfly at Marguerite River Wildland Provincial Park

- Wetlands cover about 25% of the subregion. Their distribution ranges from about 10% in the western plains to over 50% in the eastern portions.
- The subregion has several invertebrate species that are out of range, rare, or are first records for this part of Alberta.

Stemless lady's-slipper

After a burn at Marguerite River Wildland Provincial Park

Peace-Athabasca Delta Natural Subregion

Total Area: 5,535 km² (1% of Boreal Forest Natural Region)

Branching river channels

The Peace–Athabasca Delta is one of the world's largest freshwater deltas. While most of the subregion is the delta itself, it does also include areas along the lower section of the Peace River and the upper part of the Slave River. Large, shallow, marshy lakes and meandering river channels characterize the subregion.

The Peace–Athabasca Delta Natural Subregion lies south and west of Lake Athabasca. It is the lowest elevation subregion in the province and is nearly flat. Water is the primary feature.

Average elevation: 225 m (range 200–250 m)

Main land uses: Much of the area lies within Wood Buffalo National Park. There is no forestry or oil and gas activity. Hunting, fishing and trapping provide income and subsistence for some residents.

Key Features

- The subregion has the warmest summers and highest number of growing season days of any Boreal natural subregion. Winters are very cold because they are affected by polar and arctic weather systems. Winter snowfalls are low, and most precipitation occurs in July.
- Water is the main factor determining the type and distribution of vegetation. Periodic flooding, often caused by ice jams, sedimentation patterns and seasonal increases in river flows cause significant changes over time in some areas.
- A complex mosaic of aquatic, shoreline, meadow, shrub and marsh vegetation is characteristic of the extensive lowlands.

- Some shrubby and forested uplands occur on river terraces, islands and sediment-built river banks called levees.
- Pondweeds dominate the aquatic vegetation.
- Sedge meadows are characteristic, dominated by awned sedge and interspersed occasionally with pockets of deeper water surrounded by a spangletop grass community.
- Extensive lowland areas are dominated by marsh reedgrass.
- Young terraces along river channels are often vegetated with dense sandbar willow flats; on older ones succession to mature balsam popular communities has occurred.

During migration, large flocks of Snow Geese rest and feed on the delta

Muskrats thrive in the extensive delta wetlands

- White spruce forests occasionally occur on some islands and older river terraces.
- Oxbow lakes are common, with vegetation varying from dense swamp horsetail meadows to shrublands of tall, old willows and river alder.
- Numerous large and small lakes are found in the subregion; the Claire, Mamawi, Baril and Richardson Lakes and channels of the Athabasca and Peace Rivers cover about 40% of the total area. Wetlands account for a further 20% of the total area.

Wetlands and rivers are the main features of the subregion
© C. Wallis

Extensive wetlands in Wood Buffalo National Park

Northern Mixedwood Natural Subregion

Total Area: 29,513 km² (8% of Boreal Forest Natural Region)

The Northern Mixedwood Natural Subregion is defined by northern low-elevation black spruce bogs and fens, and frozen organic soils.

The subregion occurs in the far north on the lowlands next to the Alberta–Northwest Territories border. It also includes a smaller, higher-elevation area in the northwestern Cameron Hills.

Rapids along the river in Slave River Rapids Provincial Recreation Area

Average elevation: 350 m (range 150–650 m).

Main land uses: Timber harvesting occurs only in the western part of the subregion, mainly along rivers and streams where tree growth and productivity is higher. Oil and gas activity is intensive, particularly in the Cameron Hills. Wood Buffalo National Park includes much of the central and eastern portions of the subregion. Hunting, fishing and trapping provide subsistence and income for some residents.

Key Features

- Much of the subregion is wetland and contains stunted black spruce stands, often on permanently frozen soils. Permafrost occurs over large areas.
- This subregion is characterized by short, warm and usually dry summers and long, very cold winters (the coldest winters of any Boreal natural subregion). It is much drier than the neighboring subregions, receiving only about 80% of their average annual precipitation.
- There are extensive areas of poorly drained organic soils and mineral wetlands with a characteristic vegetation of closed and open black spruce with some tamarack.
- Both common and northern Labrador tea are commonly dominant in the understory, often with cloudberry, bog cranberry, and peatmoss or with reindeer lichens.
- On upland sites where drainage is improved, typical boreal mixedwood forest types occur as a mosaic of various combinations of aspen and balsam poplar and white and black spruce, but these are uncommon in this subregion.
- A typical pattern is for mixedwood forest types to occur as islands on elevated areas and as linear stands along watercourses, with black spruce-dominated forest types between.

Giant flutings in the Cameron Hills

Bison roam the open meadows of Wood Buffalo National Park

- Many small lakes, of which Bistcho Lake is the largest, cover about 3% of the total area. The Hay and Slave Rivers drain to the Mackenzie River system.
- Wetlands are a major part of the western two-thirds of the subregion and cover 60-80% of the area. In the eastern third, wetlands cover 20-60% of the area.

Cloudberry

Extensive organic wetlands are a dominant feature of the subregion

Boreal Subarctic Natural Subregion

Total Area: 11,823 km² (3% of Boreal Forest Natural Region)

The Boreal Subarctic Natural Subregion is found on the highest elevation boreal hill systems. It has elevated plateaus with black spruce bogs on frozen organic soils. Black spruce is the dominant tree in both uplands and wetlands. Many subarctic bird, insect and plant species that are common in the Northwest Territories occur in Alberta only in this natural subregion.

Bog billberry is a "blueberry" that is restricted in Alberta to the far north

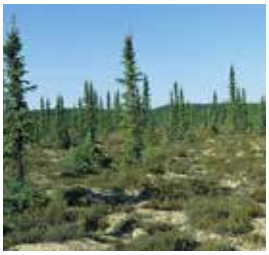
The Boreal Subarctic Natural Subregion is located in far northern Alberta on high-elevation plateaus in the Cameron Hills and Caribou Mountains.

Average elevation: 825 m (range 575–1000 m).

Main land uses: Oil and gas activity is locally intensive, particularly in the Cameron Hills. Some recreational fly-in fishing occurs in the larger lakes of the Caribou Mountains, but poor access and low productivity restrict hunting, trapping and other subsistence and recreational activities. There is no forestry or agricultural potential.

Key Features

- This subregion is the coldest Boreal natural subregion. Summers are short, cool and moist, and the number of days for the growing season is noticeably lower than in other Boreal natural subregions. Winters are long and very cold.
- The low temperatures, low angle of the sun, and the insulating effect caused by the deep, water-saturated organic and moss layers contribute to the formation of permafrost which severely restricts plant growth.
- More of the total annual precipitation is received from September to March (mainly as snow) than for any other Boreal natural subregion.
- Black spruce is the dominant tree, with lodgepole pine a minor component and Alaska birch characteristic.
- The most common forest type is open, stunted black spruce with a shrub layer of both common and northern Labrador tea. There is a consistent presence of cloudberry and often a well-developed lichen layer, dominated by green reindeer lichen.



Bogs and fens are extensive in the subregion

- Mature stands are rare due to fire history, but tend to be a closed black spruce forest with a dense carpet of feathermosses.
- The black spruce stands on poorly drained soils tend to be open and stunted, with peatmoss dominant in the understory.
- Peatland complexes cover large areas and are made up of a variety of bog and fen community types, often influenced by permafrost.
- Collapse scar bogs are common and appear as wet pools dominated by sheathed cotton grass growing in a mat of midway peatmoss.
- About 2% of the total area is covered by water. Drainage stays mostly within the natural subregion, but a few streams flow out of it. The main lakes are Margaret and Wentzel in the Caribou Mountains, and Thurston and Beatty Lakes in the Cameron Hills.
- Wetlands cover about 65% of the subregion as a whole, but may occupy over 80% in some areas.

A bog typical of Caribou Mountains WIldland Provincial Park

Canadian Shield Natural Region

Total Area: 9,719 km² (1.5% of province)

Minimal vegetation on granite bedrock exposures, coarse glacial deposits and hundreds of small lakes are unique features of the Canadian Shield Natural Region. This is the only area in Alberta that is part of the physiographic region known as the Canadian Shield or Precambrian Shield. The Canadian Shield is the largest of Canada's physiographic regions and extends across Canada from Labrador through to Saskatchewan, ending in the north east corner of Alberta.

The Canadian Shield Natural Region has only one natural subregion in Alberta, the Kazan Upland.

Overview

Lakes, wetlands, upland forests, rocky cliffs and islands provide habitat for a variety of wildlife species. Although the long, severe winters limit the number of bird species that live here year-round, spring and summer sees a variety of migratory birds, including waterfowl.

Sandhill cranes as well as various waterfowl, migratory and breeding shorebirds and other species use the sandy and muddy shore flats as feeding areas. The rock cliffs offer nesting sites for peregrine falcons. Colonial birds such as Bonaparte's gull, herring gull, California gull and common tern find suitable nesting habitat on rocky islands. Bald eagles and osprey nest along lakeshores and in other appropriate habitats.

Wetland habitats support populations of common loon, lesser scaup, bufflehead, Bonaparte's gull, spotted sandpiper, alder flycatcher, palm warbler, rusty blackbird, red-winged blackbird and Lincoln's sparrow. Common nighthawk, gray jay, common raven, boreal chickadee, American robin, hermit thrush and dark-eyed junco use habitat provided by the pine forests.

Mammals include moose, American beaver, muskrat, mink, water shrew, arctic shrew, least chipmunk, river otter, Canada lynx and gray wolf. The pine forests are home to red squirrel, snowshoe hare, Canada lynx and red fox. Winter visitors arriving from the Northwest Territories include the willow ptarmigan (common and widespread), the barren ground subspecies of the caribou (localized, historical occurrences), and arctic fox (localized occurrences).

Amphibians in the subregion include the wood frog, boreal chorus frog, leopard frog and Canadian toad. Northern pike, walleye, lake whitefish and lake trout are the common fish species.

Wetlands with acidic bogs and poor fens occur adjacent to the many small lakes and in some low spots in the western part of the subregion. Open jack pine, aspen and birch stands exist where the soil is deep enough. Frequent fires strongly influence vegetation in the subregion.

The various types of habitat result in a high diversity of vegetation species across the barrens. Various lichen groupings occur on south-facing and steep rock faces and slopes, with most of these species found only in the Kazan Upland. "Pocket" plant communities grow in rock crevices and in sheltered locations where mineral soil has accumulated and moisture conditions are better. Stunted jack pine and Alaska birch form stands with a thin understory of bearberry, ground juniper, bog cranberry, and a variety of drought-tolerant ferns and other herbs, as well as mosses and lichens.

The driest sites have jack pine stands with a patchy carpet of lichens on the forest floor. Moister sites support greater plant variety in the

Red-breasted Mergansers nest on the larger lakes in the subregion

understory, which includes green alder, common blueberry, bearberry, common Labrador tea, Canada buffaloberry, bunchberry, and other herbs and feathermosses. Aspen, Alaska birch and black spruce are common in places. Communities of aspen, balsam poplar, Alaska birch, white spruce and a varied, rich shrub and broad-leaved herbaceous plant understory develop in strips beside wetlands and along lakes.

Shield bedrock

Bog plant communities are the main type of wetland vegetation. Black spruce forms stands with an understory of common Labrador tea, leatherleaf, bog cranberry, cloudberry and peatmoss. Permafrost is widespread but patchy. Fens consist of open forests of tamarack, willow, dwarf birch, sedges and mosses. Marshes in sheltered lake bays or along creek channels can be large, and they mainly contain small bottle sedge, water sedge and bulrushes, with pondweeds in deeper water.

Shallow grooves in the shield rocks collect soil and moisture, allowing plants to grow

Kazan Upland Natural Subregion

Total Area: 9,719 km² (1.5% of province)

Fidler-Greywillow Wildland Provincial Park on the north shore of Lake Athabasca

Fire exposes the shield rocks once more

This subregion is located in the far northeastern corner of Alberta, with the main area lying north of Lake Athabasca. It is bordered on the east by the Alberta–Saskatchewan border, on the north by the Alberta–Northwest Territories border, on the west by the Slave River, and on the south by Lake Athabasca. There is a small outlier east of the Athabasca River between Fort McMurray and Fort Chipewyan embedded within the Athabasca Plain Natural Subregion.

Average elevation: 275 m (range 150–400 m).

Main land uses: Hunting, fishing and trapping provide subsistence and income for some residents. Recreational fishing camps operate on some of the lakes. Forestry and mining are locally important in the Fort Chipewyan area.

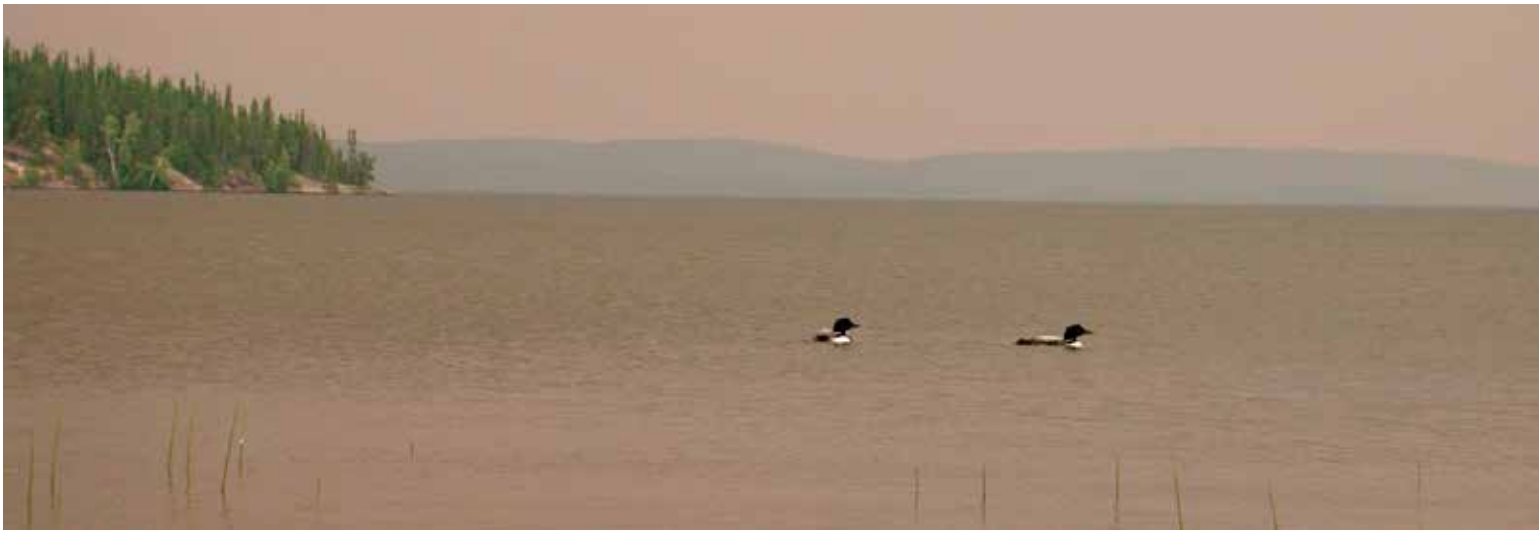
Key Features

- This subregion has short summers with July as the warmest month, and the coldest winters of any natural subregion in Alberta, reflecting the influence of polar and arctic weather systems. July is the wettest month, but winter snowfalls account for about 40% of the total annual precipitation.
- Numerous small lakes and a few big ones cover about 10% of the Kazan Upland Natural Subregion. The largest are Cornwall, Colin, Charles, Wylie and Andrew. A few small streams drain into the Slave River.
- Wetlands are most common in the western half of the natural subregion, and cover about 20% of the total area.

Lichens and ferns growing on the rocks

- The subregion has a number of significant invertebrate species that are out of range, rare or are the first records for this part of Alberta.
- The mew gull and semipalmated plover are at the southern boundary of their breeding range, which extends well into the Northwest Territories.
- The Woodman–Alexander Lakes area is a regionally important waterfowl staging site. Woodman Lake has been the site of the largest concentration of staging greater scaup ever reported from Alberta.
- The only verified population of the shortjaw cisco in Alberta is in Barrow Lake, located north of Lake Athabasca and east of the Slave River.
- The shores of Lake Athabasca are at the southern edge of the main extent of the Canadian Shield in Alberta, and provide habitat for several plant species not found anywhere else in Alberta, such as American dune grass and Greenland wood-rush.

Common loons on a lake in Colin-Cornwall Lakes Wildland Provincial Park



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