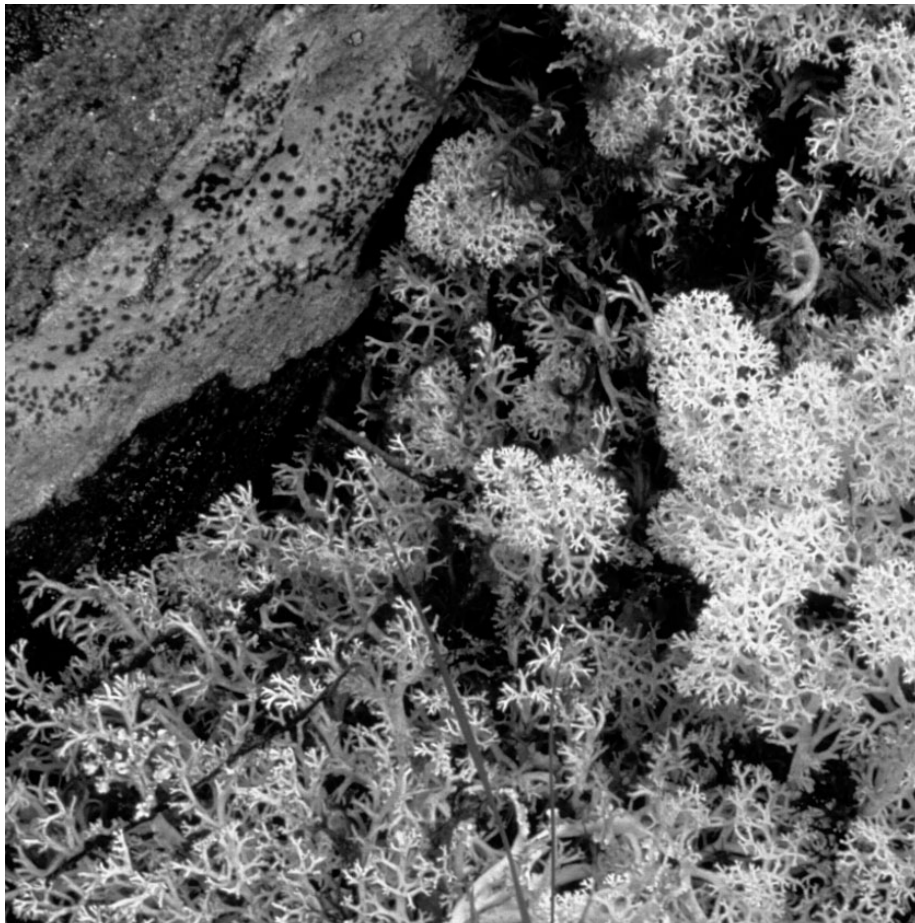


ecosystem classification

Little vegetation grows on Mount MacDonald, which has the highest elevation in the Wernecke Mountains. [CA]



Lichens carpet many alpine tundra slopes in the Wernecke Mountains. [CM]



Ecosystem classification is the identification, description and logical ordering of different ecosystems. This process groups together ecosystems with similar climate, soils and vegetation.

Ecosystem classification systems are used in many jurisdictions as a framework for resource management and scientific research. In British Columbia, for example, their ecosystem classification system is the common “language” that foresters, biologists, agrologists and other resource managers and naturalists use to talk about ecosystems in the province. This has improved people’s ability to make informed decisions about the land.

The Yukon Territorial Government hired local consultants Applied Ecosystem Management Ltd. to classify the ecosystems in various ecoregions, including some that cover parts of the Peel River watershed. Map 9 illustrates the classification schemes that were developed for

the Eagle Plains, Peel Plateau and Mackenzie Mountain ecoregions (see Map 8 for ecoregion boundaries).

The following descriptions are adapted from Applied Ecosystem Management Ltd. 2001. Eagle Plains/Peel Plateau/Mackenzie Mountains Ecosystem Mapping: Classification and Mapping Concepts.

There are 5 distinct general ecological zones in the portions of the Peel River watershed that have been classified. They are:

Wooded Taiga Zone

Wooded Taiga, or open woodland, consists of coniferous forests with an open forest canopy. Wooded Taiga represents the northern edge of the boreal forest. These forests are generally found on the lower slopes of mountain valleys and in the valley bottoms. Because the Peel

River watershed is so far north, aspect (the direction in which a slope is facing) does not appear to play a major role in the distribution of forest cover on slopes. However, the angle of the slope does – active slope processes such as a rock slides, slumps and talus cones play a major role in where forested areas can be found.

Shrub Taiga Zone

These are areas dominated by shrubs and with sparse or sporadic tree cover. Generally, Shrub Taiga occurs at high elevations but in some areas, such as along the Richardson Mountain foothills, arctic weather systems appear to influence the distribution.

Alpine Tundra & Rock Zone

Alpine Tundra and Rock are found at the highest elevations. Although dwarf shrub and herbs



Bearflower (*Boykinia richardsonii*) is a Beringian plant species eaten by grizzly bears in spring and summer in the Peel River watershed. [Catherine Kennedy]

ecosystem classification

are the dominant vegetation, in large areas of the Mackenzie and Richardson Mountains only lichens grow on the rocks.

Subalpine Zone

The Subalpine Zone is mainly found in the southern part of the Mackenzie Mountain ecoregion, where it represents a gradation between the Boreal zone and Alpine zone. Although trees do occur in this zone, they are sparse and often stunted in growth as a result of being at higher elevation.

Boreal Zone

Compared to Wooded Taiga, Boreal zones have much denser forest canopy.

The Eagle Plains ecoregion consists mainly of Wooded Taiga and Shrub Taiga (indicated on

the map only as wooded taiga- the dataset made no distinction between the two types). A small amount of Alpine ecosystem can be found in the foothills of the Richardson and North Ogilvie Mountains.

The Peel Plateau also consists mainly of Wooded Taiga and Shrub Taiga. Some Alpine ecosystems can be found in the foothills of mountains.

The ecological zones in both the Eagle Plains Ecoregion and the Peel Plateau Ecoregion are influenced by elevation and climate patterns. Differences in these factors result in different subunits called Ecodistricts.

The Mackenzie Mountains have a greater variety of ecological zones. The mountains are transitional between the Boreal Cordillera Ecozone and Taiga Cordillera Ecozone and so contain elements of both. Wooded Taiga, Shrub Taiga, Alpine, Subalpine and Boreal zones can all

be found here. The southern fringe of the Mackenzie Mountains contains true Boreal forest that grade into Taiga. In most places the transition is gradual, although in some it is quite abrupt. The zonation in the Mackenzie Mountains is mainly influenced by elevation. Therefore, scientists have used elevation in conjunction with physiographic patterns to establish Ecodistrict boundaries in this ecoregion.

The Wooded Taiga zone can be further classified into upland, lowland and wetland. Further distinction can be made between riparian lowland, braided lowland and terraced lowland. Similarly, the Boreal zone can be subdivided into upland and riparian lowland categories.

In the Eagle Plains ecoregion, most of the Wooded Taiga is upland. However, terraced and riparian lowlands are common along the main stem of the Peel River and some of the other larger rivers.

In the Peel Plateau Ecoregion, braided lowlands are common (though not very visible on the map) along the lower Wind and Bonnet Plume Rivers. Large sections of terraced lowlands occur along these rivers too. The lower Snake River and the main stem of the Peel are surrounded by riparian lowlands. Extensive wetlands occur throughout this ecoregion.

In the Mackenzie Mountains Ecoregion, there are some sections of riparian lowland along some of the major rivers (the upper Hart, Wind and Bonnet Plume rivers). A few patches of braided lowland occur along the Bonnet Plume River. The remainder of the Wooded Taiga here is classified as upland. In the Boreal zone, the riparian lowland is also found in small sections along some of the major rivers such as the Beaver and Rackla Rivers.

ecosystem classification

Ecozone vs. Ecoregion vs. Ecodistrict

In the mid 1970's, Environment Canada started a process of classifying and mapping ecosystems throughout Canada in order to assist with sustainable resource management and planning. As a result of this approach, five levels of regional ecological classification were developed, three of which are referred to in this atlas: Ecozones, Ecoregions and Ecodistricts.

The Wooded Taiga and Boreal Zone are both present in the Mackenzie Mountains ecoregion. [FM]



Ecozones, the broadest category of classification, distinguishes large areas where general ecological conditions are similar. In the Peel River watershed, parts of three different ecozones occur: Taiga Plain, Taiga Cordillera and Boreal Cordillera.

These ecozones can be subdivided into ecoregions, which are regions with similar biophysical and climatic characteristics. Environment Canada used the 1:1 million scale soil landscape maps that were available for the entire country to help establish the original ecoregion boundaries. Consequently, ecoregion

Blueberry picking in the shrub taiga of the Bonnet Plume high country. [JP]



boundaries tend to correspond with changes in soil conditions. The ecoregions of the Peel River watershed were described in Section 8.

Ecoregions can be further subdivided into Ecodistricts. Each ecodistrict has characteristic assemblages of relief, geology, landforms, soils, vegetation, water, and wildlife.

In recent years, with the assistance of resource specialists and the ecosystem classification work that the consultants with Applied Ecosystem Management Ltd. have conducted, government biologists and land

use planners have refined the ecodistrict boundaries for some regions in the Yukon.

The ecoregion boundaries and ecodistrict boundaries do not always match up exactly. This is because ecoregion boundaries are relatively subjective and are characterized by gradual transitions. Unlike what is portrayed on ecoregion maps, there is no one exact location for an ecoregion boundary. Ecodistrict boundaries, which are based on more refined data, have more precise locations. As our knowledge of ecological processes improves, all these boundaries may be adjusted.

