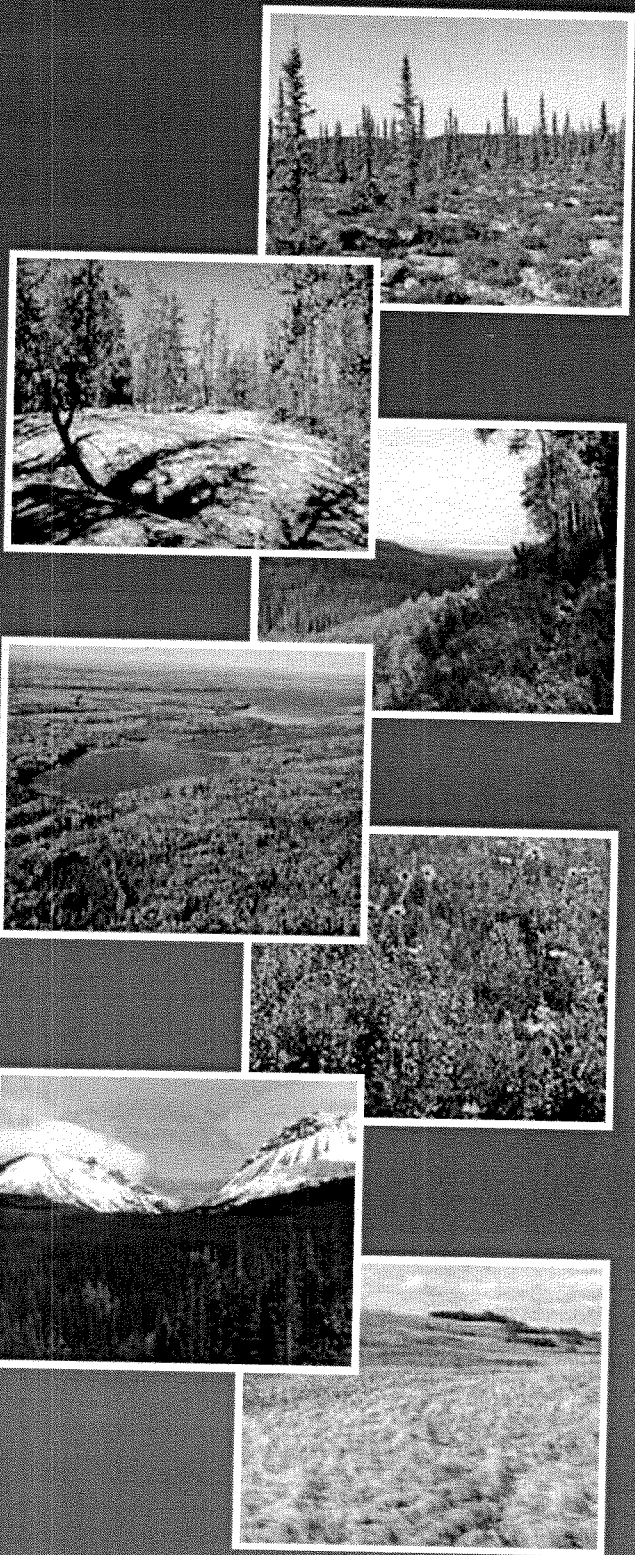


# Natural Regions and Subregions of Alberta

Natural  
Regions  
Committee

2006



Alberta

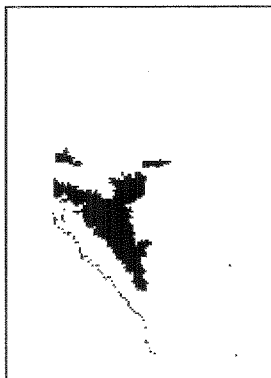
---

## 4.2 FOOTHILLS NATURAL REGION

---

### Theme

*The Foothills Natural Region is influenced by a moist, cool climate. Gently undulating to rolling till-covered hills and plateaus with deciduous and mixedwood forests are typical of lower elevations, and strongly rolling to steeply sloping hills with coniferous forests are prevalent at higher elevations.*



**Total area:** 66,436 km<sup>2</sup> (10% of province)



**Species such as wapiti range between the Rocky Mountains and the Foothills Natural Regions.** (Photo: K. Crockett)

### General Description

The Foothills Natural Region includes the Lower and Upper Foothills Natural Subregions. The Region extends along the eastern flank 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 topography is highly variable, ranging from sharp, bedrock-controlled ridges near the mountains to rolling and undulating terrain in the north and east. Elevations within the Foothills Natural Region range from a low of 700 m in the most northerly areas to a maximum of about 1700 m in the south.

Mixed forests of aspen, lodgepole pine, white spruce and balsam poplar with variable understories on Gray Luvisolic soils are dominant on average sites at lower elevations. Lodgepole pine forests with less diverse understories and well developed feathermoss layers on Brunisolic Gray Luvisols are typical of higher elevations.

### Climate

Distinctive vegetation and soils patterns reflect subregional climate changes and characterize the Lower Foothills and Upper Foothills Natural Subregions. Figure 4-2 presents the major climatic characteristics of both Natural Subregions. Both receive relatively high annual precipitation, and only the Alpine and Subalpine Natural Subregions are wetter. Average July precipitation is higher in the Lower and Upper Foothills Natural Subregions than in any others.

The Lower Foothills Natural Subregion has somewhat warmer summers and colder winters than the Upper Foothills Natural Subregion. The growing season is longer and total precipitation is lower especially in the winter months, indicating a stronger continental climate influence. Higher elevations and proximity to the mountains produce cooler summers, warmer winters and more precipitation than is characteristic of the adjacent Central Mixedwood Natural Subregion to the north and east.

## **Vegetation**

Forests are the dominant vegetation cover in both Natural Subregions, and lodgepole pine stands are considered a good indicator of the Foothills Natural Region–Boreal Forest Natural Region boundary. Forests on upland sites within the Lower Foothills Natural Subregion are typically deciduous or mixedwood with aspen, balsam poplar, white birch, lodgepole pine, white spruce and black spruce as common associates. Wetlands are mainly vegetated by stunted black spruce and tamarack or shrub-graminoid communities.

The boundary between the Lower and Upper Foothills Natural Subregions is reasonably well defined by a change in dominance from mixedwood and deciduous stands on all aspects in the Lower Foothills Natural Subregion to conifer-dominated forests in the Upper Foothills Natural Subregion.

## **Topography, Geology, Soils and Hydrology**

Sandstone and mudstone bedrock strata that are generally overlain by medium textured, weakly calcareous glacial till define both the geology and topography of the Foothills Natural Region. Fluvial deposits occur along stream systems; colluvial and residual deposits are associated with steep slopes and exposed bedrock.

Upland soils at lower elevations are mainly Orthic Gray Luvisols. Mixing of organic materials and humus formation in the litter layer and upper mineral soil horizons is limited by cool temperatures that reduce microbial and invertebrate activity. Brunisolic Gray Luvisols with thin, acidic litter layers occur at higher elevations in response to increased moisture and coniferous forest cover. Seepage is common in lower slope positions. Gleysols and Organic (mainly Mesisolic) soils are associated with wet conditions along lower slopes and in valley bottoms.

Water bodies occupy less than 1 percent of the total area within the Foothills Natural Region, and include the Athabasca and North Saskatchewan Rivers. Wetlands occur

throughout the Natural Region, and are less common in the steep-sided valley systems typical of the Upper Foothills than in the gentler terrain of the Lower Foothills.

Appendices 4 and 5 summarize the proportional occurrence of landscape elements, parent materials and soil types in the Foothills Natural Region.

## **Wildlife Habitats and Populations**

The Foothills Region exhibits high habitat diversity because of variable topography, surface and groundwater flow regimes, and correspondingly variable plant communities. Many of the vertebrate species occurring in this Region are wide ranging and are also present in the neighboring Boreal and Rocky Mountain Natural Regions. While there are no vertebrate species with a distribution limited to the Foothills Natural Region, its transitional position between the Rocky Mountain and Boreal Forest Natural Regions contributes to a relatively high diversity of animal species. Species such as wapiti (also called elk) range between the Rocky Mountains and the Foothills Natural Regions.

Wide-ranging species that can be found from the Rocky Mountains, through the Foothills and into the Boreal include the Boreal Chickadee, Spruce Grouse, Ruby-crowned Kinglet, American Robin, White-winged Crossbill, Dark-eyed Junco, Yellow-rumped Warbler, red squirrel, varying hare, deer mouse, southern red-backed vole and black bear.

Highly diverse wildlife communities occur in association with rich, moist deciduous forests, mainly in the eastern and southern parts of the Lower Foothills Natural Subregion. Common species in such areas include Ruffed Grouse, Warbling Vireo, Black-capped Chickadee and Tennessee Warbler. Localized areas of lush deciduous growth are of special significance for songbird and mammal diversity. These areas are usually located in sloping or valley bottom areas receiving higher precipitation and/or nutrient-rich groundwater discharge. Slumping on unstable slopes further contributes to habitat diversity.



The Foothills Natural Region–Boreal Forest Natural Region climatic transition is marked by a similar transition in the abundance and composition of wildlife species. Along the eastern boundary of the Foothills Natural Region, species more typical of the Boreal Forest Natural Region occur, including the Yellow-bellied Sapsucker, Rose-breasted Grosbeak and Purple Finch. Varied Thrush, a species more common in mountain habitats, has been recorded during nesting season in high-elevation, wet spruce–fir forests in the Swan Hills. The occurrence of this species suggests some affinity with the Subalpine Natural Subregion.

Wetlands and lakes provide additional habitat diversity. Of note is the role that beaver populations play in creating habitat for other species including Barrow’s Goldeneye and Trumpeter Swan (recognized as a “Threatened” species by the Government of Alberta). These types of habitats are also suitable for long-toed salamander (listed as a “Species of Special Concern” by the Government of Alberta). Inhabitants of wetland habitats include Lesser Yellowlegs, Common Snipe, Lincoln’s Sparrow, meadow vole, moose, boreal toad and wood frog.

In the south and east portions of the Natural Region, wetland habitats are more diverse and richer in species diversity. Naturally occurring fish species include Rocky Mountain

whitefish, bull trout, Arctic grayling, burbot and white sucker.

### Notable Features

Several significant wildlife species include the Foothills Natural Region as part of their range. These are as follows:

- ◆ *Grizzly bear*. This species has been designated as “Species of Special Concern” by COSEWIC. The Foothills Natural Region contains significant areas of suitable grizzly habitat.
- ◆ *Woodland caribou* (both mountain and boreal ecotypes). This species is designated as “Threatened” by the Government of Alberta and COSEWIC. Caribou populations in Alberta range from stable to declining. The Foothills Natural Region includes critical habitat for these ungulates.
- ◆ *Wolverine*. This species is designated as a “Species of Special Concern” by COSEWIC. The Foothills Natural Region provides habitat for these animals.
- ◆ *Flora*. About 80 rare vascular plant species occur in the Foothills Natural Region, but most of these are also found in the adjacent Rocky Mountain and Foothills Natural Regions (Kershaw et al. 2001).



**The Foothills Natural Region contains significant areas of suitable grizzly habitat.** (Photo: Alberta Sustainable Resource Development)