

# Rocky Mountains Foothills Parkland



## General Description

The *Rocky Mountains Foothills Parkland* zone covers an area of approximately 3,900 km<sup>2</sup> in the southern Rocky Mountain foothills of Alberta, at elevations between approximately 1000 mASL and 1400 mASL. It occurs as two disjunct subunits on the eastern edge of the foothills, the larger extending from just north of Calgary to the north end of the Porcupine Hills, and a smaller southern one extending to the international border near Waterton. This zone marks the transition between temperate grasslands and Rocky Mountain montane forests. The majority of the contemporary landscape supports crop cultivation and livestock grazing.

## Vegetation

Natural landscape structure is a parkland mosaic of grassland patches with groves of forests, woodlands and shrublands. In this rolling terrain, grassland vegetation occurs on southerly aspects and ridges (i.e., warmer, drier sites), while forests, woodlands and shrublands occur on northerly aspects and in topographic depressions (i.e., cooler, moister sites). Grasslands are dominated by bunchgrasses, while forest and shrub communities comprise primarily cold-deciduous, broad-leaved species. Vegetation patterns reflect relatively small changes in local topography and fine-scale aspect and drainage. Livestock grazing and crop cultivation have altered the species composition of most of these communities.

Trembling aspen (*Populus tremuloides*) is the overwhelmingly dominant tree species, although white spruce (*Picea glauca*) and on moist sites, balsam poplar (*P. balsamifera*), are occasional canopy associates. Understories include Saskatoon (*Amelanchier alnifolia*), snowberries (*Symphoricarpos albus*, *S. occidentalis*), prickly rose (*Rosa acicularis*), silverberry (*Elaeagnus commutata*), white meadowsweet (*Spiraea lucida*) and a variety of grass and forb species.

Alluvial forests dominated by balsam poplar, plains cottonwood (*P. deltoides* ssp. *monilifera*) and trembling aspen, with shrub-rich understories, occur on stable floodplain terraces.

Mountain rough fescue (*Festuca campestris*), Idaho fescue (*F. idahoensis*) and Parry oatgrass (*Danthonia parryi*) are the primary dominants of grassland communities.

Shrub communities establish on sites with moister soils, often the result of seepage. Stands dominated by prickly rose, snowberries, saskatoon and silverberry occur on sites that are transitional between grassland and forest. Dense groves of Bebb's willow (*Salix bebbiana*) with a tall herb understory are characteristic of the northern subunit.

Wetlands occur in poorly drained locations and near water bodies, but are rarely extensive. Riparian shrub communities dominated by willows (e.g., Bebb's willow, meadow willow [*S. petiolaris*], tea-leaved willow [*S. planifolia*], coyote willow [*S.*

*exigua*], yellow willow [*S. lutea*]), silverberry or water birch (*Betula occidentalis*) develop on active alluvial terraces or line small watercourses and margins of water bodies where water tables remain near the surface throughout the year. Shallow marshes occur on the wettest sites, including species such as wheat sedge (*Carex atherodes*), northern beaked sedge (*C. utriculata*) and water sedge (*C. aquatilis*). Hard-stemmed bulrush (*Schoenoplectus acutus*) marshes occur on the margins of water bodies.

## Climate

The *Rocky Mountains Foothills Parkland* zone occurs at low to mid-elevations in the subhumid continental temperate macroclimate of the southern Alberta foothills. Elevational influences and Chinook winds modify the climate. This zone reflects an ecoclimatic transition between grasslands, at lower elevations to the east, and montane forests at higher elevations to the west. Cooler temperatures and increased precipitation relative to the adjoining *Rocky Mountain Foothills Fescue Grassland* are sufficient to support tree growth on cooler moister sites, while grasslands occupy the warmer drier parts of the landscape.

In general, summers are warm and winters are cool. Mean annual temperature is approximately 3°C. This zone experiences Chinook winds in the winter. These are warm dry air masses that can significantly raise temperatures for short periods, melting and sublimating parts of the snowpack. The growing season averages approximately 1150 growing degree days above 5°C. Mean annual precipitation is approximately 500 mm, with the majority falling as rain in summer months.

## Physiography, Geology, Topography and Soils

This zone occurs in the southern portion of the Rocky Mountain Foothills physiographic region in Alberta. Elevations range between approximately 1000 mASL and 1400 mASL.

Mesozoic sandstones, mudstones and shales are the dominant bedrock formations. The terrain is generally rolling, with small hummocky hills and upland slopes incised by small to large river and stream courses.

The entire zone was affected by late Pleistocene glaciation. The predominant surficial material is weakly calcareous glacial till. Glaciolacustrine sediments are especially prominent in lower valley positions. Soils are primarily deep Chernozems.

## Notes

At higher elevations, the *Rocky Mountains Foothills Parkland* zone adjoins the *Cordilleran Montane Forest*. At lower elevations, it mainly borders the *Rocky Mountain Foothills Fescue Grassland*. To the north, at equivalent elevations, it meets the *West-Central Boreal Forest* and, at lower elevations to the northeast, it bounds the *Great Plains Parkland*. The southern boundary is the international border; similar ecological conditions occur in the adjacent United States.