

Rocky Mountains Foothills Fescue Grassland



General Description

The *Rocky Mountains Foothills Fescue Grassland* zone covers an area of approximately 13,500 km² in the southern Rocky Mountain foothills of Alberta, at elevations between approximately 800 mASL and 1500 mASL. It extends from just north of Calgary to the international border south of Lethbridge. The climate is influenced by proximity to the Rocky Mountains. The majority of the contemporary landscape supports crop cultivation and livestock grazing.

Vegetation

Natural upland vegetation occurs as extensive grasslands south and east of the limit of tree growth in the western prairies and Rocky Mountain foothills. Shrub and tree-dominated communities only occur on moist sites. Grasses are mainly bunchgrasses; shrubs and trees are primarily cold-deciduous, broad-leaved species. Species composition and abundance in native grasslands can shift dramatically with grazing impacts, changes in fire regime or invasion by non-native species.

Mountain rough fescue (*Festuca campestris*), Idaho fescue (*F. idahoensis*) and Parry oatgrass (*Danthonia parryi*) are the primary dominants of grassland communities, often in association with prairie junegrass (*Koeleria macrantha*), northern porcupine grass (*Hesperostipa curtisetata*) and western wheatgrass (*Pascopyrum smithii*). Forb/dwarf shrub species include silvery lupine (*Lupinus argenteus*), sticky purple geranium (*Geranium viscosissimum*),

three-flowered avens (*Geum triflorum*), prairie sagebrush (*Artemisia frigida*) and prairie golden bean (*Thermopsis rhombifolia*).

Shrub communities often establish on well-drained moist sites, including species such as prickly rose (*Rosa acicularis*), snowberries (*Symphoricarpos albus*, *S. occidentalis*), saskatoon (*Amelanchier alnifolia*) and silverberry (*Elaeagnus commutata*). Creeping juniper (*Juniperus horizontalis*) occurs on very dry sites. Shrubby cinquefoil (*Dasiphora fruticosa*) is often abundant where moderate to heavy grazing has occurred.

Alluvial forests dominated by balsam poplar (*Populus balsamifera*), trembling aspen (*P. tremuloides*) and plains cottonwood (*P. deltoides* ssp. *monilifera*) occur on stable floodplain terraces. These stands often have shrub-rich understories.

Wetlands occur in poorly drained locations, but are rarely extensive. They are dominated by shrubs (e.g., Bebb's willow [*Salix bebbiana*]), sedges or tufted hair grass (*Deschampsia cespitosa*). Shallow marshes occur in the wettest parts of these 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 Fescue Grassland* 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. In general, summers are warm and winters are cool. Mean annual temperature is approximately 4°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 1400 growing degree days above 5°C. Annual precipitation is low to moderate, but on average is higher than for other grassland vegetation zones in Canada, except for the *Central Tallgrass Grassland*. Mean annual precipitation is between 400 and 590 mm, with the majority falling as rain in summer months.

Physiography, Geology, Topography and Soils

This zone occurs in the southwestern corner of the Alberta Plain, a subdivision of the Interior Plains physiographic region. Elevations range between approximately 800 mASL and 1500 mASL, with higher sections in the Porcupine Hills and on the Milk River Ridge.

Mesozoic and Tertiary sandstones, mudstones and shales are the dominant bedrock formations. The terrain is generally an undulating plain, but hill systems and ridges also occur.

With the unique exception of the highest levels of the Del Bonita Plateau, the entire zone was affected by late Pleistocene glaciation. The predominant surficial material is weakly calcareous glacial till, but glaciolacustrine and glaciofluvial sediments are prominent in lower and mid-valley positions. Soils are primarily deep Chernozems.

Notes

At higher elevations, the *Rocky Mountains Foothills Fescue Grassland* zone adjoins the *Rocky Mountains Foothills Parkland*, except in the Porcupine Hills where it is directly adjacent to the *Cordilleran Montane Forest*. To the north, it is bounded by the *Great Plains Parkland* and the *Great Plains Fescue Grassland*. To the east, it borders the *Great Plains Mixedgrass Grassland*. The southern boundary is the international border; similar ecological conditions occur in the adjacent United States.