

3.0 Subject Area

The Subject Area includes the Town of Lacombe and surrounding areas to the east and northwest (Figure 1). The natural areas previously identified as Rank 2 and 3 areas within the Subject Area were assessed based on vegetation and wildlife.

3.1 ALBERTA NATURAL REGION LAND CLASSIFICATION SYSTEM

The province of Alberta has been divided into specific units that reflect natural features through a process termed *land classification*. The land classification units are based on natural features – geology, landform, hydrology, soils, climate, vegetation and animals. All these natural features act as a unit and termed an ecosystem.

Two systems of ecologically based land classification have been used in Alberta. Firstly, the **Natural Regions and Subregions** classification developed by Achuff and Wallis in 1977 (ANHIC, 1999) specifically for natural area reserve planning. The purpose of the Natural Regions and Subregions classification is to account for the entire range of natural landscape or ecosystem diversity in Alberta, and is related to landscape and biodiversity conservation. This system has been adopted by the Alberta Parks Service and ties in with a Terrestrial Natural Regions system used by the Canadian Parks Service.

Secondly, the **Ecoregions of Alberta** classification developed by Strong and Leggat in 1981 and revised by Strong in 1992 (ANHIC, 1999). The purpose of the Ecoregions classification is related to agriculture, forestry, recreation and wildlife production. This system is used by Alberta Forestry, Lands and Wildlife, the Alberta Forest Service, and Alberta Fish and Wildlife. The primary difference between the two systems is the emphasis on climate as a determinant of ecosystem structure as expressed by vegetation. The Natural Regions classification emphasizes landscape pattern, which reflects the geological factor.

3.2 CENTRAL PARKLAND SUBREGION

The Town of Lacombe exists within the Parkland Natural Region, specifically the Aspen Parkland Ecoregion (Strong 1992) or Central Parkland Subregion (Achuff and Wallis 1977). The Parkland Natural Region forms a transition or ecotone between the grasslands and the boreal forests. The Parkland Natural Region occupies 10 to 15 % of the landmass in Alberta and consists of three Subregions (Central, Foothills and Peace River) separated on the basis of geographic location and vegetation.

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3.2.1 Geology and Hydrogeology

The underlying bedrock of the Subject Area is Paskapoo Formation bedrock which contains bentonitic siltstones and medium to coarse-grained friable calcareous and bentonitic sandstone beds up to 100 feet thick (Alberta Research Council, 1971). Most of the bedrock in the area is overlain by surficial deposits commonly comprised of till, lacustrine clay, sand and gravel, and windblown sand deposits (Alberta Research Council, 1971; Shetsen, 1990). Glacial till is an unsorted and unstratified glacially derived mixture of clay, silt, sand, pebbles and boulders

The Town of Lacombe and surrounding areas are located on a buried valley. This buried valley represents a preglacial drainage system extending from southwest to northeast.

3.2.2 Soils

The Central Parkland Subregion is characterized by orthic black and dark grey chernozems and dark grey luvisols. Black and dark brown chernozems predominate beneath grassland vegetation, with dark gray chernozems and luvisols beneath aspen woodlands.

3.2.3 Hydrology

The major drainage courses occurring within and adjacent to the Town of Lacombe include Whelp Creek and Wolf Creek. Both creeks are tributaries of Battle River. Whelp Creek historically extends from Lacombe Lake and meanders northeast. Wolf Creek extends from the southeast Lacombe area towards the northeast. Whelp Creek and Wolf Creek join northeast of Lacombe and eventually enter Battle River. In addition to the drainage channels, a number of permanent lakes and permanent and intermittent wetlands occur across the landscape.

3.2.4 Climate

The mean annual temperature for the Central Parkland Subregion is 2°C, with a May to September average of 13°C. The frost free period averages 95 days. Mean annual precipitation is 350 to 450 mm, with a May to September precipitation average of 300 mm. The climate of Lacombe and area is typical of the Central Parkland Subregion. Precipitation data from directly west of the Town of Lacombe indicate mean annual precipitation of 466 mm (Alberta Research Council, 1971).

According to Koeppen's classification, the climate of the area is humid continental, having a cool summer and no dry season.

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3.2.5 Vegetation

Two major deciduous forest types are present within the Central Parkland Subregion; an aspen forest type and a balsam poplar forest type. The occurrence of these forest types is largely dependent upon soil moisture and geography. Both forest types are characterized by dense species rich understory. Species characteristic of the aspen forest include snowberry, saskatoon, beaked hazel, choke cherry, bunchberry, wild lily-of-the-valley and purple oat grass. Species characteristic of the balsam poplar forest include red osier dogwood, pussy willow, northern gooseberry, green alder, honeysuckle, coltsfoot, and baneberry. Species common to both types of forest include, rose, cranberry, raspberry, dewberry, sarsaparilla, wheat grass, fairy bells, wintergreen, aster, bedstraw, fireweed, vetch and star-flowered Solomon's seal. In northern areas of the Central Parkland Subregion, coniferous forest elements are present. White spruce and pine species can occur in coniferous stands or mixedwood stands.

The grassland ecosystem is dominated by rough fescue, with porcupine grass, June grass and wheat grass common. Shrub communities within the grassland areas consist of snowberry, rose, choke cherry, pin cherry, saskatoon and wolf willow.

The landscape of Lacombe is variable and exhibits the natural patchiness inherent in the Central Parkland Subregion of Alberta. Wetlands include lakes, freshwater marshes, wet meadows and riparian areas. Upland habitats include native grassland patches, deciduous and mixedwood forest stands. Within this broad ecotone there is an increased biodiversity, illustrated by the diverse vegetation and wildlife which occur spatially and temporally across the landscape.

3.2.6 Wildlife

The animals of the Central Parkland Subregion include a mixture of grassland species and boreal forest species. Characteristic species of the parkland include red-eyed vireo, red-tailed hawk, least flycatcher, yellow warbler, white-tailed deer, coyote, porcupine, northern pocket-gopher, voles and snowshoe hare. The permanent and intermittent wetlands are common in the parkland and support a variety of birds and amphibians.

3.2.7 Development

The Parkland Region is the most densely populated region in Alberta, with the greatest density in the Central Parkland Subregion. The historic Parkland Region consisted of continuous aspen forest broken by grassland openings. Due to large scale clearing for agriculture and urban development, true parkland vegetation is rare. Across the Central Parkland Subregion, native vegetation is not common, due

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largely to the agriculture development. The high productivity of parkland soils for agriculture has led to the loss of historic parkland ecosystem.