

►► Biodiversity and Species at Risk

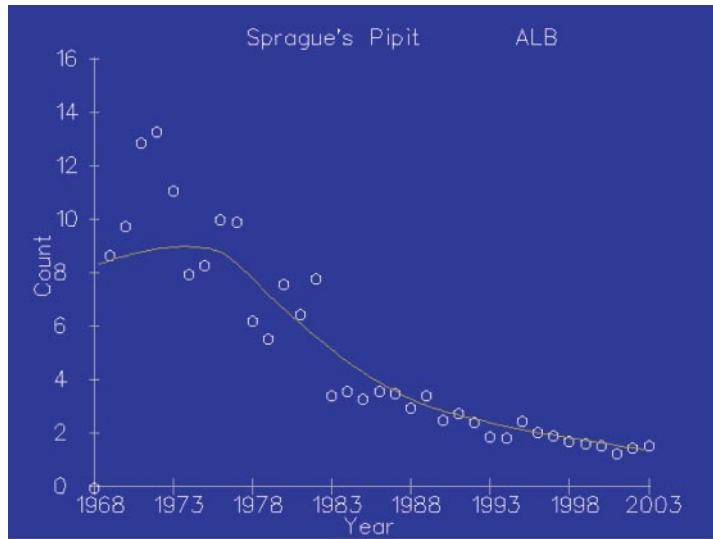


Figure 16. Response to Human Activity – Sprague's Pipit

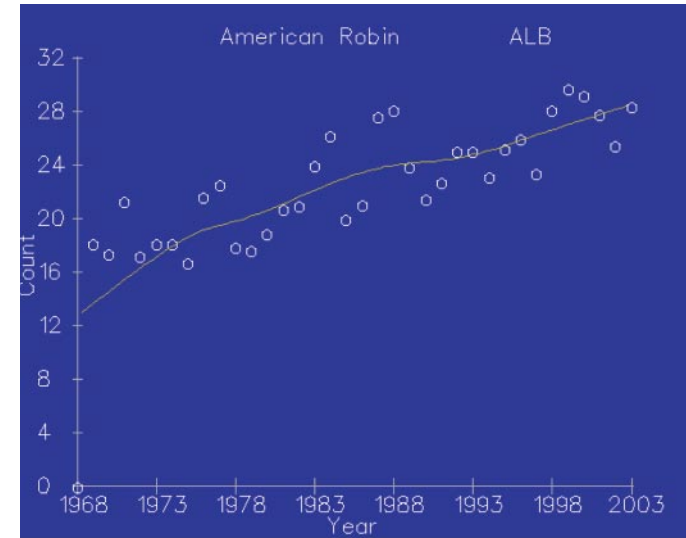


Figure 17. Response to Human Activity – American Robin

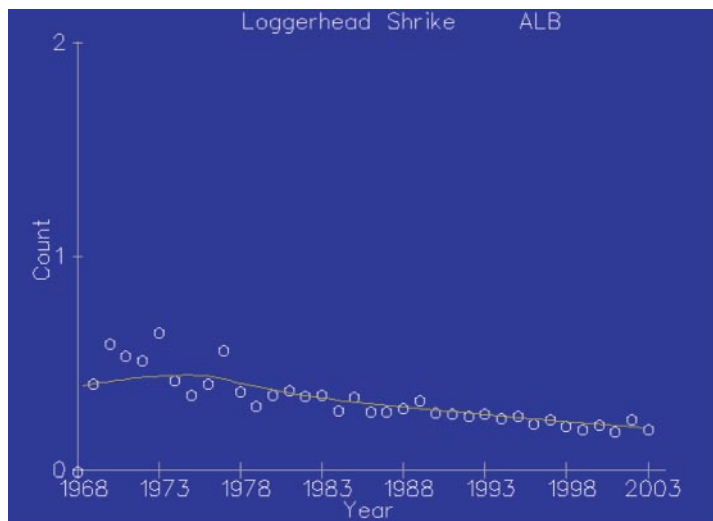


Figure 18. Response to Human Activity – Loggerhead Shrike

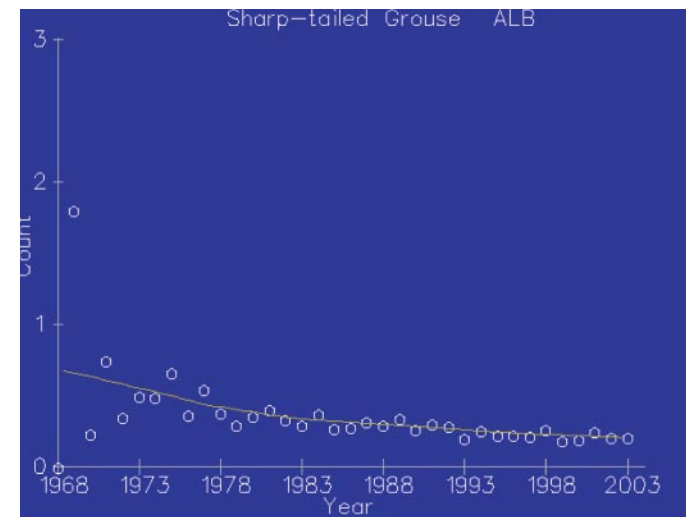



Figure 19. Response to Human Activity – Sharp-tailed Grouse

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Table 3. SAL Region Species at Risk

BIRDS

| Species | Description | Habitat | Threats |
|-------------------------|---|---|--|
| Burrowing Owl | <ul style="list-style-type: none"> Occurs mostly in a belt from Regina, Saskatchewan to Lethbridge, Alberta. Limited by the extent of grasslands. 1990s decline: 22% per year. Now fewer than 1000 pairs on the Canadian prairies.  | <ul style="list-style-type: none"> Treeless plains, largely free of visual obstructions, such as grasslands grazed by livestock. Uses burrows abandoned by ground-dwelling mammals (e.g., badgers, ground squirrels and prairie dogs) for nesting, roosting and caching food. Short or sparse vegetation and permanent cover are preferred around the burrows. Grasslands with thicker vegetation support the small mammals they eat. Sometimes found on roadsides and croplands and in urban areas where mowing keeps expanses of grass short. | <ul style="list-style-type: none"> Cultivation of pastures, extermination of ground squirrels, and other agricultural activities reduce the number of suitable burrows. The use of chemical pesticides to control grasshoppers and other insects reduces an important food supply. Other factors include inclement weather, illegal shooting, and collisions with motor vehicles. During migration they have difficulty finding burrows since 99% of prairie dog colonies have been destroyed on the Great Plains. In winter, most of their habitat is cultivated and burrows may be in short supply. |
| Ferruginous Hawk | <ul style="list-style-type: none"> Breeds from the southern Canadian Prairies and eastern Washington, south to Nevada, New Mexico, and northwest Texas. The species occupies less than half its historic Canadian range. It now breeds exclusively in the grassland region of southern Alberta, southern Saskatchewan and southwest Manitoba. | <ul style="list-style-type: none"> The Ferruginous Hawk occupies open, arid habitats dominated by grasses or sagebrush. It requires an elevated nest site (isolated tree or bush), surrounding grassland over which to hunt, and an adequate supply of ground squirrel prey. It is not found where trees are abundant or land is extensively broken for cultivation. | <ul style="list-style-type: none"> The major factor is the loss of grassland habitat, due to extensive agriculture and natural fire suppression, especially in grasslands ploughed for grain production. Cultivation reduces the number of prey species available, hence the number of hawks. Fire suppression has caused invasion of grasslands by trees growing from the north, pushing the hawk's range southward. Mortality in ground nests is probably extremely high. |

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| Species | Description | Habitat | Threats |
|----------------------------|--|--|---|
| Greater Sage Grouse | <ul style="list-style-type: none"> • Range covers 4000 km² in southeast Alberta. • There may have been 10 million in North America at the time of European exploration. • By 1970 there were 1.5 million and numbers continue to decrease. | <ul style="list-style-type: none"> • Found where sagebrush grows, i.e., the dry mixedgrass ecoregion, where it is warm and dry. • Nest in sagebrush habitat, most successfully where both lateral and vertical cover are present, and near running water. | <ul style="list-style-type: none"> • Heavy grazing, especially over the long term. • Oil and gas development. • Collisions with fences, power poles and farm vehicles. • Increasing coyote populations in the early 1990s. |
| Loggerhead Shrike | <ul style="list-style-type: none"> • A masked, hook-billed songbird known for its habit of impaling prey on thorns or barbed wire. • Most loggerhead shrikes arrive in southern Alberta during the first week of May and begin their return journey south by the end of August. • The loggerhead shrike has declined over much of its range. Between 1970 and 1991, this species has shown the most significant downward trend of any songbird in the southern Prairie Provinces. | <ul style="list-style-type: none"> • Inhabit open areas with scattered shrub-by growth. They are found in open country, savannah, desert scrub, and open woodland. • Loggerhead shrikes are visual hunters and require tall perches from which to survey the surrounding countryside for potential prey. | <ul style="list-style-type: none"> • Pesticides: As a predator at the top of the food chain, shrikes accumulate chemicals in their tissues. Pesticides may be responsible for slowing the development of young shrikes, for reducing eggshell thickness, and for reducing the size of clutches and broods. • New agriculture practices, including the removal of hedgerows, shrubs and trees and the draining of potholes and sloughs, shrink habitat. • Road mortalities are a major cause of death, especially for juveniles, as these birds often nest and forage close to roads. The young are also susceptible to heavy rainfall and cold temperatures. |
| Peregrine Falcon | <ul style="list-style-type: none"> • Fastest of all raptors; can dive at speeds up to 300 km/hr. • Currently, there are fewer than 60 breeding pairs in Alberta. | <ul style="list-style-type: none"> • Usually nest on cliff ledges and hunt birds, often near wetlands. | <ul style="list-style-type: none"> • Once almost extinct in the Prairies, their numbers are now steadily increasing. A ban on the pesticide DDT, which caused their eggshells to become thin and break, was critical in recovering populations. |

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| Species | Description | Habitat | Threats |
|------------------------|--|--|---|
| Piping Plover | <ul style="list-style-type: none"> Breeds in central and southern Alberta. A 1986 survey found fewer than 300 piping plovers in Alberta, mostly near Provost, Hanna and Medicine Hat. | <ul style="list-style-type: none"> Nests just above the normal high-water mark on exposed sand or gravel beaches. On the prairies, nesting occurs on gravel shores of shallow, saline lakes and on sandy shores of larger prairie lakes. Piping plovers scrape out small, shallow nests in bare areas of sand, small pebbles or gravel. They prefer shorelines of prairie lakes and sloughs with heavy concentrations of mineral salts. Seeps provide important foraging habitat. | <ul style="list-style-type: none"> Loss of habitat, mostly caused by human use of beaches and disturbance around nesting sites. Domestic pets prey on the eggs and young, as do wildlife such as gulls and raccoons that are initially attracted to the nesting areas because of garbage left by picnickers. Livestock trample nests. Changes in water levels caused by recreational or building activities, dams and seasonal storms harm nesting birds. |
| Sage Thrasher | <ul style="list-style-type: none"> Distinguished from brown thrashers by their shorter tail and greyish rather than reddish-brown colour. Prefer areas where sagebrush grows. | <ul style="list-style-type: none"> Almost entirely dependent on sagebrush habitat during the breeding season. Shrub size is very important for nesting, as the birds require sagebrush approximately one meter high. In the winter, the sage thrasher uses a variety of scrub, brush, and denser habitats. | <ul style="list-style-type: none"> Areas with suitable sage thrasher habitat in Canada have been slowly decreasing during the last 50 years. |
| Sprague's Pipit | <ul style="list-style-type: none"> A small, ground-nesting songbird that is commonly found in suitable habitat, particularly on the Canadian prairies. Breeding Bird Survey data collected during the past 30 years show that populations are declining rapidly. Since 1996, populations in Alberta have declined by 9.4% per year. | <ul style="list-style-type: none"> Native grassland. Rarely found in cultivated lands, or in areas where native grasses have been replaced with introduced forages. Prefer native vegetation of intermediate height and density, with moderate amounts of vegetative litter, lightly to moderately grazed, or where fires periodically remove vegetation. | <ul style="list-style-type: none"> Habitat loss is the primary cause of decline. Cultivation makes habitat unsuitable. Other factors include intensive grazing, which removes vegetation and may cause reproductive failure due to disturbance and trampling of nests; haying; fragmentation of habitat; and reduction in fire frequency, which encourages encroachment of woody vegetation and promotes excessive growth of vegetation and accumulation of litter. The use of pesticides to control grasshoppers. Drought affects nesting and food supply. |

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MAMMALS

| Species | Description | Habitat | Threats |
|---------------------|--|---|---|
| Grizzly Bear | <ul style="list-style-type: none"> • Grizzly bears need a great deal of space to provide for their habitat needs. • The home range of grizzly bears on the eastern slopes of the Central Rockies Ecosystem is quite large, from about 500 km² for females to 1000 km² for males. • Home range size in this region indicates that food sources are widely dispersed throughout the landscape, rather than concentrated in local areas. | <ul style="list-style-type: none"> • The habitat associations of the grizzly are strongly seasonal; the consumption of a wide variety of plants is important for many Grizzly Bears so their movements often reflect the development of the local plant community. • In mountainous areas, vegetation emerges earlier at lower elevations; bears therefore descend from their denning sites to feed in the spring, and return later in the season to higher elevations. | <ul style="list-style-type: none"> • Most bears die as a result of human activities. • Annual harvest from recreational hunting in Alberta since 1988 has ranged from five to 20 bears, averaging 14.15 grizzlies per year. Most grizzlies taken in Alberta are males, ensuring the harvest will have little effect on the population growth rate. • Activities undertaken by humans, including mining, forestry, agriculture, residential development, and recreation, degrade the quality of the habitat for bears, and increase their risk of mortality. • Roads, railroads, power lines, and other linear features are a particular threat to habitat, feeding and migration. |
| Swift Fox | <ul style="list-style-type: none"> • Once found in dry prairie habitat from the southern Canadian prairie to Texas, the species began to decline early this century. • The last Canadian specimen was captured in Govenlock, Saskatchewan in 1928. • The Swift Fox has made a comeback in much of its U.S. range and is being re-introduced in Canada. | <ul style="list-style-type: none"> • Swift Foxes prefer open, sparsely vegetated short-grass and mixed-grass prairie, where visibility and mobility are unimpeded. Native vegetation common in such grasslands includes buffalo grass, bluestem, and wire grass. • Suitable den habitat, such as well-drained slopes and hilltops near permanent water bodies, is required. | <ul style="list-style-type: none"> • The conversion of native prairie grasslands to farmland has reduced both the quantity and quality of habitat. • The Swift Fox is very vulnerable to shooting and trapping since it is not wary of humans. The use of poison to kill coyotes has been detrimental to the Swift Fox. Predation by coyotes, eagles, and red-tailed and rough-legged hawks is a potential threat. • The Swift Fox is being reintroduced in certain parts of the SAL area. |

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REPTILES AND AMPHIBIANS

| Species | Description | Habitat | Threats |
|------------------------------|---|--|---|
| Northern Leopard Frog | <ul style="list-style-type: none"> • By 1979, the species had vanished from most of its range in Alberta. • Data from the 1990s show that only 26 of 74 known breeding populations remain, with breeding confirmed in only 12 of these. The majority of these 12 are in the southeast corner of Alberta. | <ul style="list-style-type: none"> • The Northern Leopard Frog uses a variety of habitats to meet its needs throughout the year. Separate sites are generally used for over-wintering and breeding. • Overwintering sites are well-oxygenated water bodies, such as streams or larger ponds that do not freeze solid. Breeding sites are temporary ponds that often dry up in late summer. | <ul style="list-style-type: none"> • Destruction or modification of the species' breeding, summer, or overwintering habitat, can eliminate a local population. • Introduction of animals or plants, such as Common Carp or Purple Loosestrife, can make habitat unsuitable for Northern Leopard Frogs. |
| Prairie Rattlesnake | <ul style="list-style-type: none"> • The Prairie Rattlesnake reaches the northern limits of its range in southern Alberta. • This species is designated as “may be at risk” in Alberta due to an accumulation of anecdotal evidence suggesting prairie rattlesnake populations have declined in the province in recent years. • Historically, rattlesnakes in Alberta ranged from the United States-Canada border as far north as Trochu and from the Alberta-Saskatchewan border almost to Calgary. | <ul style="list-style-type: none"> • Rattlesnakes live and breed in hibernacula, which receive year-round protection under the Wildlife Act, prohibiting the destruction of these sites. • Prairie rattlesnakes occur within the Grassland Region of Alberta. Habitat in this region is mixed-grass prairie. | <ul style="list-style-type: none"> • Industrial and agricultural activities. • Vehicle traffic on all types of roads kills rattlesnakes that are either crossing the roads, or sunning themselves on roads. • Cultivation: snakes are killed by machinery when the land is being worked and when crops are being harvested. • Pesticides may contaminate the food of rattlesnakes. • Many people kill, or otherwise harass rattlesnakes because they dislike them. • Weedy plants and species introduced for agriculture often become established in areas with disturbed soils. Over time, these weedy/agronomic species then invade the surrounding native grassland, thus reducing the quality of that grassland for rattlesnakes. |



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PLANTS

| Species | Description | Habitat | Threats |
|------------------------------------|---|---|---|
| Slender Mouse-ear Cress | <ul style="list-style-type: none"> • Has single or branched stems each ending with several white flowers. • Its flattened seed capsules contain many seeds. | <ul style="list-style-type: none"> • Grows in flat, open grasslands with sandy soil. | <ul style="list-style-type: none"> • Loss of habitat and grazing by animals are the main limiting factors |
| Small-flowered Sand Verbena | <ul style="list-style-type: none"> • In Alberta and Saskatchewan, the Small-flowered Sand Verbena is found in the mixed-grass prairie region. | <ul style="list-style-type: none"> • Occurs at multiple sites in southeast Alberta, in the general area of the confluence of the Bow, Oldman, and South Saskatchewan rivers. • Grows on sandhill areas in very dry conditions, and usually requires some drifting or unstable sand. • The largest populations occur on hard-packed, fine sand, on level ground, but it is also found on slopes or the ridge tops of the dunes. | <ul style="list-style-type: none"> • Dune stabilization has resulted in a significant loss of habitat. • The absence of fire and the decreased grazing of prairie areas have resulted in less drifting or unstable sand, allowing the establishment of other species, including alien invasive weeds, on the dunes. • The cultivation of areas surrounding existing populations of Small-flowered Sand Verbena also decrease opportunities for it to spread naturally. |
| Soapweed Yucca | <ul style="list-style-type: none"> • A large plant with a crown of broad, sword-like leaves. When flowering it has a tall stalk topped with creamy white flowers. • Soapweed can only be pollinated by the Yucca Moth and the moth larva eats only the seeds of Soapweed. | <ul style="list-style-type: none"> • Thrives in arid regions such as dry coulee slopes. | <ul style="list-style-type: none"> • Possible loss of habitat and consumption of flowers by herbivores (deer, antelope and cattle) limit populations. • The apparent disappearance of the Yucca Moth from one population and low moth numbers at the other threaten the long-term survival of the only two populations confirmed to have been naturally established in Canada. |
| Tiny Cryptanthus | <ul style="list-style-type: none"> • Has miniscule white flowers with a yellow "eye" in the centre and small leaves at the base of each sepal (tube-like structures below the flowers that have bristly hairs and thick, whitish veins). | <ul style="list-style-type: none"> • Usually grows in sandy native grassland within river valleys or nearby uplands. | <ul style="list-style-type: none"> • Destruction of Mixed Prairie Grassland habitat. • Urban development has probably caused the destruction of a historic site for the species at Medicine Hat, Alberta. • Changes to the regime of the South Saskatchewan River resulting in flooding or water diversion could imperil the species in Canada. |

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| Species | Description | Habitat | Threats |
|---------------------------|--|---|--|
| Western Blue Flag | <ul style="list-style-type: none"> • Has blue-green leaves that are 30 to 60 cm long and 3 to 8 cm wide and pale blue or blue-violet flowers and grows from a thick, dark rhizome. • The size of the current total population in Alberta is unknown. In 1989, there were fewer than 10,000 plants in Canada. • No known populations have been extirpated in the last decade, but the habitat for two populations has been degraded. | <ul style="list-style-type: none"> • Restricted to about 500 km² in southern Alberta where it is known to occur at seven locations. • The Western Blue Flag inhabits moist meadows and stream banks, areas that are usually wet in the spring but dry or just slightly moist during the summer. • The plants require moisture when they are flowering, and warmer and drier conditions in subsequent months. All Alberta populations are on level or gently sloping ground that is only slightly humid during most of the growing season. | <ul style="list-style-type: none"> • Distribution is limited by climate, suitable habitat and its narrow environmental tolerances. • Loss of habitat (especially conversion of native grassland to pasture and cropland) is an important limiting factor. Because this species occupies a very narrow niche, human activities such as alteration of drainage patterns, overgrazing, cultivation, and the use of herbicides limit the areas where it can survive. Other limiting factors include competition from native and invasive species, change in habitat conditions, and the collection of plants for horticultural and medicinal uses. |
| Western Spiderwort | <ul style="list-style-type: none"> • Has slender grass-like stems that can easily be confused with grasses when it is not in flower. • The three-petalled flowers range in colour from rose to dark-blue and occasionally white. They are arranged in clusters, usually with one flower in each cluster blooming at a time. | <ul style="list-style-type: none"> • Adapted to growing in areas with low soil moisture. • Grows on partly stabilized sand dune ridges, usually on the crests, and on steeper south-facing slopes. • Typically associated with areas of active, drifting sand, where vegetation is relatively sparse. | <ul style="list-style-type: none"> • Destruction of Mixed Prairie Grassland habitat. • Urban development has probably caused the destruction of a historic site for the species at Medicine Hat, Alberta. • Changes to the regime of the South Saskatchewan River resulting in flooding or water diversion could imperil the species in Canada. |

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Canada Thistle



Crested Wheat Grass

INVASIVE PLANT SPECIES

The World Conservation Union has identified invasive alien species as the second most significant threat to biodiversity, after habitat loss. Anthropogenic activities on the landscape – including the deliberate introduction of alien plant species, forestry, road building and agriculture – often provide the vectors for invasive species to take hold. As with the introduction of animals and insects, invasive plants lack environmental controls over their growth and may crowd out less hardy but native plant species.

An invasive plant survey completed by Alberta's agricultural field staff in 2004 identified the top three most problematic species in each jurisdiction. Table 4 lists those invasive plants.⁵

⁵ Source: <http://www.invasiveplants.ab.ca/alberta2004.htm>

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Table 4. Invasive Plants - three most problematic species

| | BLUEWEED | CANADA THISTLE | CLEVERS | COMMON TANSY | COMMON TOADFLAX | DALMATIAN TOADFLAX | DIFFUSE Knapweed | DOWNY Brome | FIELD SCABIOUS | HOUND'S TONGUE | LEAFY SPURGE | OXEYE DAISY | PERENNIAL SOWTHISTLE | PURPLE LOOSESTRIFE | RUSSIAN Knapweed | RUSSIAN OLIVE | SCENTLESS CHAMOMILE | SPOTTED Knapweed | STORK'S BILL | TALL BUTTERCUP | WHITE COCKLE | WILD CARAWAY |
|----------------------------|----------|----------------|---------|--------------|-----------------|--------------------|------------------|-------------|----------------|----------------|--------------|-------------|----------------------|--------------------|------------------|---------------|---------------------|------------------|--------------|----------------|--------------|--------------|
| Counties | | | | | | | | | | | | | | | | | | | | | | |
| Camrose | | * | | | * | | | | | | | | * | | | | | | | | | |
| Cardston | | | | | | * | | | | | * | | | | | | | * | | | | |
| Clearwater | | | | | | | | | * | | | | | | | | | | | * | | * |
| Cypress | | | | | | | * | | | | | | | | | | | | | | | |
| Forty Mile | | | | | * | | | | | | | | | | | * | * | | | | | |
| Kneehill | | | | | * | | | | | | | | | | | | | | * | | * | |
| Lacombe | | * | | * | | | | | | | | | | | | | * | | | | | |
| Lethbridge | | * | | | | | | | | | * | | | | | | | * | | | | |
| Mountain View | | * | | | * | | | | | | | | | | | | | | | * | | |
| Newell | | | | | | | | * | | | | | | | | | | * | | | | |
| Paintearth | | | | | * | | | | | | | | | | | | * | | | | * | |
| Ponoka | | * | | | * | | | | | | | | | | | | * | | | | | |
| Red Deer | | | | * | * | | | | | | | | | | | | * | | | | | |
| Starland | | * | * | | | | | | | | | | * | | | | | | | | | |
| Stettler | | | | * | | | | | | | * | | | | | | | | | | | * |
| Vulcan | | * | | | * | | | | | | | | * | | | | | | | | | |
| Warner | | * | | | | | | | | | | | | * | | | | * | | | | |
| Wetaskiwin | | | | * | | | | | | | | * | | | | | | | | * | | |
| Wheatland | | * | | | * | | | | | | | | | | | | * | | | | | |
| Municipal Districts | | | | | | | | | | | | | | | | | | | | | | |
| Acadia | | | | | | | | | | | | | | | | | | | | | | |
| Bighorn | | | | | * | | | * | | | | * | | | | | | | | | | |
| Foothills | | | | | | | | | | | | | | | | | | | | | | |
| Pincher Creek | | | | | | | | | | | * | * | | | | | | | | * | | |
| Provost | | * | | | * | | | | | | | | | | | | * | | | | | |
| Ranchland | * | | | | | | | | * | | | * | | | | | | | | | | |
| Rocky View | | * | | | * | | | | | | | | | | | | * | | | | | |
| Taber | | * | | | | | | | | | * | | | * | | | | | | | | |
| Willow Creek | | | | | | * | | | | | * | | | | | | | * | | | | |
| Special Areas | | | | | | | | | | | | | | | | | | | | | | |
| Special Area 2 | | | | | | | | | | | * | | | | | | * | * | | | | |
| Special Area 3 | | | | | * | | | | | | * | | | * | | | | | | | | |
| Special Area 4 | * | | | | | | | | | | * | | | | | | | | * | | | |

▶▶ Administrative Boundaries

As shown on the map in Figure 20, the administrative boundaries that define settlement in the SAL region consist of:

- 19 Counties
- 9 Municipal Districts
- 3 Special Areas
- 3 Improvement Districts

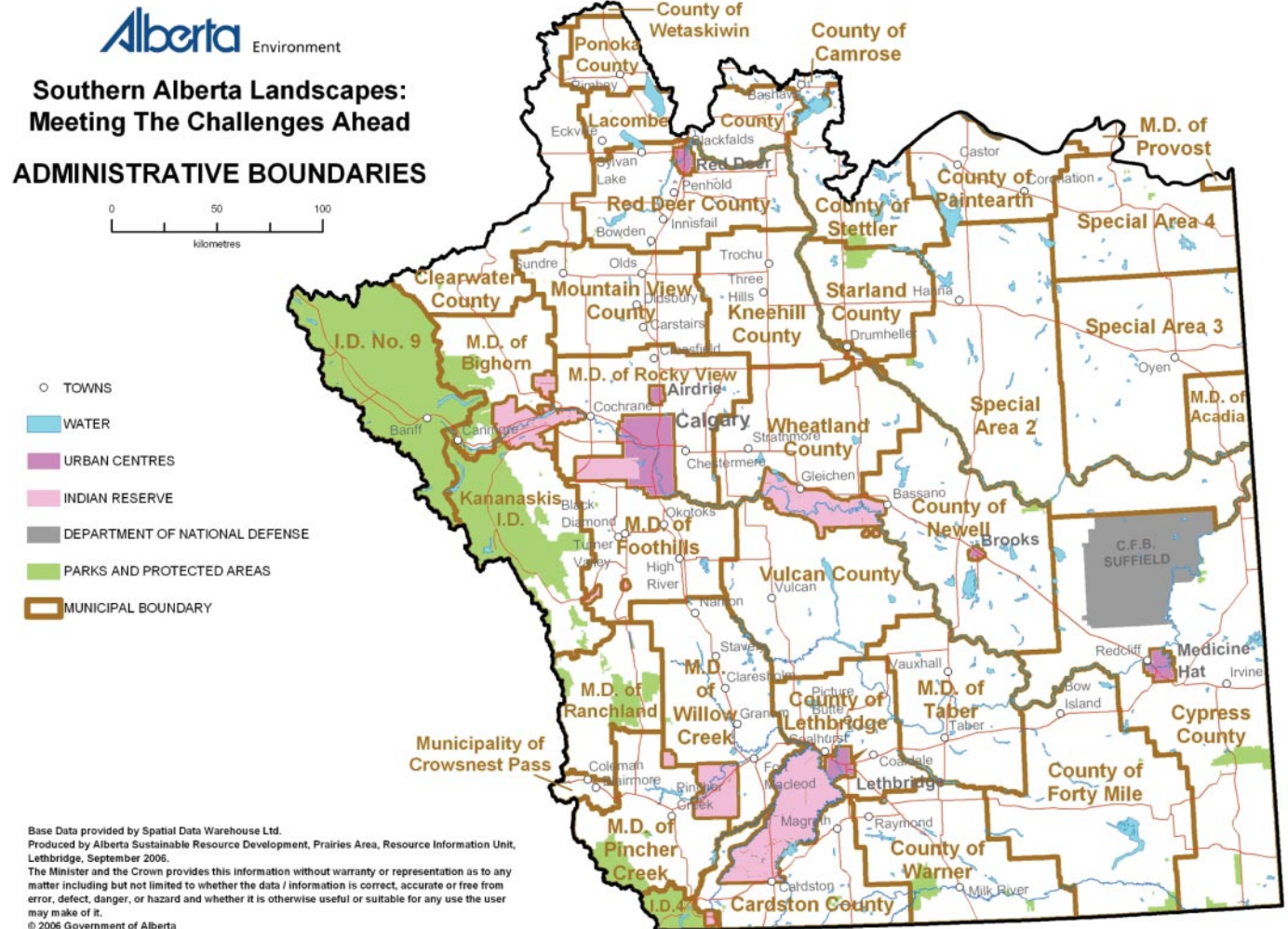


Figure 20. Administrative Boundaries in the SAL Region

►► Administrative Boundaries

LAND OWNERSHIP

Figure 21 shows the percentage of the total land area owned by each jurisdiction in the SAL region. The map in Figure 22 shows land ownership in the region.

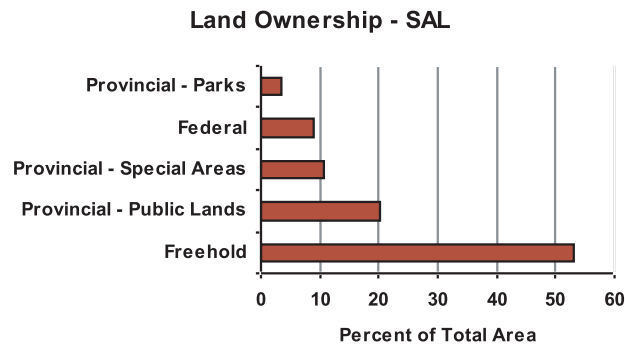


Figure 21. Land Ownership in the SAL Region

INDIAN RESERVES

Indian Reserves in the SAL region were established through the treaty process in 1877 under Treaty Seven between the Crown, as represented by the Queen of England and the Siksika Nation, Piikani Nation, Kainai Nation, Tsuu T'ina Nation, and Stoney Nation, which includes Bearspaw, Chiniki and Wesley Nations (referred to as First Nations).

These lands are under federal jurisdiction. All activities that affect reserve lands, as well as those that may infringe on First Nations rights and traditional uses, require consultation with the relevant First Nation.

Table 5. Reserves in the SAL Region

| | Population (2001) | Area (km ²) |
|------------------------|-------------------|-------------------------|
| Stoney #142, 143, 144 | 2,155 | 402.26 |
| Tsuu T'ina Nation #145 | 1,982 | 283.14 |
| Siksika #146 | 2,767 | 696.56 |
| Eden Valley #216 | 216 | 17.48 |
| Piikani (Peigan) #147 | 1,537 | 430.31 |
| Kainaiwa (Blood) | 3,852 | 1,414.03 |
| TOTAL | 12,509 | 3,243.78 |

CENSUS DIVISIONS

There are 12 Census Divisions in the SAL region. A Census Division is a group of neighbouring municipalities joined together for the purposes of regional planning and for managing common services (such as police or ambulance services). These groupings are established under laws in effect in certain provinces and territories of Canada.¹



¹ Source: Statistics Canada, <http://www12.statcan.ca/english/census01/Products/Reference/dict/geo008.htm>

▶▶ Administrative Boundaries

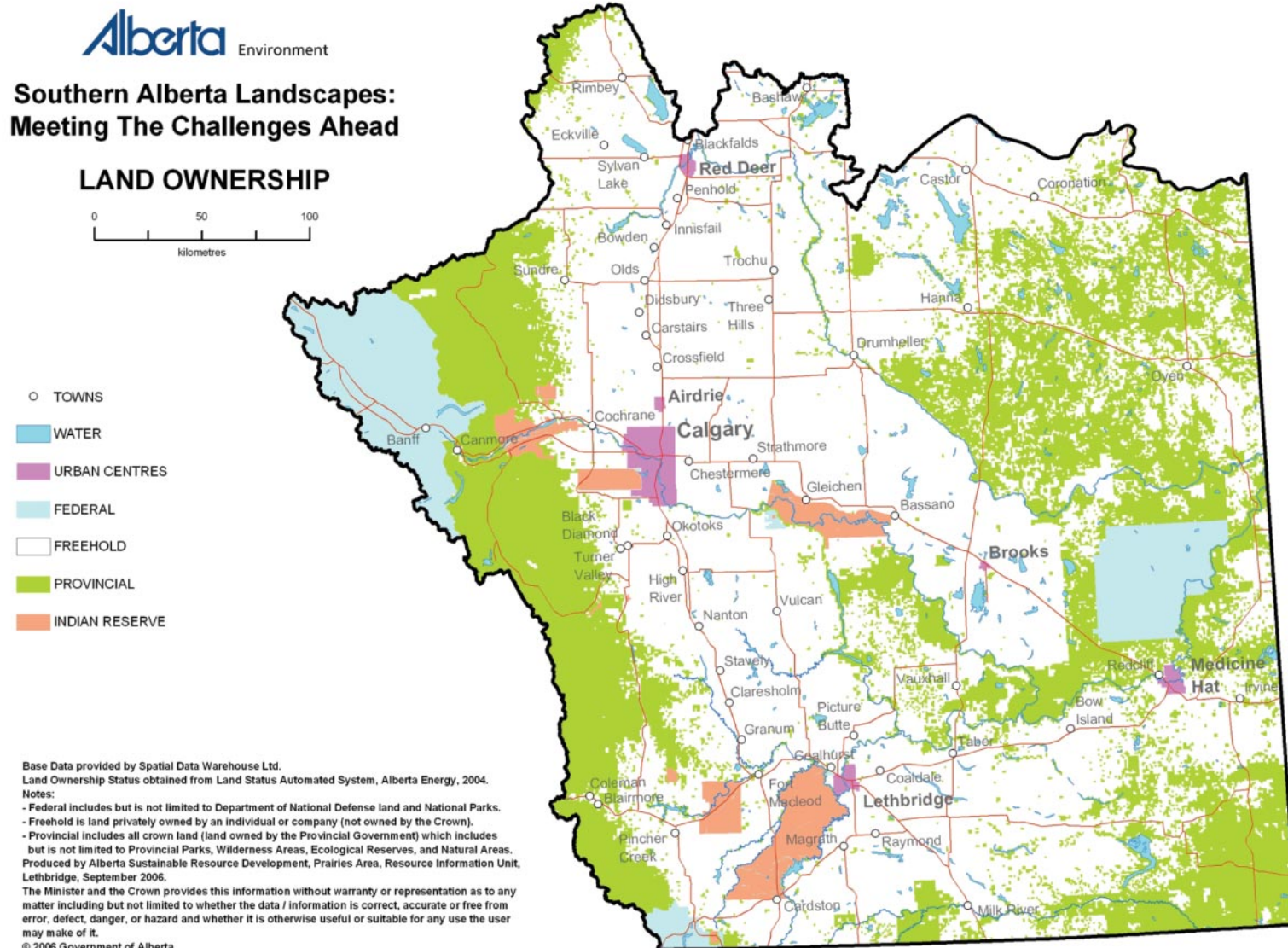


Figure 22: Land Ownership in the SAL Region

►► Administrative Boundaries

Table 6 lists the census divisions in the SAL region, including the municipal counties, improvement districts, special areas, specialized municipalities, municipal districts and regional municipalities in each. Figure 23 shows Census Divisions and urban centres with greater than 10% population increase between 1996-2001.

Table 6. Census Divisions in the SAL Region

Division No. 1

- Cypress County
- Forty Mile County No. 8

Division No. 2

- Lethbridge County
- Newell County No. 4
- Taber Municipal District
- Warner County No. 5

Division No. 4

- Acadia No. 31
- Special Area No. 2
- Special Area No. 3
- Special Area No. 4

Division No. 5

- Drumheller County
- Kneehill County
- Starland County
- Vulcan County
- Wheatland County

Division No. 6

- Calgary
- Foothills No. 31
- Mountain View County
- Rocky View No. 44

Division No. 7

- Paintearth County No. 18
- Provost No. 52
- Stettler County No. 6
- Wainwright No. 61

Division No. 8

- Lacombe County
- Ponoka County
- Red Deer County

Division No. 9

- Clearwater County

Division No. 10

- Camrose County No. 22

Division No. 11

- Wetaskiwin County No. 10

Division No. 15

- Bighorn No. 8
- Canmore
- Crowsnest Pass
- Improvement District No. 9
- Improvement District No. 12
- Kananaskis No. 5
- Rangeland No. 66



▶▶ Administrative Boundaries

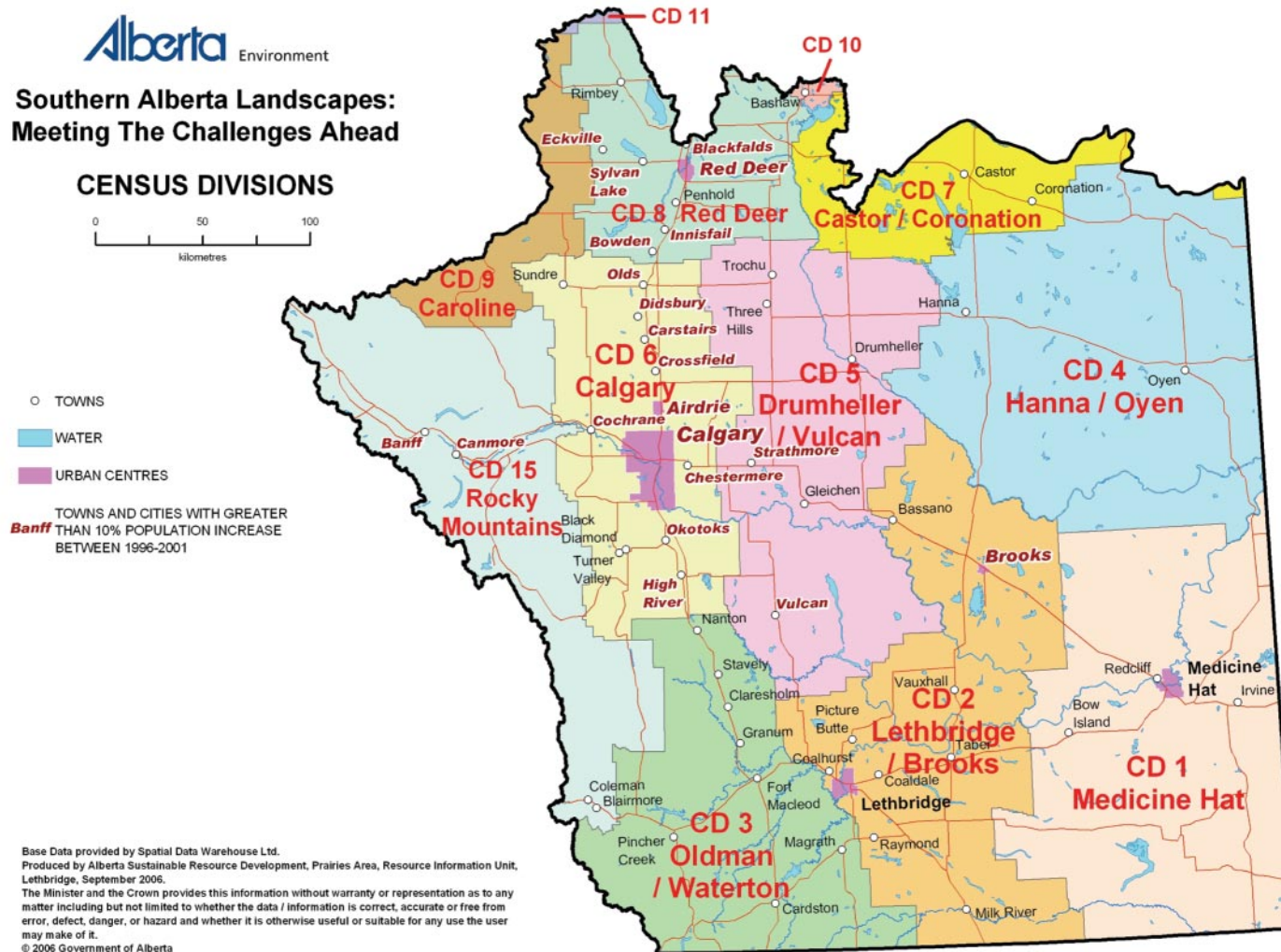


Figure 23. Census Divisions in the SAL Region

►► Population and Settlement

Historically, the SAL region was largely rural. It was only after 1950 that the trend from rural to urban began, as is shown in Figure 24. While rural population has remained relatively stable at about 200,000 people, urban population trends in Calgary and the Four Cities (Airdrie, Lethbridge, Medicine Hat, and Red Deer) show steady growth. The City of Calgary passed the one million mark in July 2006. Brooks, with a population of 11,604 in 2005, became a city effective September 1, 2005.

The total population in the SAL region in 2004 was 1,488,000. Of this, 5% (74,400) lived on farms, 11% (163,680) lived in rural residential areas, and 84% (1,249,920) lived in urban areas.

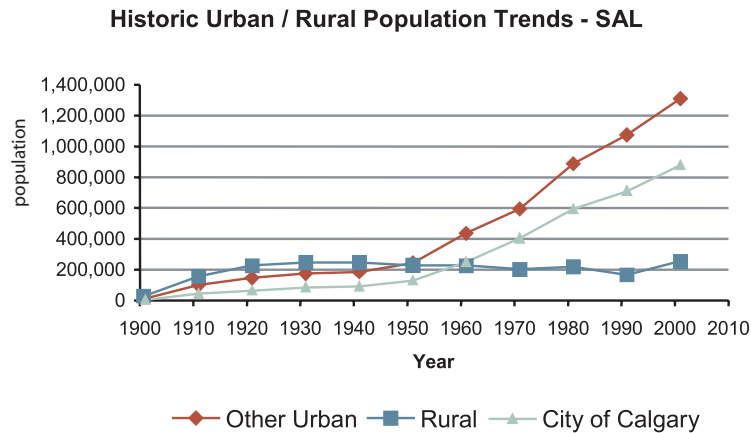


Figure 24. Historic Population Trends - SAL Region

POPULATION DENSITY BY CENSUS DIVISION¹

There are 12 Census Divisions in the SAL Region (see Figure 25). Population density in the SAL Census Divisions (CDs) shows significant diversity, as illustrated in Table 7. The average for the region is approximately 13 people per km². The Calgary Census Division, with more than two-thirds of the region's population, has by far the highest density, at 80.8 persons per km². CD8 (Red Deer) follows with a density of 15.4 persons per km², reflecting both a fairly high level of urbanization and a more dense rural population.

The lowest population density, on a subregional basis, is 0.5 persons per km² for CD4 (Hanna/Oyen). This Census Division is characterized by sparsely populated agricultural areas and a few small urban centres. CD15 (Rocky Mountains), and CD9 (Caroline/Clearwater) have low population densities of 1.2 and 1.0 persons per km² respectively. Both these Census Divisions are characterized by large, sparsely populated, forested and agricultural areas, with few urban centres.

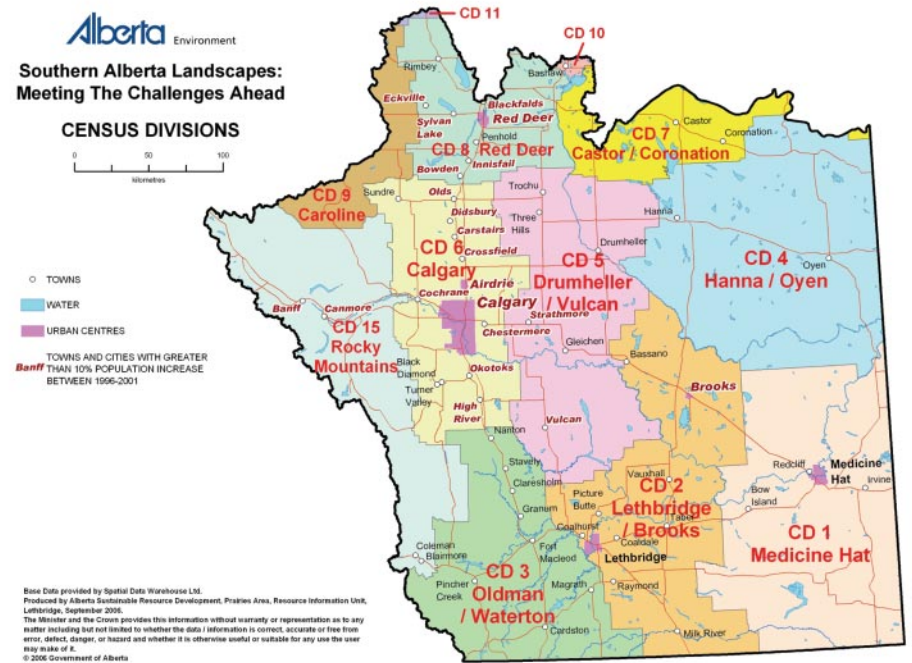


Figure 25. Census Divisions in the SAL Region

¹ Source: Statistics Canada, <http://www12.statcan.ca/english/census01/Products/Reference/dict/geo008.htm>

►► Population and Settlement

URBAN POPULATION IN THE SAL REGION²

While urban growth since 1950 has been steadily increasing, growth in the Calgary/Edmonton corridor has been particularly rapid. Table 7 shows population for each Census Division. As Table 8 shows, Calgary, Airdrie, Lethbridge, Medicine Hat and Red Deer all experienced double digit growth between 1996 and 2005. Figure 29 shows the location of the major urban centres in the SAL Region.

Table 7. Population Density in SAL Region

| Census Division# | Population, 2001 | Land Area in km ² | Population Density, Persons per km ² 2001 | |
|------------------|-------------------|------------------------------|--|------|
| 6 | Calgary | 1,021,060 | 12,642 | 80.8 |
| 8 | Red Deer* | 153,049 | 9,908 | 15.4 |
| 2 | Lethbridge/Brooks | 133,913 | 17,655 | 7.6 |
| 1 | Medicine Hat | 67,402 | 20,516 | 3.3 |
| 5 | Drumheller/Vulcan | 47,606 | 16,775 | 2.8 |
| 3 | Oldman/Waterton | 37,580 | 13,866 | 2.7 |
| 7 | Castor* | 40,407 | 19,204 | 2.1 |
| 15 | Rocky Mountains* | 34,068 | 28,400 | 1.2 |
| 9 | Caroline* | 19,573 | 18,921 | 1.0 |
| 4 | Hanna/Oyen | 11,300 | 21,466 | 0.5 |

CDs 10 and 11 are not listed, as they contain a negligible portion of the regional population.
* Populations and land areas are for entire Census Divisions, although those CDs with an asterisk (*) are only partially within the SAL area.

Table 8. Population Growth of Major Urban Centres

| City | Population in 2005 | Population in 1996 | Percent change | Land area km ² |
|--------------|--------------------|--------------------|----------------|---------------------------|
| Calgary | 956,078 | 768,082 | +24.5 | 701.79 |
| Airdrie | 27,069 | 15,946 | +69.8 | 21.48 |
| Lethbridge | 77,202 | 63,053 | +22.4 | 121.83 |
| Medicine Hat | 56,048 | 46,783 | +19.8 | 111.99 |
| Red Deer | 79,082 | 60,080 | +31.6 | 60.90 |
| Total | 1,195,479 | 953,944 | +25.3 | 1,023.99 |

² Source: Statistics Canada, <http://www12.statcan.ca/english/profil01/PlaceSearchForm1.cfm> and Alberta Municipal Affairs, Municipal Services Branch Official Population List, <http://www.municipalaffairs.gov.ab.ca/ms/pdf/2005pop.pdf>

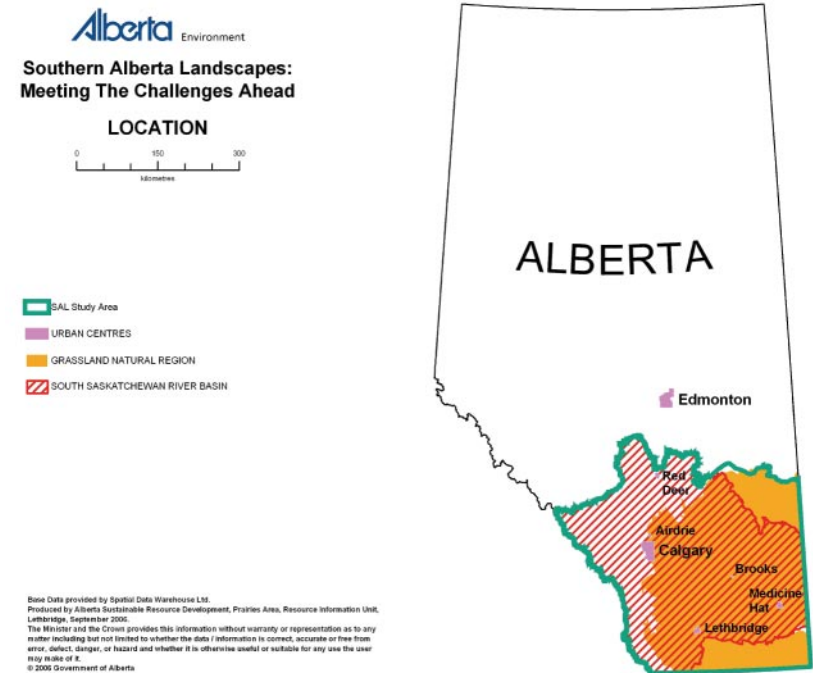
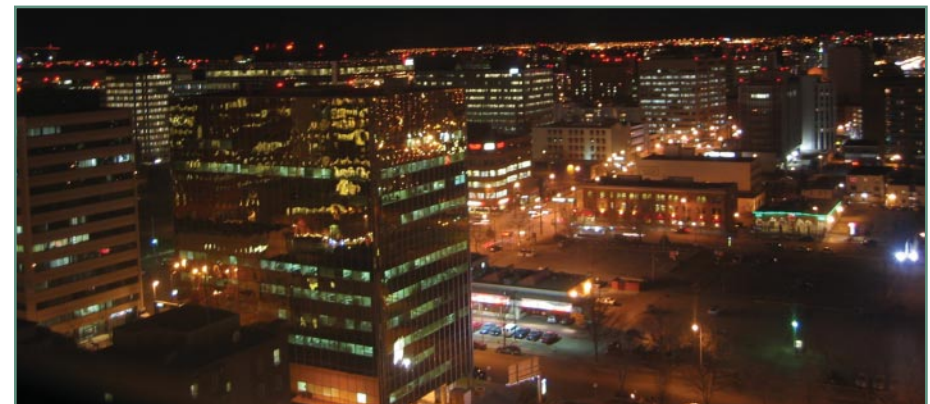


Figure 26. Location of major cities in the SAL region



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CITY OF CALGARY

Calgary is a growing city adjacent to the lower foothills of the Rocky Mountains. The city itself covers 702 km². Average precipitation is 43 cm/year, and the city and surrounding region support a variety of vegetation and habitat types.

With a population of more than 1 million people, Calgary is the fifth largest city in Canada. Average annual increases from 1997-2001 have been approximately 17,000 persons. This is due to a diverse economic base and resulting demand for a working population, coupled by high demands within the oil and gas sector.

LAND USE AND AVAILABILITY

According to the 2002 Parcel Land Base:³

- 25.07% of the land is in residential development
- 4.73% is in industrial development
- 2.39% is commercial, and
- 22.70% of the land is agricultural or unused space

The largest increase in land area has been for residential development, with a high rate of development in new communities and in “bedroom communities” outside the city. More than 30,000 people live outside Calgary, but work in the city. Figure 27 shows how the footprint of the major cities has grown from 1926 to 2000. In its use of resources, Calgary has more than five times the average global carrying capacity of 1.8 hectares per person. However, the city is ranked first of 215 cities worldwide in dealing with air pollution, waste disposal and sewage system efficiency.⁴

Land use in the city is mainly residential and commercial, with a relatively small industrial base concentrated mostly in the east sector of the city. There are 29 major parks in the city and there has been a steady increase in open space per capita from 1993. As of 2001, there were 85 km² of parks and open space. Developers are required by the city to have a set percentage of open park space in new subdivisions.



Footprints of Cities (from airphotos)

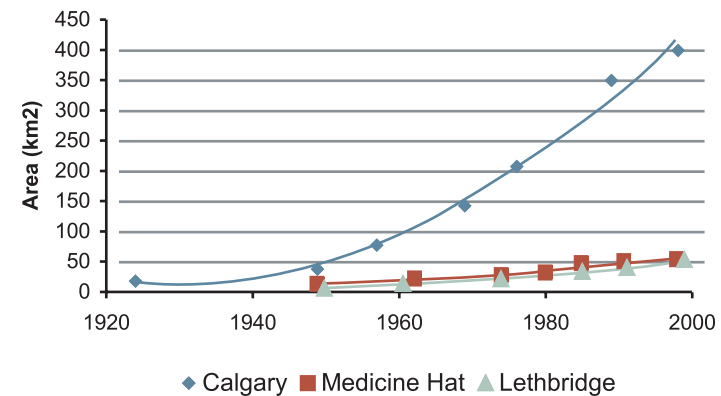


Figure 27. Human Footprint of Major Cities in SAL Region

³ Source: The City of Calgary State of the Environment Report 2002 (2nd Edition)

⁴ Source: The City of Calgary State of the Environment Report 2002 (2nd Edition)

►► Population and Settlement

THE FOUR CITIES: Airdrie, Lethbridge, Medicine Hat and Red Deer

Table 9 summarizes the land use and urban development characteristics of the Four Cities.

Table 9. Land Use and Urban Development in the Four Cities

| City | Land Use |
|---------------------|---|
| Airdrie | <ul style="list-style-type: none"> • In 1986, Airdrie's land area was 21 km². That has increased by 50% to 31 km². • 67% of the city's land base is in residential, commercial and industrial land uses (1,249 ha). • 58% (721 ha) of the developed land area is designated for residential use, and 42% (520 ha) is designated for commercial and industrial use. • The remaining 33% of the total land base is designated for Parks and Transportation. |
| Lethbridge | <ul style="list-style-type: none"> • Before 1970, all development in the City of Lethbridge was east of the Oldman River. In the late 1960s it was decided that the new University of Lethbridge would be built west of the river, and that West Lethbridge should be the city's next major residential growth area. Residential development in West Lethbridge started in 1974 and today some 23,000 people (almost one-third of the City's population) live in West Lethbridge. • The City annexed 57 km² of land in 1984, almost doubling its area. Land was annexed in Southeast Lethbridge and on the north and west sides. In 2001, the land area was 122 km². • Currently about 40 hectares a year are being developed as new residential areas. • The industrial area in the Northeast corner of the city has more than 400 hectares available for future expansion. • Currently about 10 hectares a year are being developed for industrial purposes. |
| Medicine Hat | <ul style="list-style-type: none"> • Originally established along the river valley, the City of Medicine Hat spilled out of the valley, first to the south, then later (1950s and 60s) north of the river. Land area covered in 2001 was 112 km². • Major commercial and residential growth in the 1970s was concentrated in the southeast. This area remains the focus of commercial development today. • Also in the 1970s, the City expanded south of the Trans Canada Highway into South Ridge. This continues to be a significant area of residential development today. |
| Red Deer | <ul style="list-style-type: none"> • Historically, growth in Red Deer has been mostly single-family housing in new suburbs, developed by absorbing agricultural land on the City's margins. • The land area of the city in 2001 was 60.90 km². • The relocation of the CPR line and marshalling yards in the 1980s removed physical barriers to efficiency, mitigated noise impacts on residential uses, and made large land parcels available for commercial and residential infill. • The Council policy to retain office development in the Downtown has contributed to that area's sustained vibrancy. • Red Deer now encompasses 5,940 hectares of urban development. Its policy of retaining a 20-year land supply within its jurisdiction has required the second annexation process within a decade. • The residential land consumption rate is 40 hectares a year; the industrial land consumption rate is 8 hectares a year. |

►► Population and Settlement

RURAL SUBDIVISION DEVELOPMENT ON THE EASTERN SLOPES OF THE ROCKIES

The southwest corner of the SAL area constitutes a significant portion of the Crown of the Continent Ecosystem (CCE). The CCE extends from the Bob Marshall Wilderness complex in Montana to the Highwood River in Alberta, and to the Elk Valley in British Columbia, covering approximately 42,000 km². The region is one of the most ecologically intact areas on the continent. However, the human “footprint” in the CCE has expanded significantly in recent decades.

The human footprint in southwest Alberta is most predominant along the Highway 2 corridor and around urban centres. The most dramatic increases occurred between 1980 and 2002, especially around the margins of Calgary in areas such as Okotoks, Chestermere and the M.D. of Foothills, directly west of Calgary. Factors influencing this migration from the city to rural areas include the decentralization of employment, more flexible work schedules, and advances in communication technology, accompanied by perceptions of improved environmental quality and slower pace of life. Demands for recreation and amenity resources are steadily increasing, as is expansion in both renewable and non-renewable natural resource extraction.

Rural residential development has been identified as a concern along the eastern slopes of the Rocky Mountains. Throughout this region, residential developments are replacing large mountain ranches and wildlife habitat. In addition, the implementation of low-density residential development results in the loss and fragmentation of land for farming, forestry, habitat, flood control, and other natural ecosystem functions. The human footprint, particularly structures such as housing and roads, impacts wildlife movement corridors and increases the interaction between wildlife and humans. Rural residential development can also result in the spread of invasive weeds, increase point and non-point source air and water pollution, and cause landscape alterations impeding ecological processes such as water and fire. The maps in Figure 28 show the steadily increasing growth of rural subdivision development on the Eastern Slopes of the Rockies.



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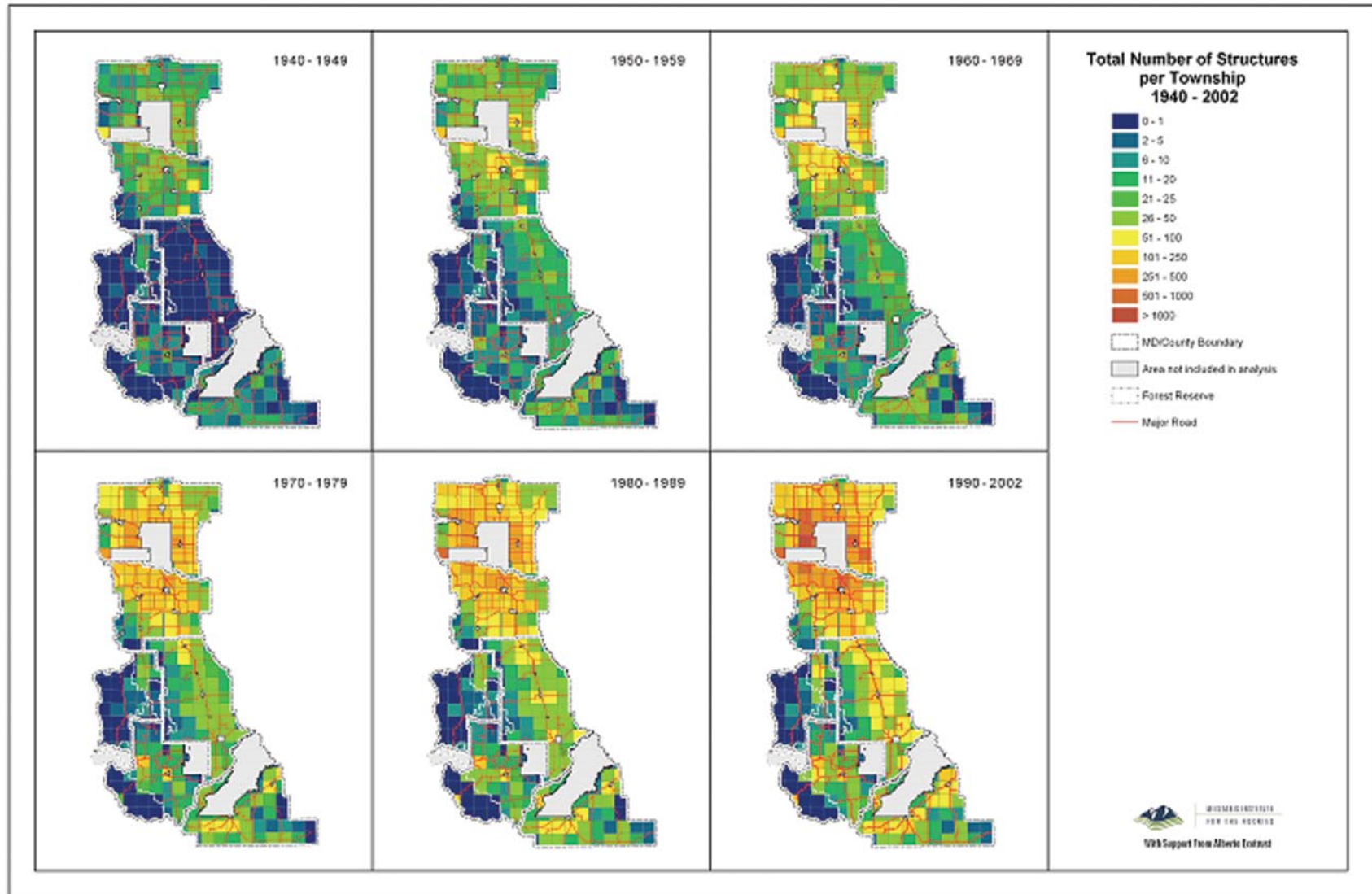


Figure 28. Rural Subdivision Development on the Eastern Slopes⁵

⁵ Map Source: Spatial Analysis of Rural Residential Expansion in Southwestern Alberta, Miistakis Institute, University of Calgary, September 2003 www.rockies.ca

►► Transportation



ALBERTA'S ROADS AND RAILWAYS

How the Township System Influenced The Location of Roads and Railways

The layout of roads in the SAL region, as seen in the Access map (Figure 29), is based on the township system used for Northwest Canada, later to be the Prairie Provinces. This astronomic system was considered to be "square with the world", featuring north-south and east-west lines that follow the lines of latitude and longitude used to locate places on the earth's surface. Starting near Winnipeg, Dominion Land Surveyors established six meridians. The Principal Meridian was followed by successive Initial Meridians (the Second, Third, Fourth, Fifth, and Sixth), each about four degrees of longitude apart. The Fourth Initial Meridian later became the Alberta - Saskatchewan boundary, and the Western Provinces were extended northward from the 49th Parallel (international boundary) to the 60th Parallel, a distance of about 1220 kilometres.

Land between the Initial Meridians was then subdivided into townships - a square tract of land about 9.7 kilometres on a side. Each township was divided again into thirty-six sections (six square miles). Each section is one mile on a side and contains 640 acres. North-south road allowances run every

mile apart; east-west road allowances are spaced at two-mile intervals. These road allowances provide public access to each quarter section. Sections are sometimes broken down into smaller units (called legal subdivisions) of 40 acres each; each section contains 16 legal subdivisions. These smaller tracts are used for smaller divisions of land bordering on rivers and lakes, Indian reserves, settlements, and oil and gas well spacing units.

The Prairies could not be settled without railways, so the Dominion government habitually granted large tracts of land to railway companies as an incentive to build lines. Odd-numbered sections were often used for railway land grants. Most notably, the Canadian Pacific Railway was granted 101,000 km² for the construction of its first line from Ontario to the Pacific. These sections are colloquially called CPR sections regardless of the railway to which they were originally granted.

Sections 11 and 29 were school sections. When school boards were formed, they gained title to these sections, which were then sold to fund the initial construction of schools. The remaining quarter sections were available as homesteads under the provisions of the Dominion Lands Act, the federal government's plan for settling the North West. A homesteader paid a \$10 fee for a quarter section of their choice. If after three years the homesteader had

►► Transportation

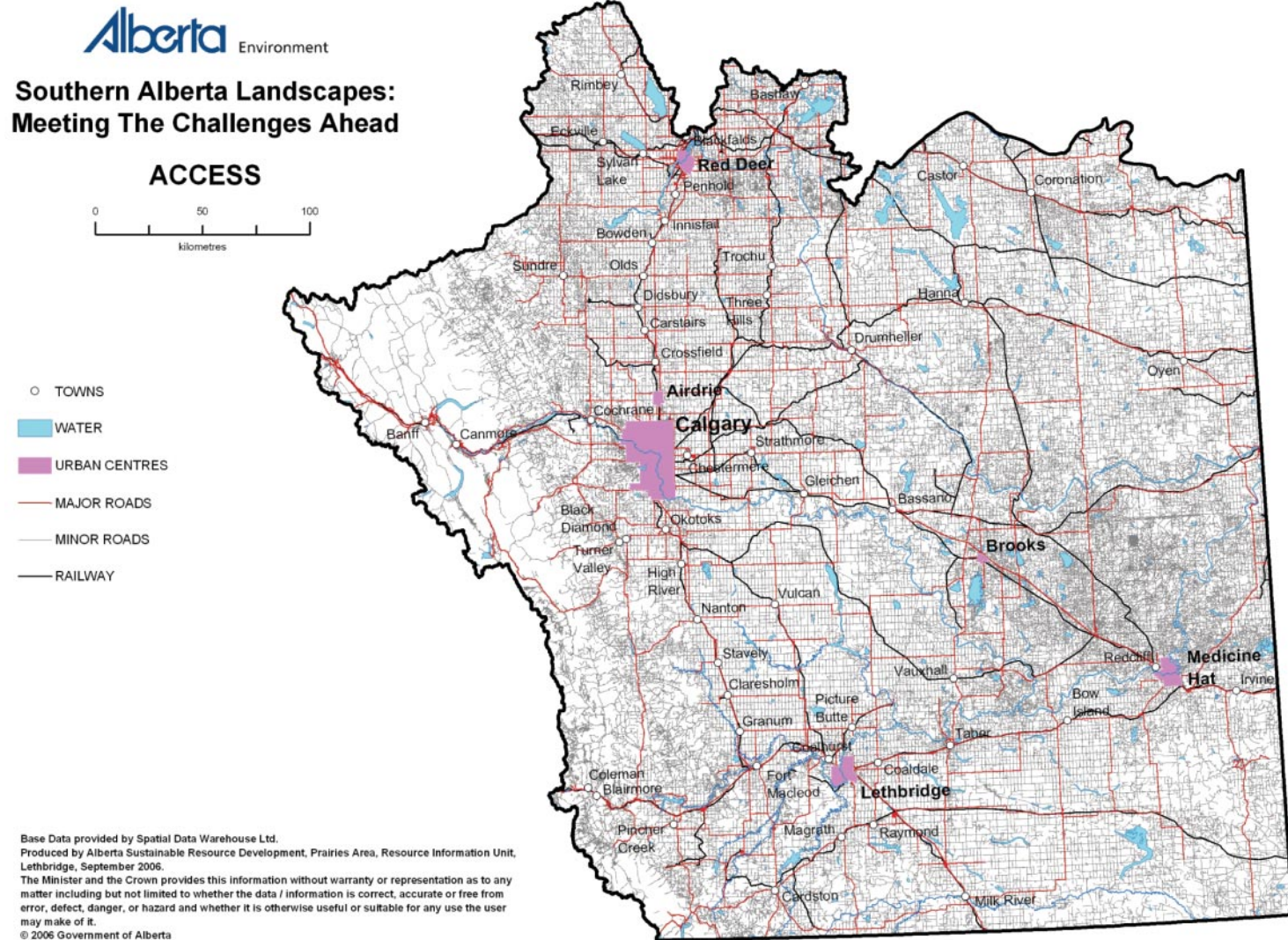


Figure 29. Transportation Access in the SAL Region

►► Transportation

cultivated 12 hectares of land (one-fifth of the quarter) and had built a house (often just a sod house), he or she gained title to the quarter. Homesteads were available as late as the 1950s, but the bulk of the settlement of the Prairies was from 1885 to 1914.¹

Current Status of Roads and Railways

The SAL region currently has more than 13,140 kilometres of major roads and about 109,600 kilometres of minor roads and trails. There are about 4,380 kilometres of railway track. Roads and rail lines are not evenly distributed in Alberta, being concentrated more in the southern half of the province.²

The majority of roadways are in the form of smaller local, or municipal, roads that provide basic land access. They link together to form a network serving the local population.

The need for transportation and the demand for energy increase with population growth and industrial development. Alberta's highway network is well established and, with ongoing maintenance and upgrading, is expected to meet most of the province's future needs.

However, new roadways may be built in the SAL region to serve future resource developments. These include:

- Increased natural gas and coalbed methane extraction,
- Growing populations along Highway 2 and on the Eastern Slopes of the Rocky Mountains, and
- Increasing numbers of tourists and tourism facilities.

In rural areas, some roads may be converted from two lanes to freeways, with interchanges and service roads. Many narrow gravel roads may also be upgraded to a higher standard. Ring roads around Calgary will likely be completed to direct regional traffic around the city.



Future plans for major provincial transportation routes that will affect the SAL area include upgrading Alberta highways in the CANAMEX corridor, to improve truck travel along the north-south corridor from Alberta to Mexico. This project includes parts of Highways 43, 16, 2, 3 and 4, between Grand Prairie and the Canada-United States border at Coutts. Scheduled upgrading and widening will eventually convert the entire corridor to four-lane standards (Alberta Transportation and Utilities 1997).

¹ Source: McKercher, Robert B., and Wolf, Bertram (1986) Understanding Western Canada's Dominion Land Survey System. Division of Extension and Community Relations, University of Saskatchewan

² Source: Alberta Environment Southern Alberta Landscapes

►► Agriculture and Irrigation

The past century has seen the growth of a dynamic agricultural industry in Alberta. Southern Alberta's predominantly grassland landscape has provided the necessary land base for both farming and ranching. In the SAL region, irrigation has provided opportunities for value-added production, though water supply will become the greatest limitation to agriculture's growth. As well, the yet unknown effects of climate change are certain to have an impact on the sector.

AGRICULTURE

HISTORICAL BACKGROUND

Most of Alberta's native prairie was transformed to farmland in the first part of the twentieth century. Cultivated land for crops increased consistently up to the 1980s.¹

In 2001, the Agricultural Profile of the SAL region included:⁵

- Approximately 25,500 farms
- 66,560 km² of farm land, and
- 6,000 km² of irrigated land.

The first significant event in Alberta's agricultural history was the Palliser Expedition of 1857, which first surveyed the southern prairies. Although Captain John Palliser declared the area unsuitable for agriculture, this did not deter the first wave of settlers, mostly U.S. ranchers, moving north from the western states.

The completion of the Canadian Pacific Railway linking Alberta to eastern Canada provided the impetus for a significant stream of immigrants to the western prairies, mainly from Europe. This peaked just prior to the outbreak of World War One. Agriculture flourished in southern Alberta during the first quarter of the 20th century for a number of reasons:

- The development and widespread adoption of Marquis wheat, an early-maturing variety better suited to the prairie climate than

- previous varieties imported from Europe;
- Diversification into livestock (dairy, hogs, poultry and cattle);
- Labour-saving mechanization of agricultural production through the use of tractors and threshing machines;
- More secure water supplies provided through early irrigation projects in southern Alberta; and
- The co-operative movement, which increased farmers' marketing and political power.²



This all changed in 1929, however, when the stock market collapse brought about a drastic decline in commodity prices. This economic disaster coincided with a prolonged period of severe drought (known as the Dirty '30's), resulting in widespread crop failure, grasshopper plagues and badly drifting soil, a problem that was exacerbated by the common practice of summer fallowing. Many family farms lost their livelihoods and were forced to abandon their land and homes.

One positive outcome of the Dirty '30's was the subsequent adoption of improved soil conservation techniques, such as reducing tillage and summer fallow practices, strip farming and shelterbelts. Demand for agricultural products increased during and after the Second World War, especially for livestock products. Spurred on by the labour shortage brought about by the war, mechanization continued through the widespread use of tractors, swathers and combines, resulting in more efficient production. To offer some protection from the dry climate and to promote intensive cropping, the government also made a significant investment in irrigation expansion in southern Alberta. In the latter half of the 20th century, technological improvements in agricultural production and the need for economic efficiency in response to declining global commodity prices have been major drivers of intensification and specialization in Alberta's agriculture industry.

¹ Source: Alberta Prairie Conservation Action Plan 2001-2005

² Source: Agriculture Sector Story, SAL

►► Agriculture and Irrigation

While the number of farms in SAL has decreased from a high of about 50,000 in 1936 to the present 25,500, with more land in production the average farm size has increased. Technological advances have been a major factor influencing these trends. Mechanized farming and modern methods, such as the use of chemical fertilizers and pesticides, have enabled fewer people to do more work and produce more per hectare than was previously possible. Economic factors also favour large-scale operations.³ However, agricultural production has become relatively more reliant on marginal land, which has climatic and physiographic limitations and is sometimes unsuitable for stable, long-term agricultural production.⁴

CROPS

A wide variety of crops are grown throughout Alberta, influenced largely by market conditions and regional growing conditions such as heat, moisture and number of frost-free days.

The four major crop categories in the SAL region are cereals, forages, pulses and oilseeds, and specialty crops.

- Cereal crops include spring- and fall-seeded wheat, malt and feed barley, oats, rye, durum, and triticale (a hybrid of wheat and rye).
- Forage crops include alfalfa, brome grass, timothy, wheatgrass, clover, tame hay and wild rye. More than 20,000 km² is also in tame pasture.
- The principal oilseed crops in Alberta are canola and flax.
- Specialty crops include field peas, mustard, lentils, dry beans, fababeans, safflower, sunflower, canaryseed, herbs and spices, sugar beets, potatoes, corn and other vegetables grown for commercial production. The term “special crops” refers to those crops not included in horticultural crops or major grains and oilseeds.

The area on which the major crop types are grown has been relatively stable since the early 1990s (Figure 32).

The most important crop types in Alberta, based on production (Figure 30), area (Figure 33) and sales, are wheat, barley, canola and tame hay.⁶

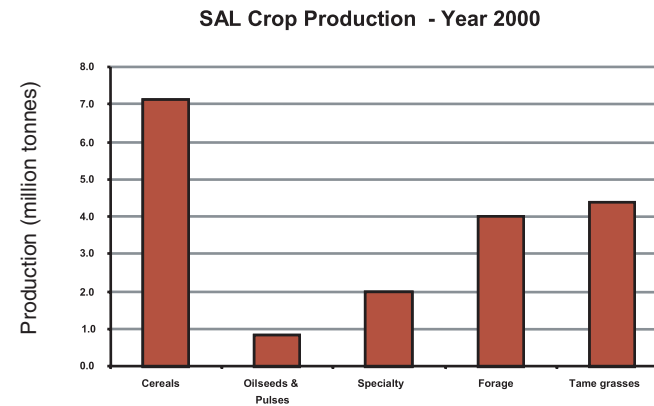


Figure 30

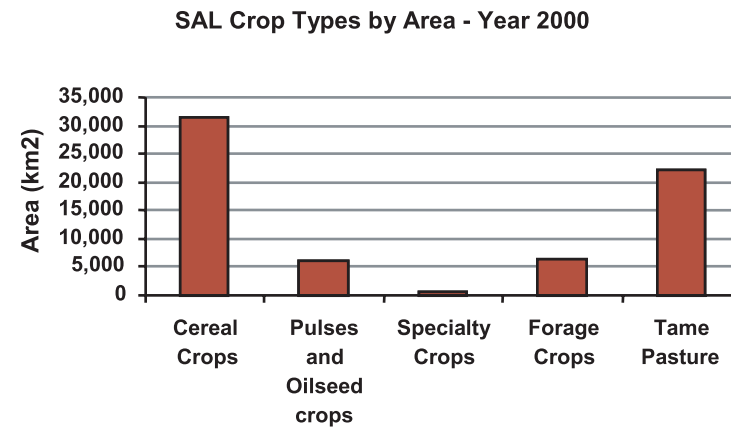


Figure 31

³ Source: Alberta's State of the Environment Report: Terrestrial Ecosystems

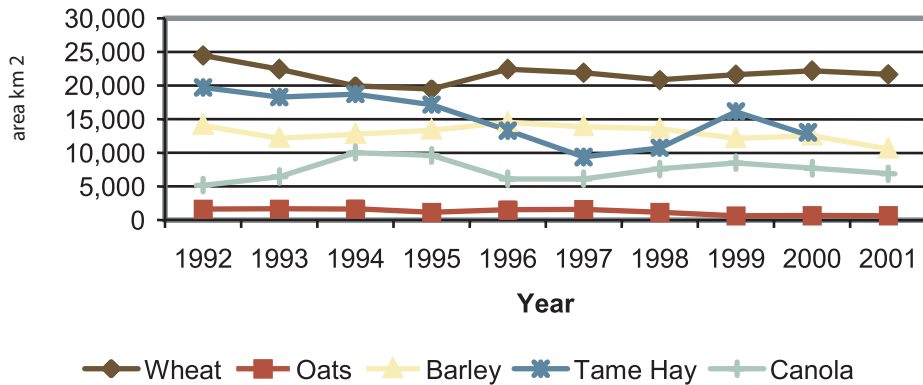
⁴ Source: Proceedings of the Fifth Prairie Conservation and Endangered Species Conference, Natural History Occasional Paper No. 24, Rural and Small Town Canada – Analysis Bulletin, Statistics Canada

⁵ Source: Alces and Malatest, SASS Project

⁶ Source: Alberta's State of the Environment Report: Terrestrial Ecosystems

►► Agriculture and Irrigation

Major Crop Types (provincial data) - SAL



100 hectares = 1 square kilometre (km²)

Figure 32. Major Crop Types - SAL

Potatoes are also a significant crop in the SAL region. Commercial potato production was established in Alberta in the 1930s. In 1937, growers produced about 14 tonnes per hectare of table potatoes on 2400 hectares of irrigated land. Current potato production on irrigated land is more than 14,000 hectares a year, and yields have more than doubled.⁷

Processing and fresh market potatoes are produced in southern Alberta under irrigation. Processing potatoes are grown on approximately 37,000 acres (150 km²), and fresh market potatoes are grown on about 3000 acres (12 km²).⁸ Approximately 65% of the crop goes to processing plants in the Taber, Lethbridge and Calgary areas.

IRRIGATION

Southern Alberta's irrigation agriculture, accounting for more than 70% of the irrigated farm acreage in Canada, is a significant economic force, adding about 35,000 jobs and nearly \$1 billion a year to the provincial economy.

Moisture is the limiting factor to crop growth in the warmer, drier, brown and dark brown soil zones of southern Alberta. Irrigated crops account for about 12% of Alberta's agricultural production, even though irrigated land constitutes only 4.5% of the total cultivated area. Irrigation greatly increases yields over what would be expected without the additional moisture. Irrigation also enables the growing of crops that could not survive on the amount of moisture available on dryland farms in Alberta.⁹



⁷ Source: Irrigation in Alberta, AAFRD, 2000

⁸ Source: Roger Holm, AAFRD, 2005

⁹ Sources: Alberta's State of the Environment Report: Terrestrial Ecosystems. Major reference for irrigation: Irrigation in Alberta, 2000

►► Agriculture and Irrigation

After Confederation in 1867, the new Canadian government was keen to encourage settlement. The search for water in this dry landscape spurred pioneering farmers to dig wells, build small dams and divert water for small-scale irrigation, beginning with Alberta's first irrigation project near Calgary in 1879. As such diversions multiplied, the federal government passed the Northwest Irrigation Act of 1894, which set two important precedents: government ownership of and control over water resources, and allocation of water licenses on a first-in-time, first-in right basis.

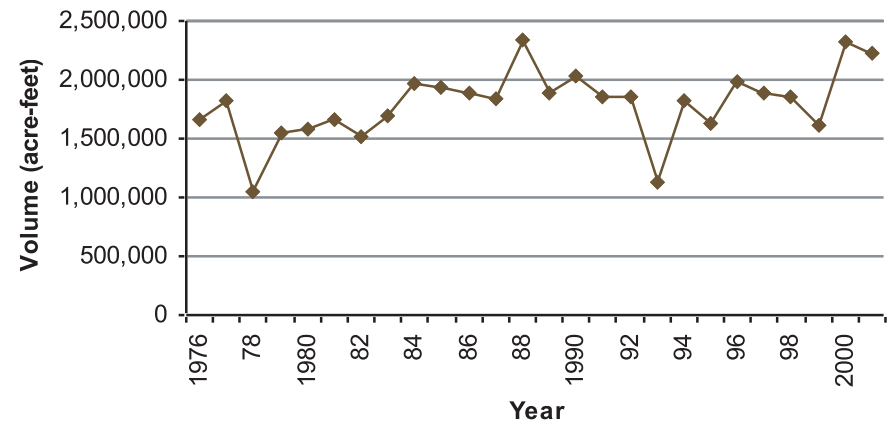


The first large-scale irrigation systems were corporate investments, beginning with a 1900 canal project southwest of Lethbridge, followed by CPR diversions downstream of Calgary that brought water to 240,000 hectares of land. In 1914, the Alberta government passed the Irrigation Districts Act, allowing landowners to organize themselves into local cooperatives for building and managing large irrigation projects. This concept of farmer-owned irrigation districts was unique to Alberta and eventually led to the formation of 13 such districts, all in the SAL region (see Figure 36).

The Great Depression of the 1930s reinforced the need for continued irrigation funding from both levels of government. Water storage and delivery systems were constructed and later rebuilt and expanded, using more modern technologies as the infrastructure aged. Subsequent investments by the province allowed irrigation acreage to increase by 50% between 1970 and 1980. The trend to expansion continued with the construction of a large dam and reservoir on the Oldman River in the early 1990s. Rapid expansion was aided by centre pivot sprinklers, allowing larger farm areas to be watered with less labour, and by infrastructure repairs that reduced evaporation and seepage losses.¹⁰

Figure 34 shows the actual volume of water diverted to irrigation districts from 1976 to 2000. Variations are due to changes in weather, changes in crop types and markets, and improvements to on-farm and system irrigation technologies mentioned above.

Actual Volume of Water Diverted to Irrigation Districts



1 acre-foot = 1.2335 cubic decametres (dam³)

Figure 34. Actual Volume of Water Diverted to Irrigation Districts

¹⁰ Source: 1996 Alberta State of the Environment Report: Aquatic Ecosystems

►► Agriculture and Irrigation

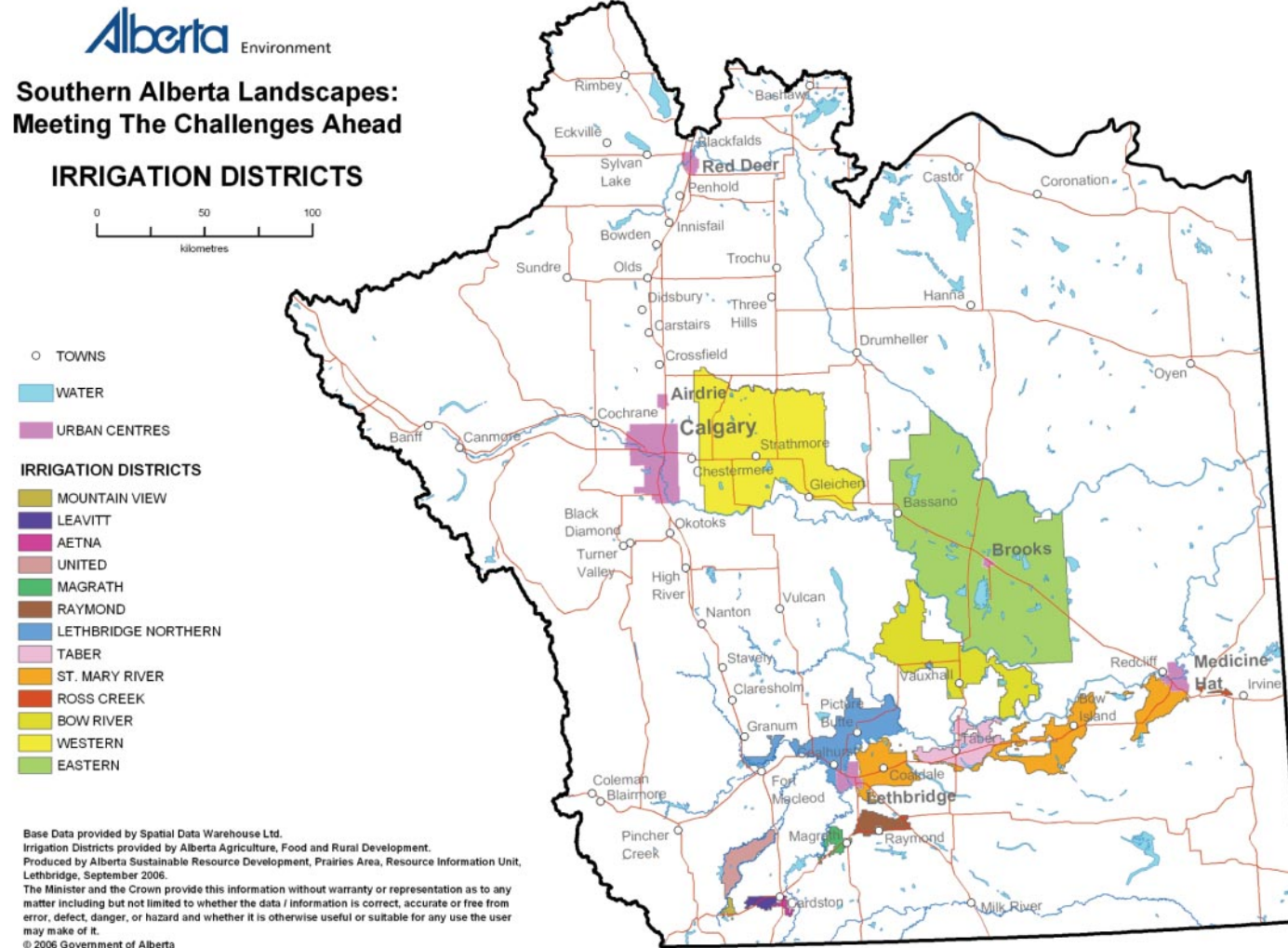


Figure 36. Alberta's Irrigation Districts

►► Agriculture and Irrigation

Table 10. Alberta's Irrigation System

| | Length of Distribution System | Hectares Under Irrigation |
|---|-------------------------------|-------------------------------|
| IRRIGATION DISTRICTS | | |
| Aetna ID | 27 km | 781 ha |
| Bow River ID | 1,058 km | 80,209 ha |
| Eastern ID | 1,784 km | 111,267 ha |
| Leavitt ID | 56 km | 1,862 ha |
| Lethbridge Northern ID | 650 km | 49,526 ha |
| Magrath ID | 106 km | 4,528 ha |
| Mountain View ID | 35 km | 426 ha |
| Raymond ID | 247 km | 13,055 ha |
| Ross Creek ID | 20 km | 427 ha |
| St. Mary River ID | 1,719 km | 138,712 ha |
| Taber ID | 364 km | 31,110 ha |
| United ID | 227 km | 6,992 ha |
| Western ID | 1,077 km | 27,375 ha |
| Private Licenses (2,700) | --- | 112,435 ha |
| Total length of system | 7,370 km | 578,705 ha |
| Total land assessed for irrigation | | (5,787 km²) |

Currently, the 13 irrigation districts in the South Saskatchewan River Basin serve approximately 5,200 km² of land in southern Alberta (Table 10).¹¹

Storage reservoirs and canal systems throughout the basin carry water to dozens of communities and thousands of farmsteads for domestic use and irrigation. Irrigation for these lands comes almost exclusively from surface waters.¹²

In addition to the 13 irrigation districts in the SSRB, private irrigation projects have been authorized to use Alberta's water resources. The largest private license in the province is the Blood Tribe Agricultural Project, which obtains water from the Waterton, Belly and St. Mary Rivers.

Considering the increases in primary production due to irrigation and the spin-offs in agri-food processing, this level of irrigation contributes about \$832 million or 18.4% to the agri-food gross domestic product for Alberta. In addition, the irrigation infrastructure provides significant non-irrigation benefits related to municipal and industrial water supplies, recreation, tourism, and wildlife.



¹¹ Source: Irrigation in Alberta, AAFRD, 2000

¹² Source: Alberta Irrigated Projects Association, South Saskatchewan River Basin: Irrigation in the 21st Century, 2002, http://www.aipa.org/Adobe_Files/21st_Century_Vol_01_ToC.pdf

►► Agriculture and Irrigation

CROPS GROWN AND IRRIGATED IN THE SAL REGION

Though irrigation is important to crop production in the SAL region, only 6500 km², or 9.74% of a total of 66,730 km² of cropland are irrigated (Figures 35 and 36).¹³

- Cereal crops occupy 31,543 km² of the SAL region; 2,175 km² (6.9%) is irrigated.
- Pulses and oilseed crops occupy 5,954 km²; 317 km² (5.3%) is irrigated.
- Specialty crops occupy only 585 km² but 538 km² (92%) is irrigated.
- Many forage crops are also grown on irrigated land; 6,490 km² are planted, of which 2,750 km² (42.4%) are irrigated.
- Tame pasture occupies 22,156 km²; 712 km² (3.2%) is irrigated.

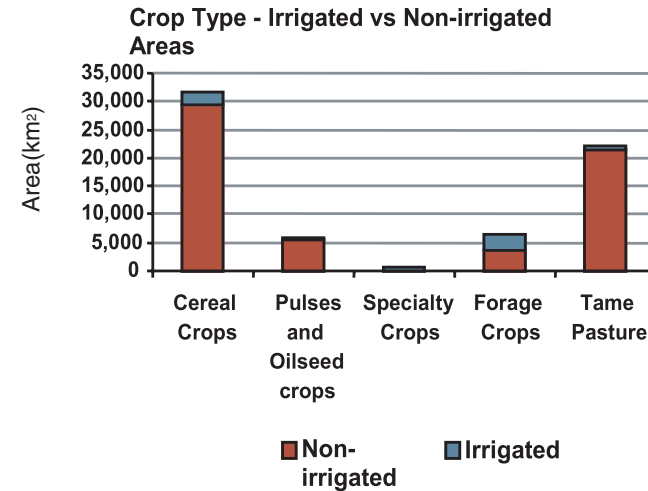


Figure 35. SAL Crop Type – Irrigated & Non-Irrigated

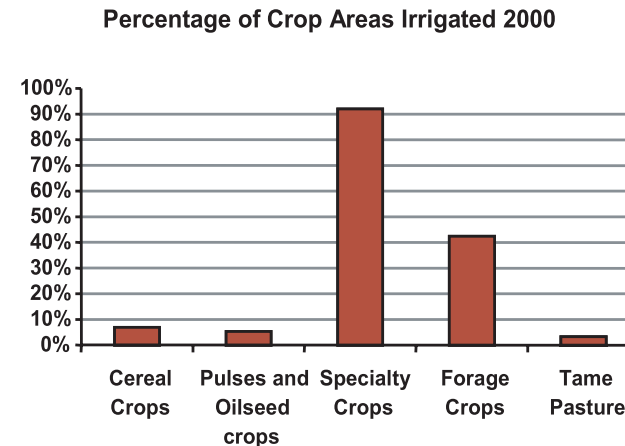


Figure 36. SAL Percentage of Crop Areas Irrigated

¹³ Source: SAL Technical Team, Irrigation, 2005